

# CASE

CONSTRUCTION

## HOT WATER WASHER



### User Manual

85.610.523

**Introduction & Product Info**

3 Introduction & Product Specifications

**Important Safety Warnings**

4 Important Safety Warnings & Symbols

**Getting to Know Your Washer**

7 Product Features & Components Diagram

**Before Starting The Unit**

8 Pre-Operation Safety & Inspection Procedures

**Quick-Connect Nozzle Review**

9 Spray Tip Overview & Applications

**Connecting To Water Supply**

10 Water Supply & Pump Cooling

**Start-Up & Operation**

11 Start-Up Procedure Preparation

12 Starting The Unit

**Hot Water Operation & Detergent Usage**

13 Hot Water Operation & Detergent Use

**Shutting Down & Storage**

14 Shutting the Unit Down & Storing It

**Maintenance**

15 Specific Maintenance

16 Maintenance Schedule

**Troubleshooting**

17-19 Troubleshooting Table

**Unit Breakdowns**

20 Unit Breakdown

21 Reference List

22 Frame Breakdown

23 Reference List

**Burner Breakdown**

24 Burner Breakdown & Parts List

25 Burner Wiring Diagrams

**Pump Breakdowns**

26 General EZ4040 Breakdown

27 AR RSV4040 Breakdown



**ATTENTION:** Read through the complete manual prior to the initial use of your pressure washer.

### Using the Operator’s Manual

Thank you for purchasing our hot water pressure washer! This operating manual is an important part of the unit. It should be read thoroughly before initial use, and referred to often to make sure adequate safety and service concerns are being addressed.

Reading the owner’s manual thoroughly will help avoid any personal injury or damage to your pump, engine, and other components. By knowing how best to operate this machine you will be better positioned to show others who may also operate the unit.

You can refer back to the manual at any time to help troubleshoot any specific operating functions, so store it with the machine at all times.

### Record Identification Numbers

If you need to contact an Authorized Dealer or Customer Service line **(1-866-850-6662)** for information on servicing, always provide the product model and identification numbers.

You will need to locate the model and serial number for the pump and record the information in the spaces provided below.

<b>Date of Purchase:</b>
<b>Dealer Name:</b>
<b>Dealer Phone:</b>

PRODUCT IDENTIFICATION NUMBERS	
<b>Model Number:</b>	
<b>Serial Number:</b>	

### PRODUCT SPECIFICATIONS

MODEL	GPM	PSI	CC'S	ENGINE	BTU/HR	PUMP MODEL	DRIVE	BURNER FUEL CONS.	UNIT DIMENTIONS	SHIPPING DIMENSIONS	SHIP WT (LBS)
CC4013HGHG	4	4000	389	HONDA GX390	330,000	GENERAL PUMP EZ4040	DIRECT	2.21 GPH	47" L X 31" W X 50" H	52" L X 36" W X 55" H	530









MODEL	GPM	PSI	CC'S	ENGINE	BTU/HR	PUMP MODEL	DRIVE	BURNER FUEL CONS.	UNIT DIMENTIONS	SHIPPING DIMENSIONS	SHIP WT (LBS)
CC4015RAHW	4	4000	420	POWEREASE	330,000	AR RSV 4G40	DIRECT	2.21 GPH	47" L X 31" W X 50" H	52" L X 36" W X 55" H	530



**This is the safety alert symbol. It is used to alert you to potential personal injury hazards. Obey all safety messages that follow this symbol to avoid possible injury or death.**

<b>DANGER</b>	This indicates a hazard which, if not avoided, will result in serious injury or death.
<b>WARNING</b>	This indicates a hazard which, if not avoided, will result in a severe injury or property damage.
<b>CAUTION</b>	This indicates a hazard which, if not avoided, might result in a minor or moderate injury.
<b>NOTICE</b>	This indicates a situation that could result in equipment damage or damage to other property. Ensure all safety messages are observed and adhered to.

### Hazard Symbols and Meanings

			
EXPLOSION	FIRE	HOT SURFACE	MOVING PARTS
			
FLYING OBJECTS	ELECTRIC SHOCK	TOXIC FUMES	INJECTION

### **DANGER**

- Always operate the pressure washer in a well-ventilated area free of flammable vapors, combustible dust, gases, or other combustible materials.
- Do not store the pressure washer near an open flame or any equipment such as a stove, furnace, water heater, etc., which utilizes a pilot light or sparking device.
- Do not use this pressure washer to spray flammable material.
- Do not smoke while filling burner fuel tank.
- Never fill the fuel tanks while the pressure washer is running or hot. Allow unit to cool for two minutes.
- Always refuel slowly to avoid the possibility of spilled fuel which may cause a risk of fire.
- Always leave room for fuel to expand in the gas tank. Do not overfill.
- Engine Fuel Tank: If using a Gasoline Engine, refuel with gasoline only. Do not use diesel or kerosene.
- Burner Fuel Tank (Black): When refueling the Burner Fuel Tank, use No. 1 or No. 2 fuel oil/diesel or kerosene. Do not use gasoline.
- Do not operate the unit if gasoline or diesel fuel is spilled. Wipe the pressure washer clean and move it away from the spill. Avoid creating any ignition until the gasoline or diesel fuel has evaporated.
- When the battery is being activated, hydrogen and oxygen gases in the battery are extremely explosive. Keep open sparks and flames away from the battery at all times, especially when charging.
- Be certain to disconnect the battery ground terminal before servicing. When disconnecting the cable from the battery, start with the negative terminal. When connecting them, start with the positive cable.
- When charging the battery, remove the battery vent plugs.
- Use only a voltmeter or hydrometer to check a battery charge.
- DO NOT jump start the battery unless both batteries are of equal voltage and amperage.

# IMPORTANT SAFETY WARNINGS



## WARNING



Serious injury or death may occur from a fire caused by a muffler spark.

Serious injury or death may occur if system safety's are not properly maintained.

- A spark arrester must be added to the muffler of this engine when using on land covered with any flammable agricultural crop (hay and grain), and if they are used in or near brush or forested areas. The arrester must be maintained in effective working order by the operator of the equipment. In the state of California, the above is required by law. (Section 4442 and 4443 of the California Public Resources Code.) Other states/provinces may have similar laws. Federal laws apply on Federal lands.
- This pressure washer has a Safety Relief Valve . This should never be altered, modified, removed or made inoperative. If the device fails, replace immediately with genuine manufacturer replacement part.

## WARNING



Serious injury or death may occur from inhaling engine/burner exhaust or dangerous vapors. The engine exhaust from this product contains chemicals known to the State of California to cause cancer, birth defects, or other reproductive harm.

- Never operate this pressure washer in an enclosed area. Always ensure there is adequate ventilation (fresh outside air) for breathing and combustion. This will prevent the buildup of dangerous carbon monoxide gases. Beware of poorly ventilated areas, or areas with exhaust fans which can cause poor air exchange. This unit should only be used outdoors to ensure ventilation is never an issue.
- Follow all safety instructions provided with the materials you are spraying. Use of a respirator may be required when working with some materials. Do not use this pressure washer to dispense hazardous detergents.

## WARNING



Serious injury or death could occur from high pressure spray penetrating the skin.

- Keep clear of nozzle and spray! Never put your hand, fingers or body directly over the spray nozzle.
- Do not direct discharge stream at self, other persons, or pets.
- This product is to be used only by trained operators.
- Always keep operating area clear of other people.
- Do not allow children to operate this unit or be in the vicinity while you operate it.
- Seek emergency medical care if spray seems to have penetrated the skin. Do not treat as a simple cut!
- High pressure hoses and fuel lines should be inspected daily for signs of wear. If evidence of failure exists, promptly replace all suspect hoses and fuel lines to prevent the possibility of injury from the high pressure spray. If a hose or fitting is leaking, do not place your hand on the leak.
- Never operate the gun with the trigger held in the open position. To prevent accidental discharge, the trigger gun should be securely locked when not in use.
- Before removing the spray nozzle or servicing the unit, always shut the unit off and pull the trigger of the gun to release trapped pressure (even after you shut off the unit, there is high pressure water left in the pump, hose and gun until you release it by pulling the trigger the gun).

## WARNING



Serious injury or death may occur from contact with electricity.

- Do not direct spray on or into electrical installations of any kind! This includes electrical outlets, light bulbs, fuse boxes, transformers, and the unit itself.
- Do not allow metal components of the pressure washer to come in contact with live electrical components.

**⚠ WARNING**



Serious injury may occur from touching the gasoline engine, muffler, or heat exchanger. These areas can remain hot for some time after the pressure washer is shutdown.

- Never allow any part of your body to contact the gasoline engine, muffler, or heat exchanger.

**⚠ WARNING**



Serious injury may occur from a pressure washer malfunction or exploding accessories if incorrect system components, attachments, or accessories are used.

Serious injury or death may occur if attempting to start the pressure washer when the pumping system is frozen.

- Never make adjustments to the factory set pressures.
- Never exceed manufacturers maximum allowable pressure rating of attachments.
- Do not allow any hoses to make contact with heat exchanger to prevent the possibility of bursting. Avoid dragging the hoses over abrasive surfaces such as cement.
- Use only manufacturer recommended repair parts for your pressure washer.
- In freezing temperatures, the unit must always be warm enough to ensure there is no ice formation in the pump. Do not start the pressure washer if it has been transported in an open or under heated vehicle without first allowing the pump to thaw.

**⚠ WARNING**



Serious injury may occur to the operator from moving parts on the pressure washer.

- Before making any adjustments, be certain the engine is turned off and the ignition cable(s) is removed from the spark plug(s). Turning the machinery over by hand during adjustment or cleaning might start the engine and machinery with it.
- Do not operate the unit without all protective covers in place.

**⚠ WARNING**



Serious injury or death may occur from detergents contacting the skin.

Serious injury can occur from loose debris being propelled at a high speed from the spray gun.

Injury may occur if the operator loses their balance caused by the thrust of water traveling through the spray nozzle.

- Never use any solvents or highly corrosive detergents or acid type cleaners with this pressure washer.
- Protective equipment such as rubber gloves and respirators are advisable, especially when using cleaning detergents.
- Keep all detergents out of the reach of children!
- Always wear protective goggles when operating the unit to shield the eyes from flying debris and detergents.
- Do not direct spray toward fragile materials such as glass.
- Stay alert: watch what you are doing. Do not operate the unit when fatigued or under the influence of alcohol or drugs.
- Never squeeze the trigger unless securely braced.
- Do not overreach or stand on unstable support.
- Wet surfaces can be slippery. Wear protective foot gear and keep good footing/balance at all times.
- Never pull the trigger of the gun while on a ladder, roof, or other unstable surface.
- Always hold on firmly to the gun/lance assembly when starting and operating the unit. Failure to do so can cause the lance to fall and whip dangerously.
- Do not leave pressurized unit unattended. Shut off the pressure washer and release trapped pressure before leaving.
- Do not operate the unit if you see any fuel, oil, or water leaking from the machine. DO NOT resume operation until the unit has been inspected and repaired by a qualified technician.
- Do not transport the unit by pulling on hoses or cords.



**Adjustable thermostat**  
up to 200°F with LED rocker switch  
and hour/tach meter



**American made**  
heavy-duty 7000 PSI rupture disc

**Heavy-duty roll-cage**  
powder coated 1.5" OD  
steel tube frame, with centre  
balanced lift hook (above  
industry standards)

**HEATING COIL**  
1/2" Heavy-duty schedule 80  
American made Carbon Steel  
Cold-rolled pipe, no weak points  
from heating to make bends

5500 PSI Rated, "Full Sized" 96'  
length for maximum heat rise and  
proper heat production

**Honda GX390 /  
Powerase Engine**  
electric start w/ 18 amp charge

Triplex direct-drive pumps carry  
a **5-year warranty**

**Adjustable** pressure  
relief valve

**12" oil drain hose** for  
ease of maintenance

**7 Gallon, removable,  
rust-proof polyethylene  
fuel tank** with fuel gauge in cap

**Brake assembly**

**Stainless steel coil skin**  
provides extra durability and resists  
corrosion

**12V DC oil-fired  
becket burner** with low  
voltage inhibitor, prevents  
burner from starting up if  
battery voltage is dropped

**Mounting bracket**  
for truck mounting

**13" heavy-duty**  
flat free tires

**3/4" HD Threaded**  
mount axle

**Marine sealed battery** box  
with 55 AH AGM deep cycle battery

### PRE-OPERATION SAFETY

1. This unit should only be placed on a level surface to ensure proper lubrication for the water pump while operating. Placing the unit on a level surface will also ensure that fuel, oil, and other fluids don't spill during operation. NEVER spray water directly on the unit.
2. Do not use unit in an area:
  - a. with insufficient ventilation.
  - b. where there is evidence of oil or fuel leaks.
  - c. where flammable gas vapors may be present.

This unit has multiple ignition sources that could cause a fire or explosion.

3. If using a wheel kit, be certain to block the wheels to prevent the unit from moving while operating.
4. Do not allow the unit to be exposed to rain, snow, or freezing temperatures. If any part of the unit becomes frozen, excessive pressure may build up in the unit which could cause it to burst. This would result in possible serious injury to the operator or bystanders.
5. Pump oil level should be checked before each use. Make certain the oil is on the "Full" mark on the dipstick or in the center of the oil sight glass. If the level appears to be low, fill with SAE30W non-detergent pump oil.
6. Your pressure washer is equipped with an Electric Starter. On initial start-up, wear proper eye and skin protection when filling the battery with acid. Fully charge the battery to allow Electric Starter to function.

### MANUAL & SAFETY REVIEW

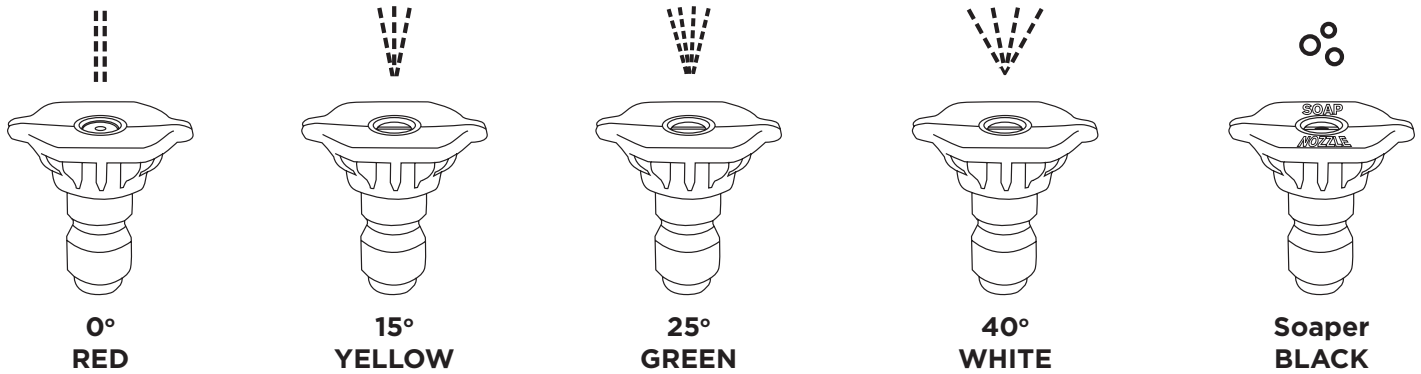
1. Review "Risk of Explosion or Fire" warnings, before fueling.
2. Locate the Safety Decals on your unit and heed their warnings.
3. Engines: See the included engine Owner's Manual for fuel requirements.  
Burner Fuel: When filling tank, use No. 1 or No 2 fuel oil/diesel or kerosene.
4. Check the engine oil level before starting the engine.
5. Review the Engine Manual accompanying this pressure washer for correct engine start-up and maintenance procedures.

### PRE-START INSPECTION PROCEDURES

Before starting the unit, perform the following procedures:

1. Check the oil level and condition for the pump and engine. We recommend **SAE 10W30** oil for engines and **SAE 30** mineral oil for pumps.
2. Inspect the water inlet strainer. Clean or replace if necessary.
3. Check all hose connections to ensure they are securely tightened.
4. Inspect for system water leaks, oil leaks and fuel leaks. **If a fuel leak is found, do not start the unit.** See "Risk of Explosion or Fire", pg. 6. Be sure that all damaged parts are replaced and mechanical problems are corrected prior to operation of the unit.
5. Inspect high pressure hoses for kinking, cuts, and leaks. **If a cut or leak is found, do not use the hose.** Replace hose before starting unit. See "Risk of Injection" pg. 5. Be sure that all damaged parts are replaced and that the mechanical problems are corrected prior to operation of the unit.



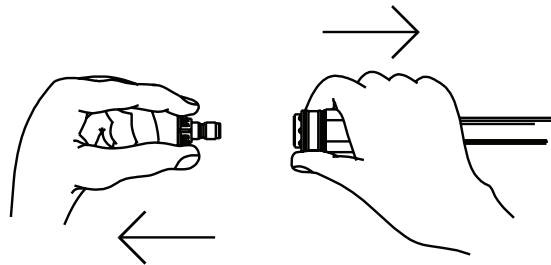


## HOW TO USE SPRAY TIPS

The quick-connect on the nozzle extension allows you to switch between five different quick-connect spray tips. Spray tips can be changed while the pressure washer is running once the spray gun trigger safety lock is engaged. The spray tips vary the spray pattern as shown above.

### FOLLOW THESE INSTRUCTIONS TO CHANGE SPRAY TIPS:

1. Pull back collar on quick-connect coupler and pull the current spray tip off. Store the spray tips in the holder provided on the handle. Storing nozzles in the designated holder will help prevent any debris from clogging the tip.



2. Select the desired spray tip:
  - For a gentle rinse, select the white 40° spray tip.
  - For light cleaning, select the green 25° spray tip.
  - For high pressure cleaning, select the yellow 15° spray tip.
  - To scour the surface, select the red 0° spray tip.
  - To apply detergent, select the black spray tip. **No other spray tip will draw soap.**
3. Pull back on collar, insert spray tip and release collar. Tug on spray tip to ensure it is securely in place.

### USAGE TIPS

- For most effective cleaning, keep spray tip 8 to 24 inches away from cleaning surface.
- If the spray tip gets too close to the surface being cleaned, especially using a high pressure spray tip (red or yellow), it may be damaged. **Do not use the red spray tip on glass.** Doing so could result in broken or cracked glass.

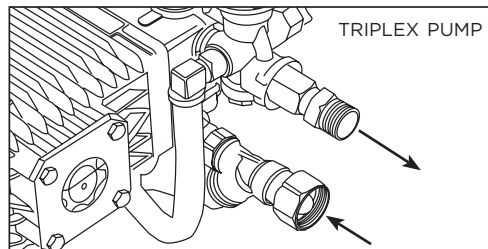
### WATER SUPPLY

1. Select a water supply hose which is a quality grade of garden hose measuring at least 3/4" ID and no longer than 50 feet.
2. Check the water inlet strainer to ensure it is clean and free of any obstructions. As a strainer becomes obstructed, it restricts the flow of water to the pump. This can result in cavitations which will prematurely cause failure of pump components.
  - a. Using a screwdriver, remove the screen from the water inlet.
  - b. Clean or replace if necessary.
3. Connect the garden hose to the inlet of your high pressure pump. Thread the connection together by hand until tight. Ensure the connection is tight at both ends (at the pump inlet and at the water supply source).
4. Follow the incoming water requirements listed below:
  - a. Water pressure must be a minimum of 20 pounds per square Inch (PSI) and a maximum of 125 PSI. (A typical outdoor faucet will generally supply this PSI if turned completely "ON".)
  - b. Incoming GPM (Gallons Per Minute) must be approximately one gallon more than the outgoing GPM stated on the pressure washer nameplate. (You can check GPM by timing how long it takes to fill a 5 gallon container).
5. **Never allow the unit to operate without the incoming water line attached and the water supply opened all the way.**

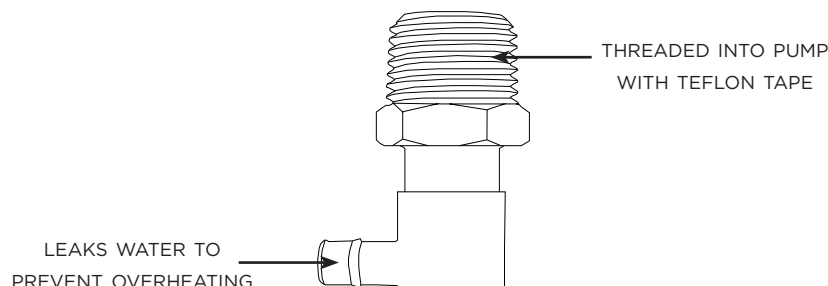
### NOTICE

- If there is a high mineral content in your water, it is highly recommended that a water softener and an additional water strainer be added to the water inlet. This will help prevent the possibility of excessive scale buildup inside the heat exchanger coil.

**Pumps are water cooled.** When the machine is running, ensure the trigger of the gun is pressed to allow a constant flow of fresh water into and out of the pump. **Do not let the machine run for more than 30 seconds without pressing down on the trigger.**



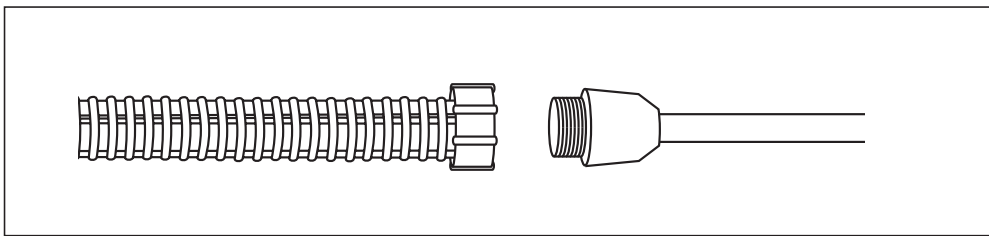
Most pumps are protected by a **thermal valve**. The thermal valve releases water if a pump starts to run too hot. It will prevent catastrophic heat failure. However, the pump may have suffered damage and need maintenance, repair, or replacement. If it does not reset and continues to leak water, the thermal valve may need to be replaced.



## START-UP AND OPERATION (COLD WATER)

To start your pressure washer for the first time, follow these instructions step-by-step. This starting information also applies if you have let the pressure washer sit idle for at least a day.

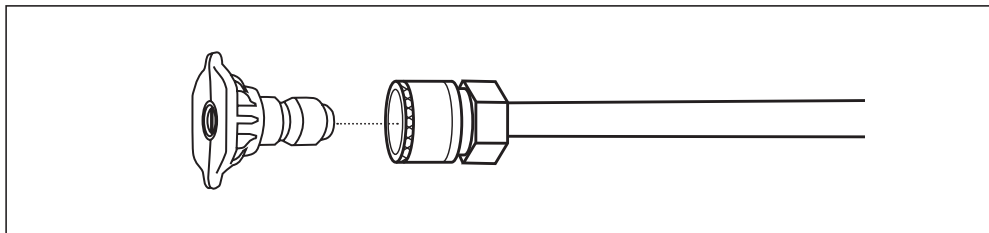
1. Make sure the unit is level and placed on solid ground. Ensure the wheels are locked so that it doesn't move during operation.
2. Connect garden hose to water inlet on pressure washer pump. To do this, thread the end of the hose into the inlet by hand until tight and secure.
3. Attach wand extension to spray gun. Tighten by hand.



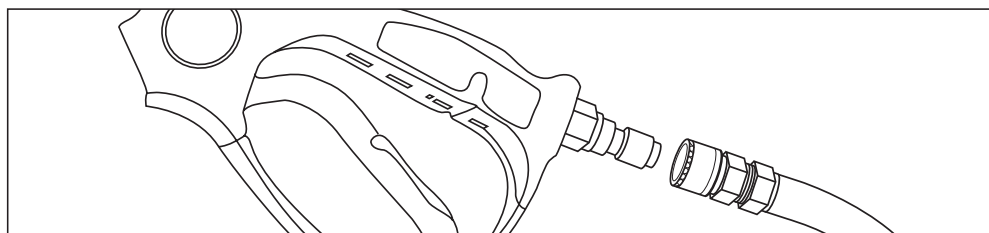
### NOTICE

DO NOT run the pump without the water supply connected and turned on. Failure to follow this rule will result in damage to the pump. **Damage caused by running the pump without water is not covered by warranty.**

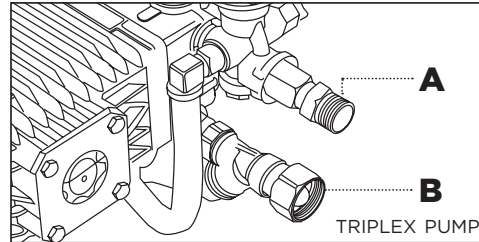
4. Choose desired spray tip, pull back nozzle extension collar, insert spray tip and release collar. Tug on spray tip to make sure it is securely in place. See **Spray Tips** on page 9 for more information.



5. Pull down on the collar of the quick-connect coupler, slide onto the gun connector and let go of collar. Pull on hose to ensure the connection is tight.



6. Attach the other end of the high pressure hose to high pressure outlet ("A" on diagram below) on pump. Pull down on collar of quick-connect, slide onto pump and let go of collar. Note that some pumps require the hose to be threaded on. Tug on the hose to ensure connection is secure.



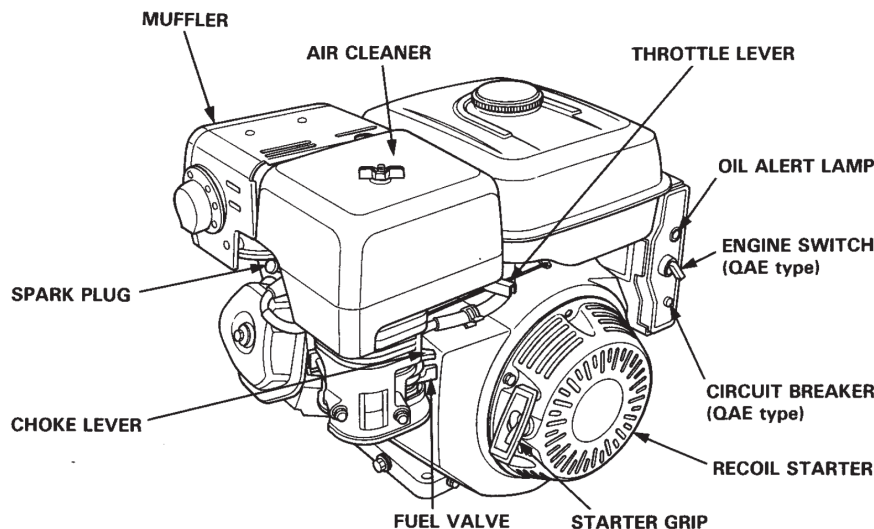
### **\*Pump Uses SAE30 Non-Detergent Mineral Oil**

7. Turn water supply on if you have not already done so. Point the gun in a safe direction and squeeze the trigger to purge the pump of air and debris. Do this until water flow is no longer erratic. Continue to hold trigger of gun down while starting the machine to ensure there is no pressure build-up.
8. Take a final look at all connections to make sure there are no leaks or loose connections. If there are any leaks in hoses, they must be replaced.

**IMPORTANT:** DO NOT siphon standing water for the water supply.

10. To start the machine, locate the electric ignition switch on the right side of the engine. Insert the key and turn it to the "ON" position until the unit starts. Do not hold the switch to the "ON" position for more than 5 seconds as this can cause damage to the engine. Check to ensure fuel valve is in the ON position and if starting cold, move the choke lever to the "CLOSED" position. Reference the component diagram below for the location of these parts.
11. If desired, the unit can also be started via the recoil starter. Ensure the fuel valve is open and the choke is applied. Then, pull on the cord until resistance is felt, and then pull the cord briskly. Return the cord to the engine by hand. Do not let it snap back against the machine. Once the unit is running, it is now operating as a cold water machine.

**Regardless of the starting method, remember to gradually move the choke lever back to the "open" position once the engine is running.**



### **\*Engine Uses SAE 10W30 Oil**

# HOT WATER OPERATION & DETERGENT

Now that the unit is running, it is operating as a cold water pressure washer.

**When you wish to switch to hot water, turn the burner switch to the “ON” position.**

## NOTICE

Upon initial start-up, water will begin heating up in approximately 20 seconds. It will reach maximum temperature within 2-1/2 minutes providing that the trigger is continuously pressed down. The burner will not fire when the trigger is released.

## ⚠ WARNING

The temperature of the water can become extremely hot during operation. Use caution when operating the spray gun.

## APPLYING DETERGENT

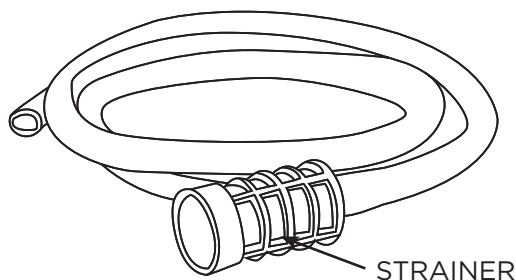
### NOTICE

This feature is designed for use with mild detergents only. Since the cleaning solution travels through the heat exchanger coil, DO NOT use corrosives as they will cause extensive damage as well as pose a considerable safety hazard.

1. Prepare detergent solution according to label directions. Never pump acids, alkaline, abrasive fluids or solvents through the unit. Due to the unknown and often corrosive characteristics of many detergents commonly used in the pressure washer cleaning industry, it is recommended to use only mild detergents with this unit.
2. Fully immerse the detergent strainer into the detergent solution.
3. To apply solution, install the black soaper nozzle to the tip of the spray gun, unlock the gun, and squeeze the trigger. After a few moments, a detergent/water mixture will exit the nozzle. Start spraying the lower portion of the surface being cleaned and move up, using long overlapping strokes. Applying from the bottom up helps avoid streaking. Allow everything to soak briefly.

Avoid working on hot surfaces or in direct sunlight to minimize the chances of the detergent drying, which may result in damaged surfaces. Be certain to rinse a small section at a time.

4. To rinse, lock the trigger gun in the “OFF” position. From here, securely place the white or green spray tip in the end of the spray gun. Unlock the trigger and spray. It will take about 30 seconds to purge all detergent from the line. For best rinsing results, start at the top and work down.
5. Siphon a gallon of water through the low pressure detergent injection system after each use. This prevents the possibility of corrosion or detergent residue causing mechanical problems during the next use.



### SHUTTING THE UNIT DOWN

1. Move the burner switch to the “OFF” position.
2. Squeeze the trigger and discharge the water for three minutes to cool the heat exchanger and high pressure hose. Insufficient cool-down periods for the high pressure hose will cause excessive wear and eventual rupture of the hose.
3. Do not close the choke to stop the engine. Backfire or engine damage may occur.
4. Move the engine key switch to the OFF position.
5. Turn off the water supply and pull the trigger of the gun to relieve trapped pressure.

Disconnect and drain the high pressure hose, gun, and lance. Wipe the unit clean and store in a non-freezing environment.

### STORAGE & WINTERIZING

When storing the unit for winter, it is important to ensure it is stored in the right environment. Ensure the storage area stays above freezing during cold weather, and try to limit the amount of dust gathered on the unit via a cover.

You will need to ensure that the fuel is drained from the engine prior to storage. For the steps required to do this, see the engine user manual.

Once the unit has been stored and the gasoline has been drained, the last thing to do is to winterize your pump. This can be done in one of two ways:

- **“Pump Saver” Solution (P/N: 85.490.046).** This is an anti-freeze solution that is used before storing the unit. It coats to inside of the pump to ensure that any residual water doesn’t freeze. To use BE Pump Saver, follow the instructions written on the bottle. Water freezing in the pump will damage seals and other internal parts. **Freezing damage is not covered by warranty.**
- **“Pump & Coil Blowout Tool” (P/N: 59.400.000).** This tool utilizes compressed air to forcefully remove any water left in the pump. One end of the tool attaches to an air compressor, while the other attaches to the inlet of your water pump via an adapter. Follow the instructions on the back of the packaging to use the Pump and Coil Blowout Tool.

#### CAUTION

Be certain the hoses and spray gun are not attached to the pump during application of pump saver or use of the blowout tool. Having a hose attached greatly reduces the amount of water/debris removed from the pump and coil.

## SPECIFIC MAINTENANCE

**ENGINE:** The engine instructions that accompany your unit detail specific procedures for maintenance of the engine. Following the engine manufacturer's recommendations will extend the engine's life and ensure the best possible performance.

**PUMP:** Change the pump oil after the first 50 hours of operation. After the initial change, every 3 months or 250 hour intervals are recommended. If oil appears dirty or milky, changes may be required in greater frequency. **Use SAE 30 non-detergent pump oil** and fill only to the center of the oil sight glass. DO NOT overfill.

**NOZZLE:** Water flow through the spray nozzle will erode the orifice over time, making it larger. This will result in a reduction of pressure. Nozzles should be replaced whenever pressure is less than 85% of the maximum. The frequency of replacement will depend upon such variables as mineral content in the water and number of hours the nozzle is used. Every 3-6 months tends to be a standard interval for replacement.

**BURNER AIR ADJUSTMENT:** The air shutter has been factory preset for proper operation between sea level and 2000 feet elevation at standard conditions (60°F ambient water and air temperatures). In colder temperatures or higher altitudes, it may be necessary to adjust the air supply to the combustion chamber. This adjustment will maximize burner efficiency and avoid inefficient operation or excessive sooting of the heat exchanger coil. A smoke spot test is recommended during any air shutter and band adjustment. If you do not have the equipment to perform a smoke spot test, follow the procedures listed below.

1. The machine must be running and the burner ON.
2. Loosen the Locking Screw (#3 at left) on the shutter.
3. Check for smoke from the heat exchanger exhaust. If smoke is not present, slowly close the Air Shutter (#1 at left) by moving the dial counterclockwise to a lower number. Continue moving the dial until smoke appears.
4. Record this setting.
5. Open Air Shutter (#1 at left) two increments. Example: If Air Shutter was set at 2, move it to 4.
6. Slowly trigger the gun on and off. This will cause the burner to turn on and off. Look for a smoke puff when the burner ignites.
7. Repeat steps 5 and 6 until you see a puff of smoke. Record the Air Shutter Setting.
8. The difference between the recorded settings in steps 4 and 7 is the combustion window. Set the dial 1/2 way between these settings.

PROCEDURE	DAILY	3 MONTHS	6 MONTHS	9 MONTHS	12 MONTHS
Check engine oil level	X				
Change engine oil*****		X	X	X	X
Check water pump oil level	X				
Change water pump oil **		X	X	X	X
Oil leak inspection	X				
Fuel leak inspection	X				
Water leak inspection	X				
Hose inspection	X				
Water inlet screen inspection	X				
Check fuel filter		X	X	X	X
Replace fuel filter			X		
Inspect belts		X	X	X	X
Replace high pressure nozzle***		X	X	X	X
Inspect fuel pump filter*					X
Replace fuel nozzle*					X
Check burner air adjustment		X	X	X	X
Check burner electrodes*					X
Test water pressure*		X	X	X	X
Test fuel pressure*		X	X	X	X
Test water temperature*		X	X	X	X
Descale coil****					X

\* Must be performed by an authorized service technician.

\*\* The pump oil must be changed after the first 50 hours of operation and then every 250 hours or 3 months, whichever comes first.

\*\*\* High pressure nozzle should be replaced whenever pressure drops to less than 85%.

\*\*\*\* Scale build-up will vary with mineral content in the water and amount of usage. Descaling can range from weekly to yearly maintenance.

\*\*\*\*\* The engine oil must be changed after the first 8 hours of operation and then every 50 hours or 3 months, whichever comes first.



# TROUBLESHOOTING



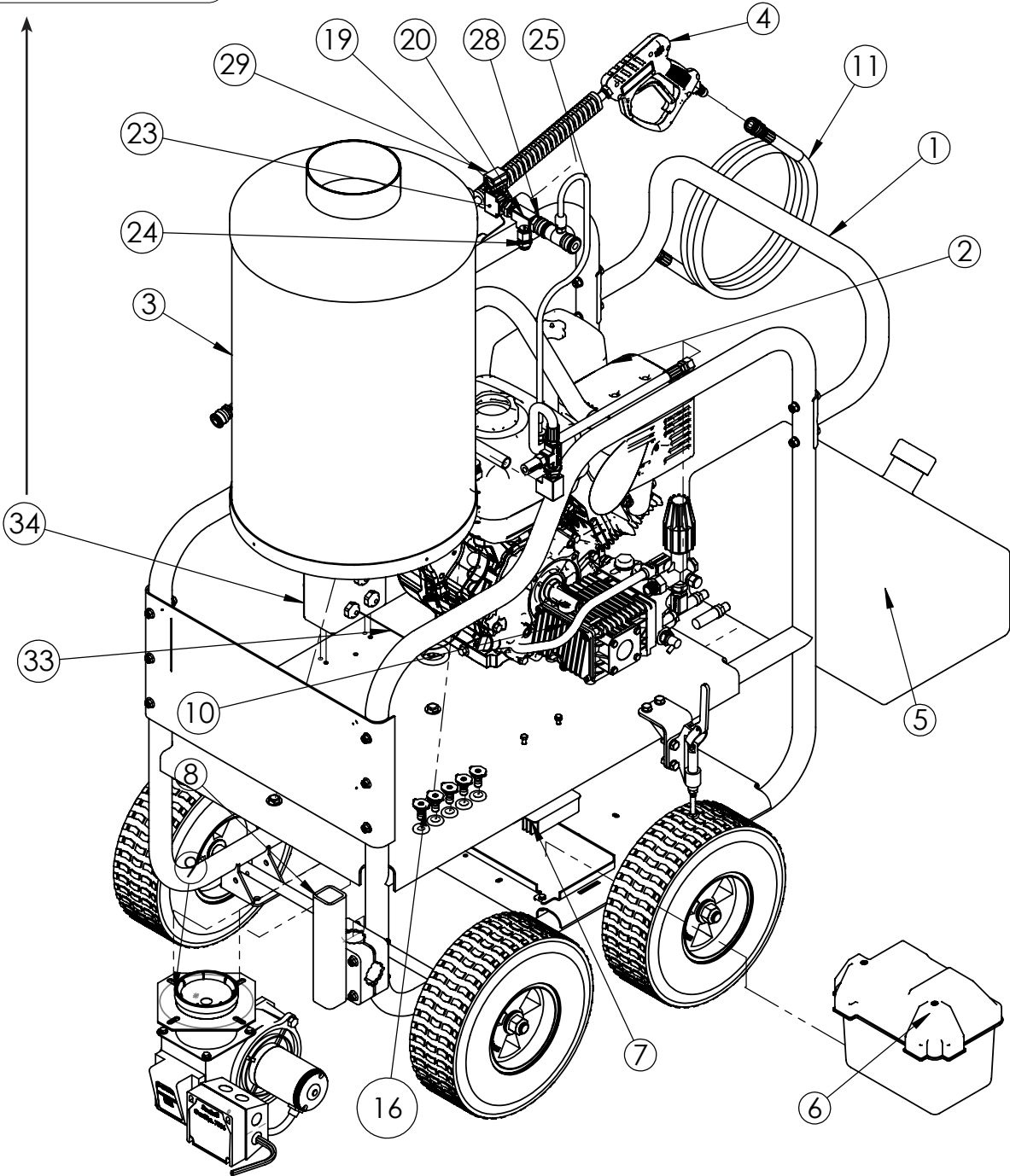
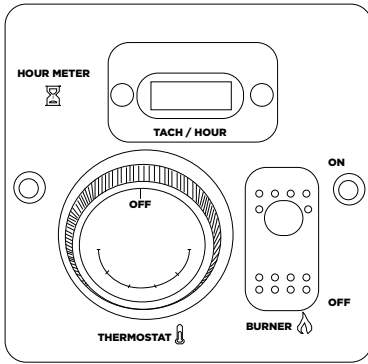
SYMPTOM	PROBABLE CAUSE	REMEDY
Engine will not start	Various engine problems	Refer to the Engine Manual accompanying your unit.
	Unit components are frozen.	Allow to thaw. If any part of the unit becomes frozen; excessive pressure may build up in the unit. This can cause the unit to burst, resulting in possible serious injury to the operator or bystanders.
No discharge at nozzle when trigger mechanism is squeezed.	Inadequate water supply.	Ensure hose is 3/4" diameter and incoming water supply is turned on. Ensure the water is turned all the way on.
Low or fluctuating pressure.	Kink in water inlet hose.	Remove kink.
	Water inlet screen obstructed.	Remove screen, clean, or replace.
	Pump sucking air. (Prime eliminated)	Tighten all water intake connections Eliminate leaks in intake line.
	Incorrect nozzle installed on gun.	Insert high pressure nozzle.
	Obstructed or worn spray nozzle.	Remove, clean or replace.
	Damaged or obstructed valve assy. on pump.	Remove, clean or replace.
	Pump packings worn.	Replace packings.
	Unloader/bypass valve not operating correctly.	Repair or replace.
Water is leaking at safety relief valve.	Unloader malfunction.	Detect and correct unloader problem.
	Pressure switch malfunction.	Detect and correct pressure switch problem.
	Safety relief valve is defective.	Replace safety relief valve. NEVER run unit without safety relief valve. Doing so can cause an explosion!
Oil appears milky or foamy.	Water in oil.	Change pump oil. Fill to proper level.
Oil leaking from unit.	Worn seals or o-rings.	Consult customer service.
Detergent will not siphon	Detergent strainer is not completely submerged in detergent solution.	Check, submerge if necessary.
	Detergent strainer obstructed.	Inspect, clean, or replace.
	Detergent hose cut, obstructed or kinked.	Inspect, clean, or replace.
	Detergent adjusting knob turned to closed position.	Open adjusting knob. Refer to "Cleaning with Detergents".
	Nozzle assembly is plugged.	Clean or replace.
Water flows back into detergent container.	Ball & spring in Venturi reversed, missing, or corroded.	Remove, clean, or replace.

Water flows from the nozzle when the trigger gun is locked in the "OFF" position	Trigger gun is malfunctioning.	Repair or replace.
Blower motor will not run. (Burner will not ignite without blower running)	Burner/Blower motor malfunction.	Repair or replace.
	Belt broken or slipping on generator.	Adjust or replace as necessary.
Blower runs, but burner will not ignite.	Switch is not in "Burner" position.	Check switch position.
	Thermostat knob is OFF.	Check thermostat knob position.
	Out of fuel.	Refuel.
	Gun trigger is closed/not pressed.	Press down on gun trigger.
	Detergent valve is open, but detergent hose is not completely submerged in solution. (This causes safety devices to shut down burner.)	Close valve, or completely submerge clear vinyl hose into detergent solution.
	Pressure switch override.	Pressure should be over 375 PSI
	No voltage.	Consult Service Department.
	Fuel pump sucking air.	Tighten all fuel intake connections. Eliminate leaks in intake line.
	Poor or improper fuel supply.	Check fuel to ensure it is correct. Drain tank and filter if necessary and refill with proper fuel.
Blower runs, but burner will not ignite.	Dirty or clogged fuel filter or fuel water separator.	Drain or replace as necessary.
	Low fuel pump pressure.	Check fuel pump pressure, adjust or replace as necessary.
	Fuel pump inoperative.	Check pressure, replace if necessary.
	Flexible coupler broken.	Replace.
	Fuel solenoid valve failure.	Replace.
	Dirty or clogged fuel nozzle.	Replace fuel nozzle.
	Improper burner air adjustment.	Adjust.
	Faulty ignition module.	Repair or replace. Consult Customer Service.
Burner runs erratically.	Ignition electrodes damaged or worn.	Adjust or replace electrodes. Consult Customer Service.
	Water in the fuel.	Drain fuel filter/water separator. Drain fuel tank, and replace with clean fuel.
	Dirty fuel filter/water separator.	Replace element.
	Dirty fuel nozzle.	Replace.
	Improper air adjustment setting.	Adjust.
	Fuel pump malfunctioning.	Replace.

# TROUBLESHOOTING



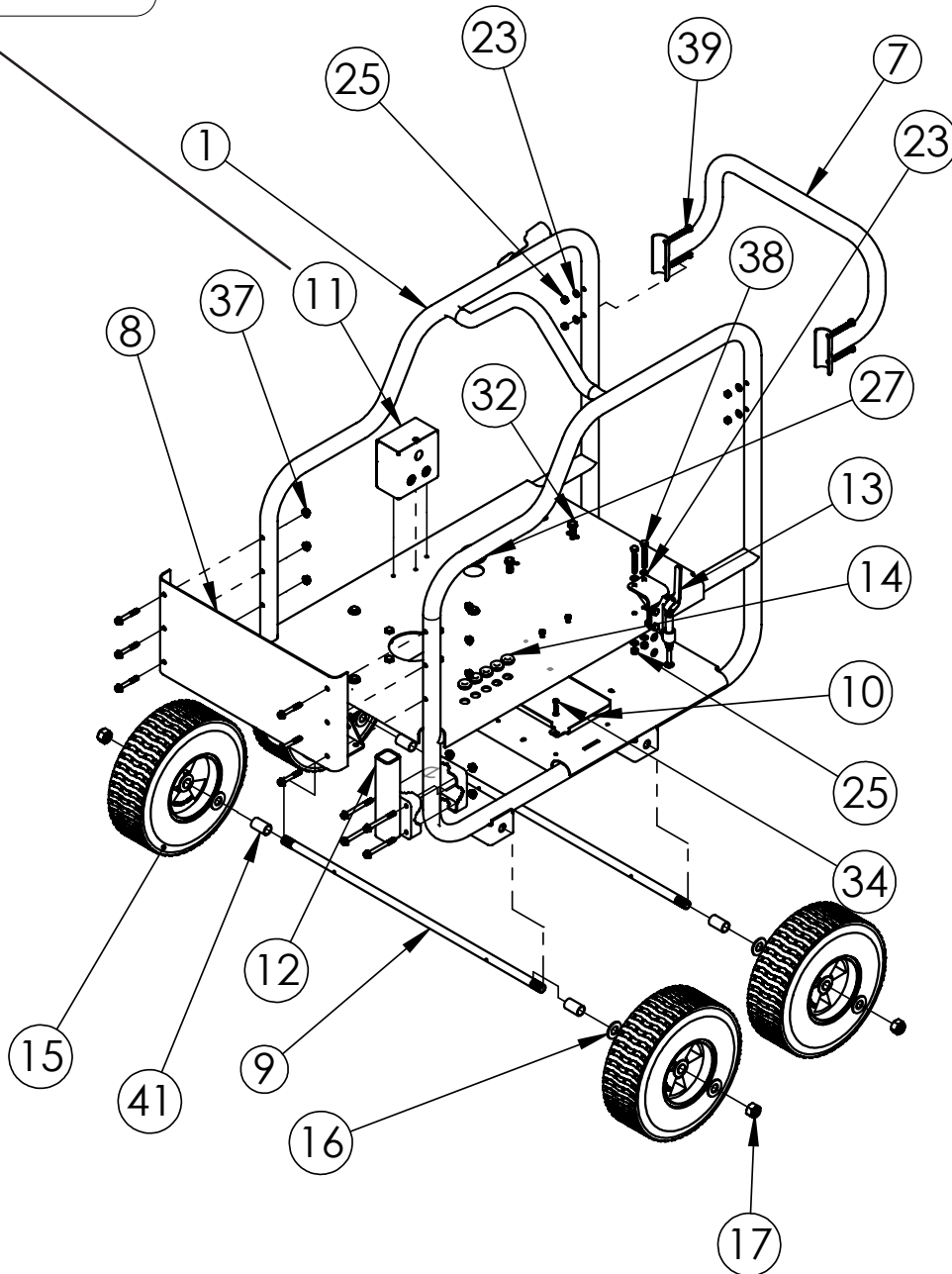
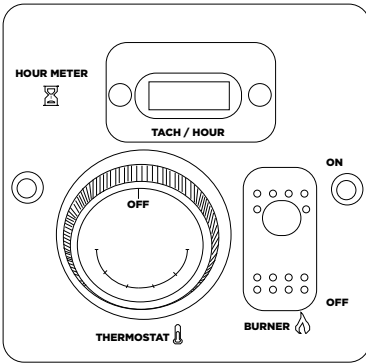
Blower runs, burner ignites but will not heat.	Thermostat knob is OFF.	Check thermostat knob position.
	Detergent valve is open, but detergent hose is not completely submerged in solution. (This causes safety devices to shut down burner.)	Close valve, or completely submerge vinyl hose into detergent solution.
	Poor or improper fuel supply.	Check fuel to ensure it is correct. Drain tank and replace filter if necessary and refill with proper fuel.
	Dirty or clogged fuel filter or fuel water separator.	Drain or replace as necessary.
	Low fuel pump pressure.	Check fuel pump pressure, adjust or replace if needed.
	Dirty or clogged fuel nozzle.	Replace fuel nozzle.
Blower runs, burner ignites but will not heat.	Improper burner air adjustment setting.	Adjust the setting.
	Scale build up in heat exchanger coil.	Consult Customer Service.
Burner discharges white smoke.	Low on fuel.	Refuel. If white smoke persists, consult Customer Service.
	Excessive air supply.	Adjust air flow.
Burner discharges black smoke.	Insufficient air supply.	Adjust to ensure air flow is sufficient.



# PARTS REFERENCE LIST



ITEM	PART NUMBER	DESCRIPTION	QTY.
1	85.600.220	Frame	1
2	N/A	Engine, 13 HP, 389cc (GX390 2QNR)	1
2	85.578.150	Engine, 420cc Powerease Engine	1
3	59.000.000	Hot Water Coil Assy, 4 GPM	1
-	59.000.117	Top Cap Coil Insulation	1
-	59.000.116	Bottom Coil Insulation	1
4	85.205.064	5000 PSI Gun & Wand Assy	1
5	85.609.039	7 Gallon Fuel Tank	1
6	85.603.003	Battery Package (Battery, Case, and Cover)	1
7	Engine Charger	18A Engine Charger (For GX390)	1
8	85.600.220-13	Hose Reel Bracket	1
9	59.000.001	Burner Assy With Fuel Pump (Beckett, ADC-12V)	1
10	85.139.021H	Triplex High Pressure Pump (EZ4040G)	1
11	85.238.251	50' High Pressure Hot Water Hose	1
12	85.704.006	Elbow, 3/8" MNPT x 3/8" FNPT - 90	2
13	85.300.055	Water Inlet Filter	1
14	85.300.024	Thermal Valve, 1/2" MNPT, 145F, 200 PSI	1
15	85.704.004	Elbow, 1/4" FNPT x 1/4" FNPT Brass	1
16	85.210.040BEP	Nozzle Set	1
17	85.202.078	3/8" Bypass Hose (36")	1
18	85.704.209	Elbow, 1/2" FNPT x 1/2" FNPT Brass	1
19	85.706.086	Nipple, 1/2" MNPT x 3/8 MNPT	2
20	85.701.006	Female Tee, 3/8" FNPT (3) Brass	2
21	85.300.042	Safety Relief Valve, 3/8" MNPT, 6000 PSI, 195F	1
22	85.238.020	3/8" Hose	1
23	85.701.008	Female Tee, 1/2" FNPT (3) Brass	1
24	Coil Pressure Relief	Pressure Relief Device for Hot Water Coil, 5000 PSI	1
25	85.400.001	Low Pressure Chemical Injector, 4000 PSI, 2.5 GPM	1
26	85.300.082	Pressure Switch, 1/4" MNPT	1
27	85.709.064	Reducer, 3/8" MNPT x 1/4" FNPT, Brass	1
28	85.300.108S	Quick-Connect Coupler, 3/8" MNPT	1
29	85.704.009	Elbow, 1/2" MNPT x 1/2" FNPT - 90 Brass	2
30	85.710.066	Hose Barb, Straight - 3/8" Barb, 3/8" MNPT	1
31	85.710.047	Hose Barb, Elbow - 3/8" Barb, 1/4" MNPT	1
32	AL607	Unloader, VRT3 4500 PSI	1
33	85.400.070	Thermostat W/ Immersed Probe	1
34	Starter Box	Starter Box (Burner ON/OFF Switch, Temp Control, Hour Meter)	1
-	806-109	Hour Meter	1
-	85.400.071	Thermostat (Temp Control)	1
-	59.000.103	Burner On/Off Switch	1



# PARTS REFERENCE LIST



ITEM	PART NUMBER	DESCRIPTION	QTY.
1	85.600.220-01	Frame Sub Assy	1
7	85.600.220-02R2	Handle	1
8	85.600.220-09	Front Decal	1
9	85.600.220-10	Axle	2
10	85.600.220-11	Battery Tray	1
11	85.600.220-12	Burner Control Box (ON/OFF Switch, Temp Control, Hour Meter)	1
-	806-109	Hour Meter	1
-	85.400.071	Thermostat (Temp Control)	1
-	59.000.103	Burner On/Off Switch	1
12	85.600.220.13.2	Hose Reel Bracket	1
13	85.604.104	Brake Assy	1
14	85.660.008	Nozzle Grommet, Black	5
15	85.660.020F	13" Flat-Free Tires	4
16	N/A	Flat Washer, M20x40 Zinc Plated	8
17	N/A	Nylock Nut, M18	4
21	N/A	M8X80 Carriage Bolt, Zinc Plated Grade 8.8	1
22	N/A	Hex Nut, M8-Plated	1
23	N/A	Flat Washer, M8X16, 2mm Zinc Plated	20
24	N/A	M8X25 - 1.5 Hexhead Bolt-Zinc Plated	4
25	N/A	Nylock Nut, M8-Zinc Plated Grade	10
27	N/A	Nozzle Gromet, Black, 1.75" Bore Diameter	1
28	N/A	Flat Washer, M10X25, 2mm	14
29	N/A	Hex Head Bolt, M10X30	8
30	N/A	M10 Nut, Serrated-Flange	12
31	N/A	Flat Washer - M10X20, 2mm Zinc Plated	4
32	N/A	M10X50, Hexhead - Grade 8.8 Zinc Plated	4
33	N/A	Flat Washer, M6X11.5, 1.7mm Zinc Plated	11
34	N/A	Bolt, M6X25 - Hex Head, Steel Plated	4
35	N/A	Nylock Nut, M6, Zinc Plated	7
36	N/A	M8X55, Flange Head, Grade 8.8 Plated	6
37	N/A	Serrated Flange M8 Nut, Locknut	10
38	N/A	Bolt, M8X60, Hex Head, Steel Plated, 8.8 Grade	2
39	N/A	Bolt, Hex Head, M8X55	4
41	N/A	Wheel Spacer	4
43	N/A	M8X80 Flange Head	4
-	KIT123	Valve Kit (Sold Separately)	1
-	RKI153	Seal Kit (HP) (Sold Separately)	1

## BURNER BREAKDOWN

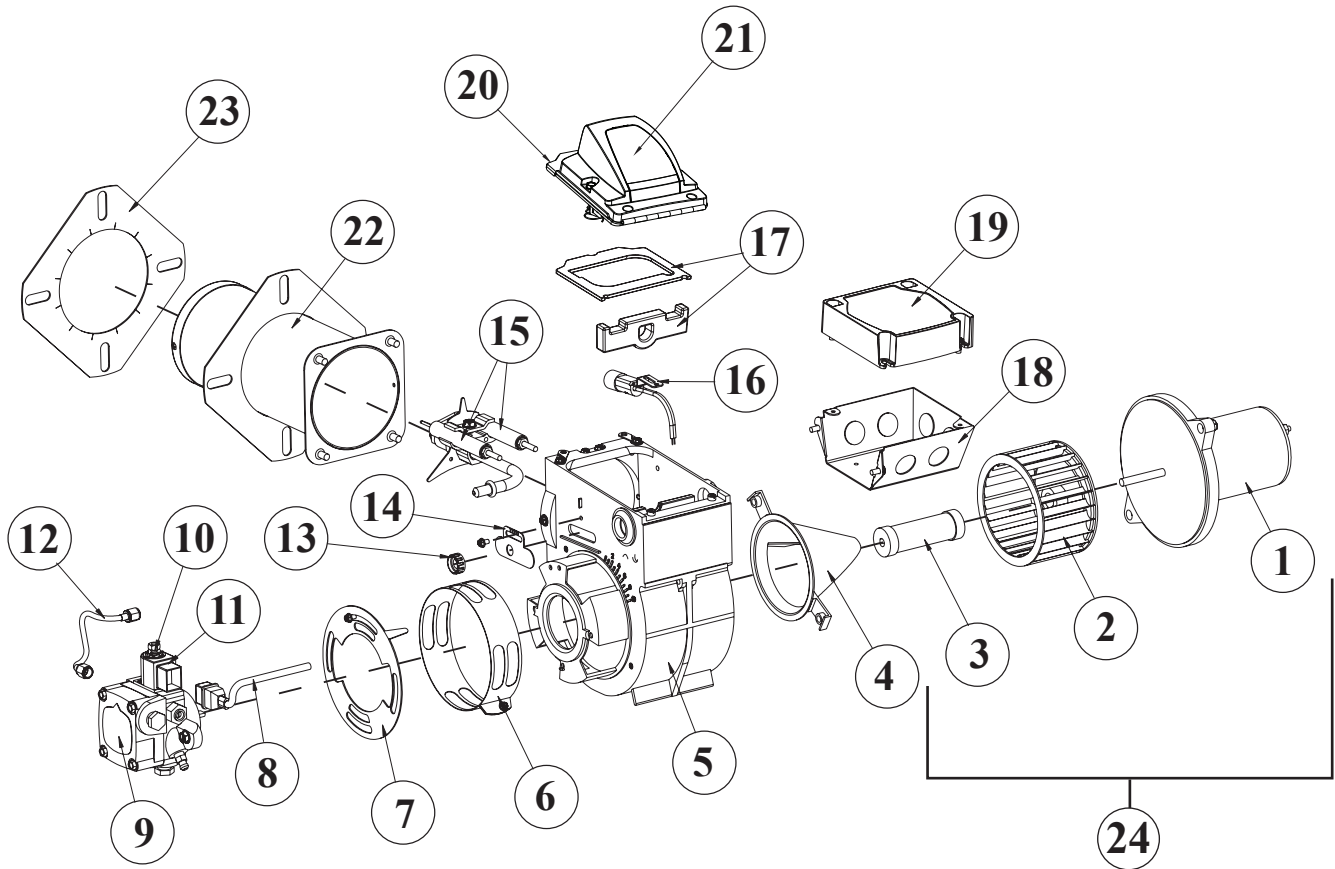


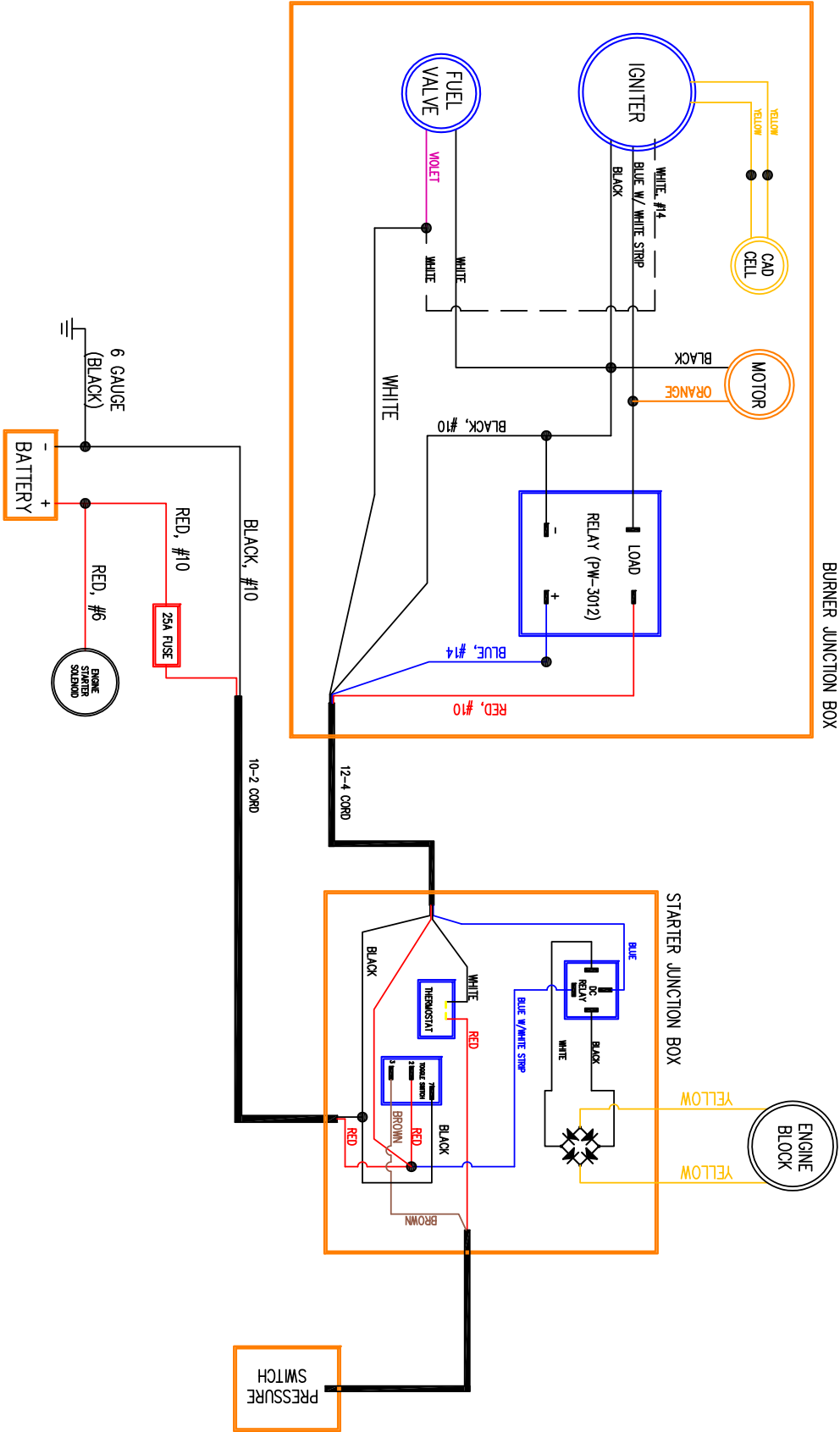
Illustration #	Description	Illustration #	Description
1	DC Motor	14	Escutcheon Plate
2	Blower Wheel	15	Electrode Kit over 3-5/8"
3	Coupling	16	Cad Cell Detector
4	Air Guide	17	Igniter Gasket Kit
5	Burner Housing - Black	18	4X4 Wiring Box Kit
6	Air Band	19	Control Kit
7	Air Shutter - 4 Slot Air Shutter - 8 Slot	20	Igniter Assy with baseplate
8	Cord set	21	Igniter only
9	Pump (CleanCut)	22	Air Tube Ass'y
10	Valve Stem	23	Flange Mounting Gasket
11	12 Volt Coil	24	Motor Kit with Blower Wheel and Coupling
12	8" Copper Tubing	Not Shown	Tune-up Kit for 30 & 35 Air Tube Lengths
13	Escutcheon Plate Spline Nut		

### Replacement Parts:

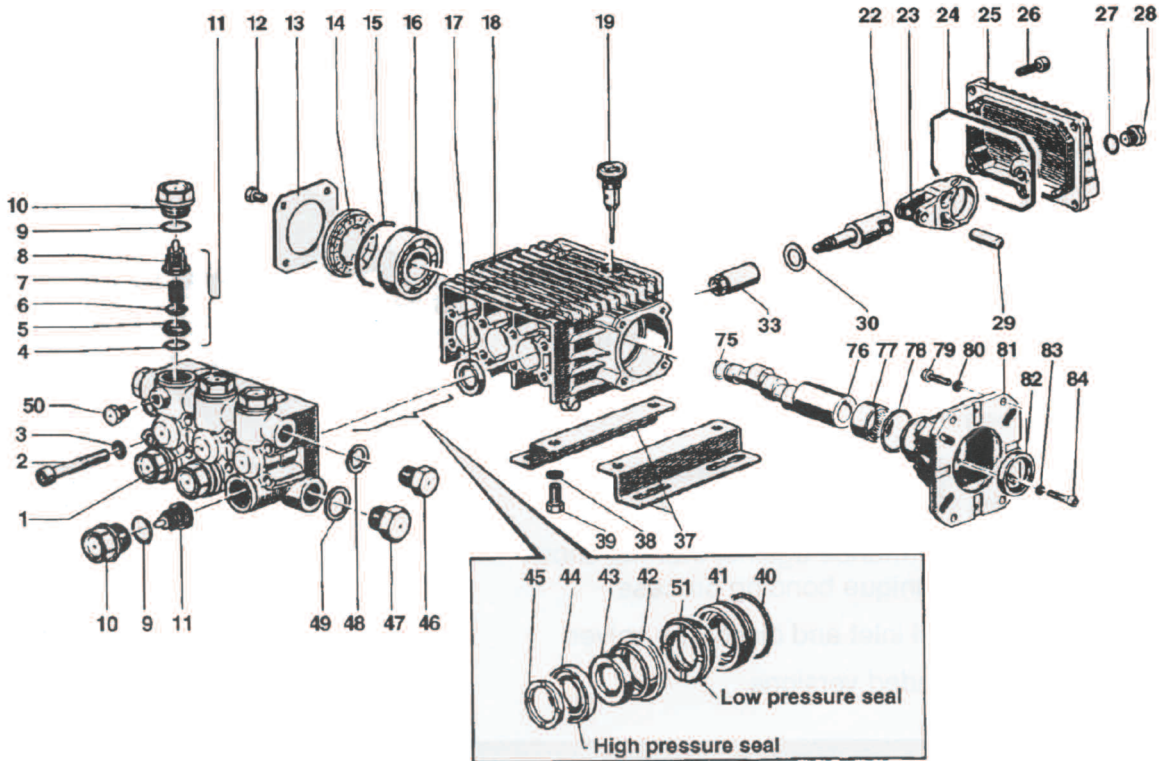
<b>59.110.000</b>	- Fuel Pump
<b>59.110.001</b>	- Fuel Solenoid
<b>59.110.002</b>	- Electrode Assy
<b>59.110.003</b>	- Igniter
<b>59.110.004</b>	- Blower Motor
<b>59.110.005</b>	- Shaft Coupling



# WIRING DIAGRAM



## PUMP BREAKDOWN (EZ4040)



### PARTS LIST

ITEM	PART NO.	DESCRIPTION	KIT NO.	QTY.	ITEM	PART NO.	DESCRIPTION	KIT NO.	QTY.	ITEM	PART NO.	DESCRIPTION	KIT NO.	QTY.
1.	44120641	Manifold		1	23.	44030022	Connecting Rod		3	48.	96738000	Washer		1
2.	99317500	Screw		8	24.	90392000	O-ring		1	49.	96751400	Washer		1
3.	96701400	Washer		8	25.	44160022	Rear Cover		1	50.	98196600	Cap Screw		1
4.	90384100	O-ring	123	6	26.	99183700	Screw		5	51.	90260300	Seal, Low Pressure	153,156	1
5.	36200366	Valve Seat	123	6	27.	90358500	O-ring		1	75.	90063500	Retaining Ring		1
6.	36200176	Valve	123	6	28.	98204100	Cap Screw		1	76.	44022165	Crankshaft (EZ4040G)		1
7.	94737600	Spring	123	6	29.	97734000	Pinr		3	44021265	Crankshaft (EZ4035G34)		1	
8.	36202551	Valve Cage	123	6	30.	96696700	Washer		3	44020965	Crankshaft (EZ4030G34)		1	
9.	90384700	O-ring	124	6	33.	44040266	Plunger, 13 mm		3	77.	91856800	Roller Bearing		1
10.	98222600	Cap Screw	124	6	37.	50200074	Rail		2	78.	90409700	O-ring		1
11.	36711501	Valve Assembly	123	6	38.	96701600	Washer		4	79.	99275500	Screw, 5/16 x 1		4
12.	99180700	Screw		4	39.	99303700	Nut		4	99334500	Screw, 3/8 x 1		4	
13.	50150074	Bearing Cover		1	40.	90361200	O-ring	156	3	80.	96702000	Washer, 8 mm		4
14.	44211801	Spacer		1	41.	44080370	Packing Retainer	156	3	96710400	Washer, 10 mm		4	
15.	90409700	O-ring		1	42.	44216270	Intermediate Ring	156	3	81.	10051822	Gas Flange		1
16.	91832800	Ball Bearing		1	43.	90507600	Packing	153,156	3	82.	90169000	Oil Seal		1
17.	90161400	Oil Seal	23	3	44.	90260200	Packing	153,156	3	83.	96693800	Washer		4
18.	44010022	Crankcase		1	45.	44100251	Head Ring	156	3	84.	99191200	Screw		4
19.	98210300	Oil Dip Stick		1	46.	98210000	Cap Screw		1					
22.	44050166	Piston Guide		3	47.	98217600	Cap Screw		1					

### REPAIR KITS

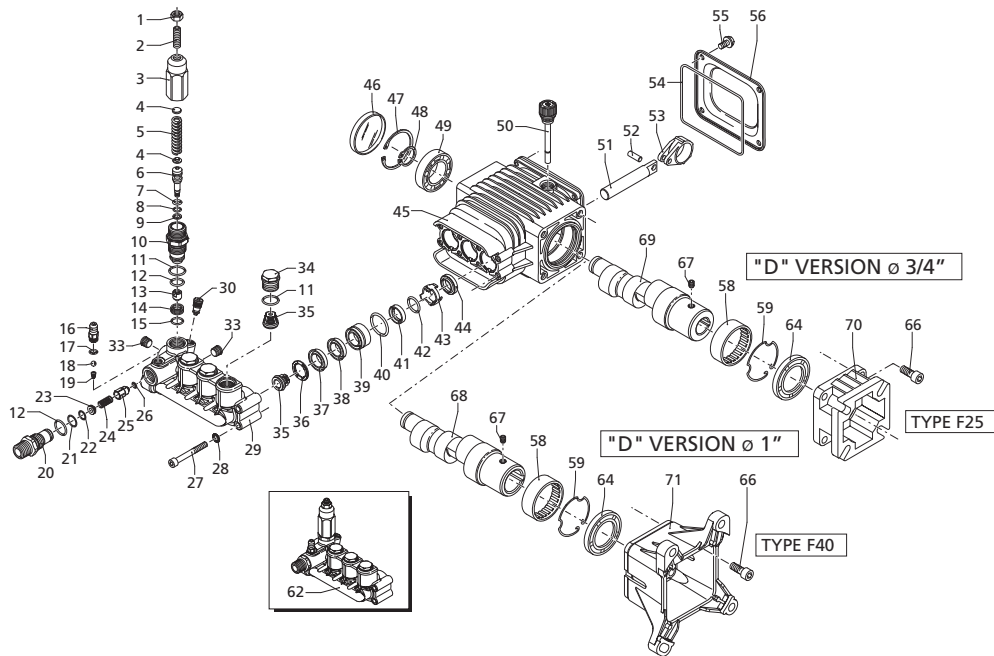
KIT NO.	K23	K123	K124	K153	K156
ITEM NO's INCLUDED IN KIT	17	4, 5, 6, 7, 8, (11)	9, 10	43, 44, 51	40, 41, 42, 43, 44, 45 51
NUMBER OF ASSEMBLIES IN KIT	3	6	6	3	1
NUMBER OF CYLINDERS KIT WILL SERVICE	3	3	3	3	1

### TORQUE SPECS\*

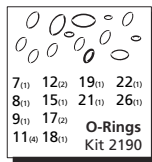
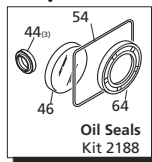
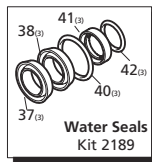
Pos.	Ft/lb	N-M
2	14.7	20
10	95.9	130
12	7.3	10
26	7.3	10
28	14.7	20
46	29.4	40
47	29.4	40
50	9.6	13
79	14.7	20
84	7.3	10

\* Decrease torque by 20% if threads are lubricated

# PUMP BREAKDOWN (RSV4040)



## Repair Kits



Pos	Code	Description	Qty.	Pos	Code	Description	Qty.	Pos	Code	Description	Qty.
1	1980300	Nut M6	1	39	1981570	Piston guide	3		AR64516	Oil	1
2	2760420	Grub screw M6x12	1	40	770260	O-Ring ø23.52x1.78	3			OIL CAPACITY - 16 OZ	
3	1980540	Unloader knob	1	41	1260440	Gasket	3	<b>Special Parts / Kits</b>			
4	1980220	Spring plate	2	42	640070	O-Ring ø13.95x2.62	3	<b>Code</b>	<b>Description</b>	<b>Qty.</b>	
5	2760410	Spring	1	43	2760310	Spacer	3	42304	EZ Start assembly	1	
6	2760400	Valve piston	1	44	1260460	Oil seal	3	2186	Valve kit - up to 3200 PSI	1	
7	2260100	O-Ring ø6.02x2.62	1	45	2760010	Pump body	1	42302	Valve kit - above 3200 PSI	1	
8	660190	O-Ring ø6.07x1.78	1	46	1266740	Bearing cap	1	2280	Unloader kit up to 3200 PSI	1	
9	2760210	Ring	1	47	1260790	Circlip ø152	1		no knob with seat	1	
10	2760050	Piston guide	1	48	1780550	Snap ring	1	42369	Unloader kit above 3200 PSI	1	
11	1200690	O-Ring ø15.6x1.78	4	49	2760340	Bearing	1		no knob with seat	1	
12	394280	O-Ring ø12.42x1.78	2		1780490	Bearing	1	42128	Unloader kit above 3200 PSI	1	
13	2260070	By-pass jet	1	50	880130	Oil cap	1		with knob without seat	1	
14	2760090	Seat	1	51	2760040	Piston	3	42129	Unloader kit above 3200 PSI	1	
15	770140	O-Ring ø11.11x1.78	1	52	1780050	Piston pin	3		with knob with seat	1	
16	1982520	Hose nipple	1	53	1780040	Con rod Aluminum	3	42527	Complete manifold with EZ start	1	
18	1250280	Ball	1	54	1780710	Con rod Bronze	3	2769201	Complete manifold non EZ start	1	
19	1560520	Spring	1	54	2760280	O-Ring ø101.27x2.62	1	2761050	Bare manifolds with EZ start	1	
20	2760230	Detergent injector 3/8" G	1	55	802190	Bolt M6x12	4	2760330	Bare manifolds non EZ start	1	
21	2760270	O-Ring ø12x1	1	56	2760110	Rear cover	1				
22	1470210	O-Ring ø9x1	1	56	2760350	Bearing	1				
23	2760120	Injector insert	1	58	1321190	Bearing	1				
24	2760200	Spring	1	59	1321080	Snap ring	1				
25	2760130	Jet	1	62	2769201	Complete pump head w/o EZ start	1				
26	1460430	O-Ring ø4x2.5	1	62	2769209	Complete pump head EZ-start	1				
27	801080	Bolt M6x50	8	64	480671	Oil seal	1				
28	1381550	Lockwasher	8	66	180030	Bolt M8x20	4				
29	2760020	Head - w/o EZ-start	1	67	820440	Set screw M6	1				
	2761050	Head - Bare EZ-start	1		1780340	Hollow shaft ø1"	1				
	2760330	Head - Bare w/o EZ-start	1		1780920	Hollow shaft ø1"	1				
30	2760630	EZ-start plug	1		1780330	Hollow shaft ø1"	1				
33	2760260	Plug 1/4" G	2		1780590	Hollow shaft ø3/4"	1				
34	2760180	Plug	3		1780600	Hollow shaft ø3/4"	1				
35	2769050	Complete valve	6		70	1780580	Flange F25	1			
36	2760220	Support ring	3		71	2760290	Flange F40	1			
37	1342761	Gasket	3								
38	1981580	Ring	1								

### Legend

ø 15	ø 15	ø 15	ø 15
For ▽	For □	For ▲	For □
RSV2.5G25	RSV3G25	RSV3.5G35	RSV4G30
	For ○		For ■
	RSV3G30		RSV4G35
	For ●		RSV4G40
	RSV3G34		
	RSV3G35		

# CASE

## CONSTRUCTION



### WARNING

This product can expose you to chemicals including lead, which is known to the State of California to cause cancer and birth defects or other reproductive harm. For more information, go to [www.P65Warnings.ca.gov](http://www.P65Warnings.ca.gov). Wash hands after handling.

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If you need assistance with the assembly or operation of your Pressure Washer please call

**1-855-850-6668**