

877-901-1936



OWNER'S MANUAL

EAGLE-200 TRAILER JETTERS



***Powerful features with lots
of options in a
"Mid-Sized" Trailer design***



www.JettersNorthwest.com

2222 15th Avenue West Seattle, WA 98119



Eagle 200 Jetting System

User Manual and Instructions

Revision 8, 2019

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Introduction and Safety

Thank you for choosing **JETTERS NORTHWEST** for your equipment purchase. We recommend that you become familiar with the contents of this manual before using your new Jetter. In this manual we will review basic operation, safety, and maintenance. However we can not anticipate every possible circumstance that may involve potential hazard. The instructions and warnings therefore are not all inclusive, but are guidelines for proper and safe use and care of your jetting equipment. The operator of this equipment must always be sure that the use and operation of this equipment is safe for themselves and those around them.

- The improper use of high pressure water jetting equipment can cause serious injury **Always wear safety glasses, gloves, and protective clothing.**
- Never point a nozzle or high pressure water jet at any person, or put your hands or fingers over a water jet while the machine is running.
- Never make unauthorized adjustments or modifications to your Jetter
- Never exceed the factory ratings for pressure, flow, or temperature.
- Never replace parts or hoses with anything that is not rated for the full capacity of the machine. We suggest using factory parts or exact replacement parts.
- Never feed the unit with hot water
- Never run the unit with a damaged Jetting Hose
- When working in larger diameter pipe be sure that the hose can not turn around and come back to the operator. A nozzle extension pipe has been included for work in larger drains.
- Do Not allow untrained or unauthorized personnel to operate Jetting equipment

Specifications

Model	GPM	PSI	Engine	Standard Hose
3112KU-200TR	12.0	3000	Kawasaki 31-HP EFI-GAS	1/2" x 300-ft.
3109KU-200TR	9.0	4000	Kawasaki 31-HP EFI-GAS	3/8" x 300-ft.
4009A-E200	9.0	4000	Kohler 26.5-HP EFI-GAS	3/8" x 300-ft.



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Set Up

When your new Jetter arrives a few minor things have to be done prior to use. In preparation for shipping the fuel has been drained, the battery has been disconnected, and the mounting adapter for the license plate has been removed to expose the forklift pocket used to load and unload the trailer. Also the unit may contain anti-freeze solution for freeze protection during colder months.

After unloading the unit, re-install the license bracket, connect the battery cables to the battery located in the battery box on the drivers side of the trailer forward of the tool storage bin, and fill the fuel tank with gasoline (use regular unleaded fuel)

- In most areas unleaded gasoline contains ethanol. Only use gasoline with ethanol content less than 10%.
- Ethanol in gasoline will pull moisture from the air, and separate into 3 layers, ethanol, water, and low octane gasoline. If your unit will be in storage without use for longer than 1 month a fuel stabilizer is recommended. This also applies to fuel left in cans for storage.

The first time you run your Jetter the pump may require priming to start water flowing through the pump. Most times the pump will prime itself by running the unit at an Idle speed with the red control valve handle in the down, or return to tank position. If further priming is needed we recommend removing the discharge hose from the pump to release any air from the system. There is a swivel fitting between the pump and the hose to make removal and installation easy with 2 wrenches. With the fitting detached, run the engine at an idle until water flows from the pump. After priming the swivel fitting can be re installed without thread sealer. During priming the pump will be running dry. To avoid damage to the pump, priming should be done in 1 min. increments with rest in between, and always at low engine speed. It should not need any more than 1 attempt to fully prime the pump.

Weight and Dimensions

<u>Model Configuration</u>	<u>Length</u>	<u>Width</u>	<u>Height</u>	<u>Weight*</u>
3112KU-200TR	12'	6'	5'	1500 lbs.
3109KU-200TR	12'	6'	5'	1500 lbs.
4009A-E200	12'	6'	5'	1480 lbs.
NOTE: Weights based off of standard configurations				



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(Set Up cont.)

After priming, or when starting your Jetter after storage we recommend running the unit with no load on the engine for 1-2 minutes. This process allows for wetting and lubrication of the pump seals before putting them under full load. This is best done by running the unit with the control valve handle in the down (return to tank) position.

In the bag with this manual you will also find a nozzle extension. This is for safe use in larger diameter pipe to prevent the nozzle from turning around and coming back to the operator. Also you will notice a quick coupler adapter; this adapter can be connected to the end of the jetting hose for attachment of *Jetters Northwest* Accessories such as Portable Hose-Reel Carts and Foot Pedal Controls, or a Pressure Washing Kit.

You will also find the standard nozzle kit. This kit includes 4 basic nozzles for use with a variety of tasks:

- “*Penetrator Nozzle*” is a hex-head nozzle with 4 rear jets and 1 forward jet. Use this nozzle for clog busting and maximum thrust for longer runs. The rear jets are at a sharp 20 degree angle for thrust. For better cleaning of the pipe a 35 to 45 degree angle is preferred.
- “*Flusher Nozzle*” is a round nozzle with 6 rear jets and no forward jet. Use this nozzle for maintenance of pipe lines or as a follow up to the Penetrator for better cleaning of the pipe wall. The rear jets are at a 35 degree angle for better cleaning.
- “*Pusher Nozzle*” is a cylinder shaped nozzle with a pointed front, it has 6 rear jets for thrust and 3 forward jets at a 10 degree angle. Use this nozzle to push debris down the line to a main when better access is not available. Due to the 3 forward jets this nozzle will have less thrust and pulling power than the other 2.
- “*Spinner Nozzle*” has 2 rear jets on a rotating collar. While this nozzle cleans the entire pipe wall with its rotating action, some performance is lost to lubrication of the rotating assembly. Use this nozzle as a final pass cleaning, or polishing of the pipe.



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Description: The Jett-Tech Wireless Jetter control when added to a *Brute* or *Eagle* Jetter is capable of controlling Water-Flow (jetting) on and off, as well as starting and stopping the Engine (throttle optional). The Wireless Remote Transmitter and Receiver have a range of over ½ mile with proper conditions. Buildings and other obstructions – especially metal – will limit its usable range. We recommend having the jetter within both visible and audible range for safety.

To operate using Remote Control:

Before working remotely, we suggest you start/run the engine for warm-up per previous instructions. This can be done using the remote to start the engine, but always start with the Red-colored Flow-Control Lever in the down position (returns water to tank/no pressure).

To Start Engine:

1. **DO NOT use the key-switch!** *The key is not needed for wireless operation*
****DO NOT use the wireless-remote for Pressure-Washing with a Trigger-Spray Wand****
2. Turn the toggle switch “on” to enable remote use (located below the key-starter)
3. Place the Red-colored Flow-Control Valve lever in the down position
4. Start the engine by (a) pressing the “ON/OFF” button to *enable* starting (the red LED should come on and you will hear the fuel pump run) then (b) press the “Engine Start” button, holding it down until the engine starts (about 3-5 seconds). Do not crank the starter for longer than 5 seconds at a time; if the engine does not start then let the starter rest 10-15 seconds between attempts (it may need to prime itself with fuel).
5. NOTE: *The remote-actuated “PRESSURE ON/OFF” Valve (remote flow-control) must be OFF to start the engine.* If the “Engine-Start” button doesn’t turn-over the engine then stop, push the “PRESSURE ON/OFF” button to close the valve, then try starting again.
6. If you are using a smaller hose for low-GPM operation, back the PSI-Regulator off 1 turn
7. After about 1-2 minutes of warm up, increase to full throttle, then lift the Red-Handle of the Flow-Control Valve into the up (“pressure”) position. For safety be sure that the Remote-actuated Flow-Control is in the “OFF” position, or have the hose-end open (without a nozzle installed) when lifting the red handle
8. See below for using the “PRESSURE ON/OFF” button to turn flow on and off to the jetting hose/nozzle.
9. If you shut down the engine remotely (see below), you can still re-start the engine, starting with step 4



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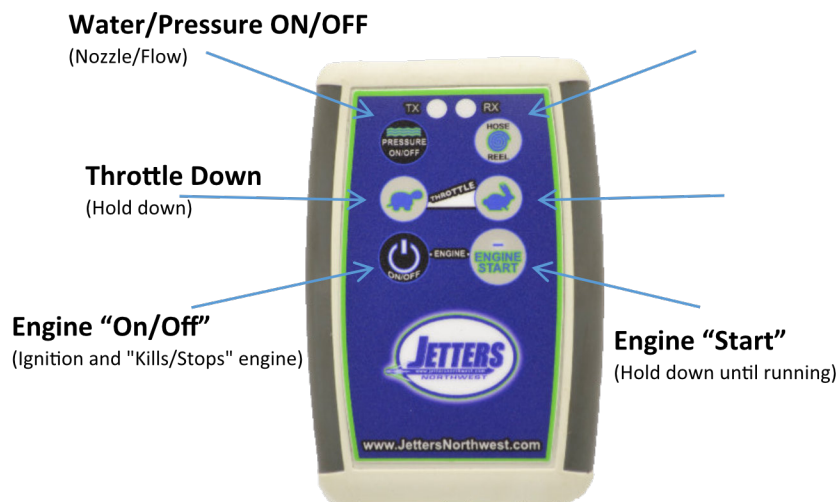
Water Valve ("Pressure ON/OFF") Operation:

- Use the "PRESSURE ON/OFF" button to operate the Wireless Water-Flow Valve to start jetting and to stop jetting; pressing the button will cycle the valve to its alternate (Jetting or Re-circulation) position. The system will take a few seconds to react and build pressure (so wait for a moment before pressing the button as a re-try). You will typically see the jetting-hose stiffen as pressure builds, and then relax as the pressure subsides. Also, the remote Transmitter will beep indicating that the jetter's Receiver is within range each time you press the button.

Shut Down:

1. Press the "PRESSURE ON/OFF" button to shut off the water flow before shutting down the engines – this makes restarting with the remote easier.
2. Pressing the engine "ON/OFF" button when running will shut down the engine.
3. To restart, follow the instructions starting with step 4 of the Start Engine instructions
4. After use, place the Red-Colored Flow-Control Lever back in the down position to release pressure, and be sure to move the Toggle-Switch on the panel to the off position (leaving the toggle-switch or key-switch in the on position will drain the battery).

Deluxe Wireless-Remote Pendant





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Jetter Operating Instructions

- **We recommend that you become familiar and skilled with the unit before ever trying it in a customer's pipe. Please follow these steps as a starting point in learning to operate the machine.**
- Please read the SUBARU or HONDA Engine manual to learn the proper starting and daily maintenance procedures. ***NOTE: The flow control Valve MUST BE IN THE "RETURN" POSITION before starting and/or shutting down the engine!***
- Find a suitable water source & fill the tank as needed. ***It is important to remember that this unit is a High-Flow 9-12 Gallon-Per-Minute (GPM) Jetter (with the engine running at full speed), so you must feed it the full 9 GPM at all times.*** If you don't the pump will destroy itself from cavitation. You will know if the pump is "starving" as the pump can make "groaning" sound and the pressure gauge's needle will not be steady. ***If this ever occurs then immediately shut down and allow the tank to fill.***
- Familiarize yourself with the water flow/pressure controls, just to the left of the larger Jet-Hose Reel. ***The main control is the "Pressure-Dump Valve":***



This picture shows the control valve assembly located to the left of the main jetting reel. The red handle is the flow control valve used to direct water flow either to the nozzle (up position) or return to the tank (down position). The Black knob is used to adjust the discharge pressure up or down.

****Always move the red handle quickly and completely between positions, slow or partial movements may damage the valves internal parts.***

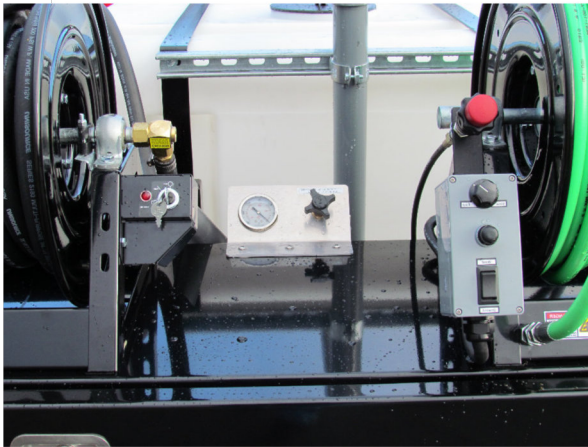


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- **Adjusting the pressure should always be done with the jetting hose in a drain and the control valve in the up position with a nozzle properly installed.** Turn the black knob clockwise to increase the pressure or counter-clockwise to decrease. Make adjustments in small increments of 1/2 to 1 full turn and allow the pressure gauge to settle between movements. **Never exceed the pressure rating of your unit as stated in the specifications page of this manual.** keep in mind when switching to lower flow accessories such as portable reels a pressure adjustment will likely be needed in order to avoid higher than rated pressures. before connecting these accessories turn the knob 1-2 turns counter-clockwise before lifting the control valve handle and then re-adjust to the desired pressure.
- Your Deluxe Model Jetter is equipped with a 12 volt powered reel and adjustable speed controller. The control box is located on the right side of the reel.



The Black dial is for fine speed adjustment of the hose reel and will control the reel speed from a slow crawl to full speed. If turned fully to the left the knob will click, indicating a fully off position. move the knob to the off position when the machine is not in use.

The rocker style switch activates the reel either forward or reverse. You will notice a short delay, or soft start when activating the reel.



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- Use a long 3"-6" diameter pipe in your yard to practice the jetting process. *Set the pipe at least 15 feet away from your Jetter and secure pipe to keep it from moving.*
- Connect a jet nozzle to the jet hose (use thread tape and tighten with strong pliers). Insert the nozzle and hose deep into the test pipe – *at least 10 feet* – and wind the hose taught so it won't run away into the pipe.
- Making sure that machine and personnel are clear of the open pipe end (water and possibly debris will be ejected from the pipe), start the machine at low speed. ***While holding the hose securely***, open the *Pressure-Dump Valve* to the "Pressure" position allowing pressure to build; you will feel the nozzle start to "pull" – ***turn the valve back to the "Return" position if you lose control of the hose!!!*** Next, slowly release the hose so the reel can unwind and "pay out" hose. Cycle the *Pressure-Dump Valve* to stop the hose (***keep your hands clear of the hose reel - it may "jump" a bit***). As you cycle the Valve you will see the jet hose relax as the pump is now re-circulating water instead of discharging out the jet-nozzle. Cycle the valve several times to familiarize yourself with its effect.
- Increase the engine(s) speed to maximum. With the Valve in the "Pressure" position, check the Pressure Gauge; the needle should be steady and read near full pressure. ***If the gauge needle is shaking, or if the pressure is reduced, then make sure the Pulsator-Valve is closed AND that you are not running low on water. Before adding water:*** shut down the engine and *make sure the brass head on the pump is not too hot to hold on to; let the pump cool on its own, and then AFTER THE PUMP HAS COOLED* then add more water to the tank if necessary.
- Go back to the reel and resume jetting. While gripping the jet hose, pull it a few inches back from the pipe. This will familiarize you with the thrust generated by the water jets on the nozzle. Let it go and pull it back again several times. This is the "Ram-Rod" technique used by many technicians to break through blockages.



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- Locate the black knob on the control panel next to the pressure gauge. This is the “Pulsator” which is used to make the hose shake, which helps the hose overcome drag in the pipe and get through elbows. Turn the knob counter-clockwise until the hose begins to shake, or “Pulsate”. Turn the knob back and forth to familiarize yourself with the pulsator effect.
NOTES: (1) Typically you will only use the pulsation when the nozzle is struggling to pull the hose up the line or when the hose hangs up when pulling it back out. (2) ***Do not leave the pulsator on all the time, as continuous pulsation causes extra stress to the machine.*** (3) The pressure at the gauge will drop a bit as you open the Pulsator Valve (this is normal) but you can adjust the Pulsator Valve to compensate. Rotate the knob clockwise to stop the pulsation. Cycle the Control-Valve back to “Return”.
- For use as a pressure washer (if equipped) Connect the pipe swivel/quick coupler adapter to the end of the jetting hose. Connect the pressure-Wash trigger/wand to the jet-hose. Pull a wash nozzle from the nozzle kit and install it to the quick-coupling on the wand. ***NOTE:*** Make sure that the nozzle is seated into the coupler and securely fastened so that none of the coupler’s internal ball-bearings are visible. Unsecured nozzles can become projectiles when pressurized.
- With the Control Valve in the “Return” position, start the engine. Move the Control-Valve to the “Pressure” position to build pressure at the trigger. Adjust the engine speed to increase or decrease flow and pressure. Try out all of the different nozzles to see their different spray patterns.
NOTES: (1) Before disconnecting the pressure-wash hose/gun assembly, move the Control-Valve back to the “Return” position, and then squeeze the trigger to bleed off any trapped pressure. (2) ***Do not use Pulsation when pressure-washing!!!***
- You now have run all of the facets of the machine. ***Again, we recommend that you become skilled with the unit before ever using it in a customer’s pipe.*** Practice in your yard and in pipelines on your property to gain skill.
- ***If storing the unit for several weeks:*** Circulate Anti-Freeze into the pumps (see next page), then close both engine’s gas valves (see engine manual) and run each engine until it dies (pumping anti-freeze) to clear the carburetor of gas.



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FREEZE-PROTECTION PROCEDURES

Your Jetter might have a built-in auxiliary Anti-Freeze tank with a Selector-Valve which enables you to draw anti-freeze into the system while expelling water. Later, you can return to drawing from the water tank while recovering the anti-freeze for later use. You can also pour Anti-Freeze into the main water-tank to draw it into the pump system.

Here are the procedures. ***Take your time in learning these processes***; it will save you anti-freeze and make sure that the system is protected:

- We recommend filling the anti-freeze tank with 100% un-diluted anti-freeze. As you use and recapture the anti-freeze several times the mix in the tank will dilute a little each time. Periodically test the solution to make sure it will protect your machine according to the weather in your location.
- With the engine turned off, drain the water tank completely using the drain in the tank bottom or by removing the plug in the strainer and lowering the trailer tongue.
- Turn the tank valve(s) so water flow from the tank is closed and solution from the anti-freeze tank is open allowing for anti-freeze to flow to the pump but not back to the main tank. Remove the lid to the anti-freeze tank.
- Remove the jetting nozzle from the hose so water can flow freely from the hose end and place the main flow control valve in the up position. Start the engine at an Idle, do not increase engine speed during winterizing.
- Allow the unit to run, discharging water to the ground. When anti-freeze begins to flow from the hose end, quickly direct the hose into the open lid of the anti-freeze tank. Solution will now be circulating in a closed loop. Secure the hose end in the tank, this can be done by wrapping the tank lid's lanyard around the hose several times, or by having another person hold the hose end into the tank.
- Open the pulse valve slightly for a few seconds to protect the pulse system plumbing
- Quickly cycle the main flow control valve down and then back up to protect the bypass plumbing. ***Your Jetter is now winterized.**

Please see the instructions on the next page for re-capturing anti-freeze solution



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- Fill the main water tank with water, and place the flow control in the down or return position.
- Turn the tank valve(s) so water flow from the water tank is open and solution from the anti-freeze tank is closed allowing for water to flow to the pump, Remove the lid to the anti-freeze tank.
- Remove the jetting nozzle from the hose so anti-freeze can flow freely from the hose end, direct the hose end back into the lid of the anti-freeze tank and place the main flow control valve in the up position. Start the engine at an Idle and let the water push the anti-freeze back to the solution tank. Do not increase engine speed during anti-freeze recovery.
- When all the anti-freeze is expelled and water starts to flow from the hose end, quickly direct the water flow to the ground. * **You are now ready to resume jetting.**

* During winterizing or re-capturing of anti-freeze some anti-freeze may spill. Use of a RV style anti-freeze is recommended. Also winterize your jetter only where spilled anti-freeze can be directed, or rinsed to an appropriate drain for disposal. A location such as a car wash or equipment wash facility is best. The owner / customer is responsible to comply with any and all environmental regulations.



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MAINTENANCE

- 1) Change the Pump's oil and the Gearbox's oil after the first 50 hours and then every 300 hours. **NOTE: The Pumps, Gearboxes and Engines each use a different type of oil; 80/90 Gear Oil in the Gearboxes and 30-wt NON-Detergent in the Pumps. Use only approved oil.** Call us for the correct oil if you are unsure.
- 2) Change the engine's oil and filter as specified in your engine manual.
- 3) Perform the engine's daily maintenance inspections as outlined in your engine manual.
- 4) Check the oil levels in the Pumps, Gearboxes and Engines every day.
- 5) **Clean the Water Strainer every day.**
- 6) Inspect your nozzles for clogged or worn-out jets every day. **Clogged or worn jets severely weaken nozzle thrust and cleaning power.** Clear clogged jets with an orifice cleaner. Worn-out jets will spray more of a "fog" than a strong stream of water. Replace worn-out nozzles.
- 7) Inspect the Jet Hose and fittings for wear daily. **The Jet-Hose, Hose-End Fitting and Jet-Nozzles wear out after time from abrasion in the pipe.** **SAFETY FIRST: Never use hose with exposed cord or kinks as it can burst under pressure! Always replace worn or kinked Jet-Hose, Hose-Ends and Nozzles!!!**
- 8) Check that all trailer lights are functioning every day.
- 9) Grease the lube fitting on the hose reel's swivel once a month.

Good luck and thanks again for your business!

KAWASAKI LIMITED WARRANTY

FOUR-CYCLE ENGINE

Kawasaki Motors Corp., U.S.A., P.O. Box 888285, Grand Rapids, MI 49588-8285 (hereinafter "Kawasaki") warrants to the initial purchaser of each new Kawasaki four-cycle engine that such product shall be free, under normal use and maintenance, from any defect in material and workmanship for a period of thirty-six (36) months, subject to the following conditions, exclusions, obligations and limitations:

1. COVERAGE.

- a. Any material or workmanship in four-cycle engines found to be defective by Kawasaki within the thirty-six (36) month warranty term shall be remedied without charge for parts or labor at any authorized Kawasaki engine dealer located within North America.
- b. Any material or workmanship in service parts or accessories for four-cycle engines found to be defective by Kawasaki within three (3) months shall be remedied as follows:
 1. A Kawasaki part or accessory sold and installed by an authorized Kawasaki engine dealer, which is found defective in material or workmanship, within the three (3) month warranty term, shall be repaired or replaced (at the option of Kawasaki) without charge for the part or accessory, at any authorized Kawasaki engine dealer located within North America.
 2. A Kawasaki part or accessory sold, but not installed, by an authorized Kawasaki engine dealer, which is found to be defective in material or workmanship, within the three (3) month warranty term, shall be repaired or replaced (at the option of Kawasaki) without charge for the part or accessory, BUT EXCLUSIVE OF ANY INSTALLATION LABOR OR OTHER REPAIR COSTS, at any authorized Kawasaki engine dealer located within North America.

2. OWNER'S OBLIGATIONS.

The following obligations must be fulfilled by owner to maintain the validity of the Kawasaki warranty:

- a. Owner must deliver the four-cycle engine to an authorized Kawasaki engine dealer or equally qualified service facility for inspection, maintenance services and adjustments according to the Periodic Maintenance Chart contained in the owner's manual. The inspection, maintenance services and adjustments are to be performed at owner's expense.
- b. Owner must present proof of initial retail purchase date to an authorized Kawasaki engine dealer at the time warranty repairs are performed on the four-cycle engine.

3. LIMITATIONS.

This warranty shall not apply to or include any of the following:

- a. Repair or replacement required as a result of (i) accident, (ii) misuse or neglect, (iii) lack of reasonable and proper maintenance, (iv) repairs improperly performed or replacements improperly installed, (v) use of replacement parts or accessories not conforming to Kawasaki specifications which adversely affect performance and/or durability, (vi) alterations or modifications not recommended or approved in writing by Kawasaki, and/or (vii) wear and deterioration occasioned by the use of the four-cycle engine.
- b. Routine maintenance services, adjustments, cleaning and/or expendables such as spark plugs, lubricants, oil filters, air filters, and fuel filters.

4. LIMITED LIABILITY.

- a. The liability of Kawasaki under the thirty-six (36) month warranty is limited solely to the remedying of defects in materials or workmanship by an authorized Kawasaki engine dealer at its place of business during customary business hours. This warranty does not cover inconvenience or loss of use of the four-cycle engine or transportation of the four-cycle engine to and from the Kawasaki dealer. KAWASAKI SHALL NOT BE LIABLE FOR ANY OTHER EXPENSE, LOSS OR DAMAGE, WHETHER DIRECT, INCIDENTAL, CONSEQUENTIAL OR EXEMPLARY ARISING IN CONNECTION WITH THE SALE OR USE OF OR INABILITY TO USE THE KAWASAKI FOUR-CYCLE ENGINE FOR ANY PURPOSE. SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATIONS OF ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES, SO THE ABOVE LIMITATION OR EXCLUSION MAY NOT APPLY TO YOU.

- b. NO EXPRESS WARRANTY IS GIVEN BY KAWASAKI WITH RESPECT TO THE KAWASAKI FOUR-CYCLE

ENGINE EXCEPT AS SPECIFICALLY SET FORTH HEREIN. ANY WARRANTY IMPLIED BY LAW, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, IS EXPRESSLY LIMITED TO THE THIRTY-SIX (36) MONTH WARRANTY TERM SET FORTH HEREIN. THE FOREGOING STATEMENTS OF WARRANTY ARE EXCLUSIVE AND IN LIEU OF ALL OTHER REMEDIES. SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

- c. No distributor, dealer or other four-cycle engine reseller is authorized to modify this Kawasaki Limited Four-Cycle Warranty.

5. LEGAL RIGHTS.

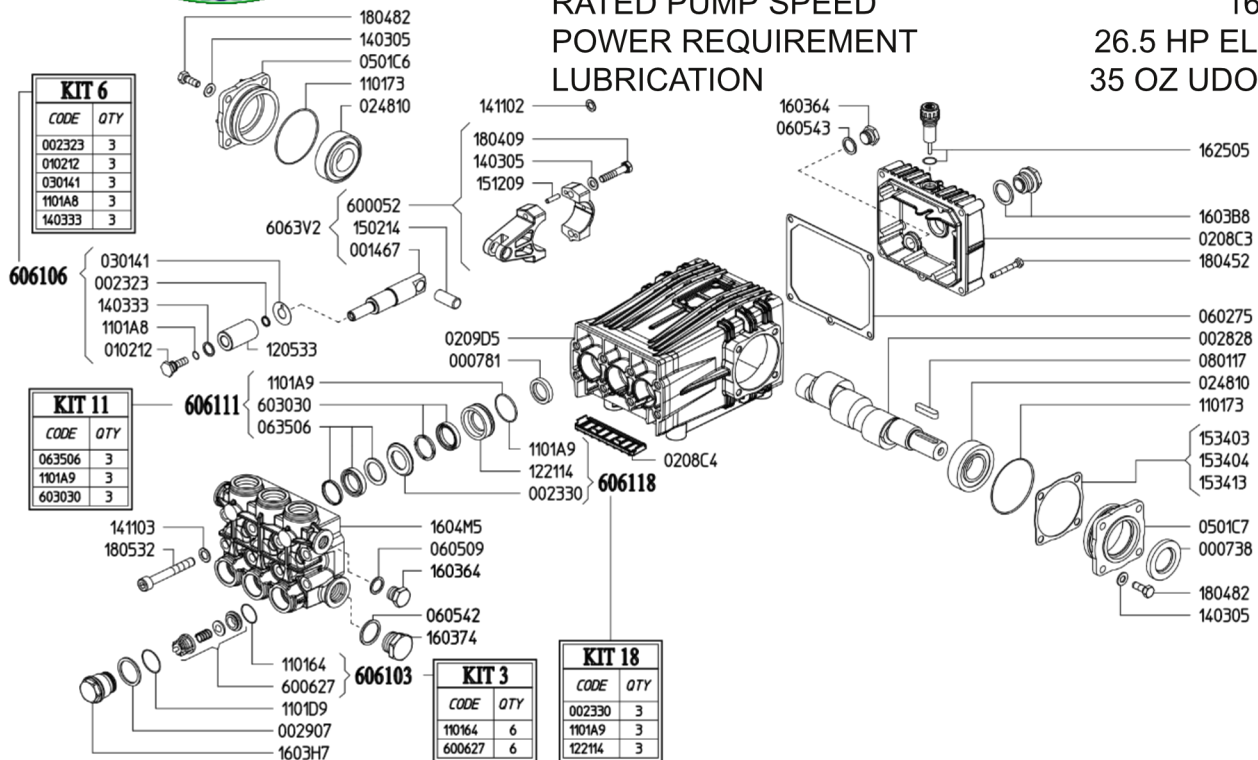
THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH VARY FROM STATE TO STATE.



JNW-CKC 9.0/4000

MAX OUTPUT
RATED PUMP SPEED
POWER REQUIREMENT
LUBRICATION

9.0 GPM @ 4000 PSI
1640 RPM
26.5 HP ELECTRIC
35 OZ UDOR LUBE



Part #	Description	Qty
0007.38	OIL SEAL D30	1
0007.81	OIL SEAL D20	3
0014.67	PLUNGER GUIDE D22/25/28 "C/CK"	3
0023.23	RING D10.4 **	3
0023.30	UPPER RING D25 ****	3
0028.28	MALE SHAFT D24	1
0029.07	PLUG RING "CK"	6
0102.12	PLUNGER BOLT **	3
0208.C3	BACK COVER "C/CK"	1
0208.C4	COVER "CK"	1
0209.D5	CRANKCASE "C/CK/CH"	1
0248.10	ROLLER BEARING D30	2
0301.41	DISC **	3
0501.C6	BEARING CLOSED FLANGE	1
0501.C7	BEARING HOLLOW FLANGE	1
0602.75	BACK COVER GASKET	1
0605.09	GASKET D17	1
0605.42	GASKET D27	1
0605.43	GASKET D17	1
0635.06	HIGH PRESS. SEAL KIT D25***	3
0801.17	KEY A8X7X35 UNI6604	1
1101.64	O-RING D20.24 (RIF.3081) 90SHORE *	6
1101.73	O-RING D67.95 (RIF.3268)	2
1101.A8	O-RING D9.25 (RIF.2037) **	3
1101.A9	O-RING D33.77 (RIF.3150)***	3
1101.A9	O-RING D33.77 (RIF.3150) ****	3
1101.D9	O-RING D21.89 (RIF.3087) 90SHORE	6
1205.32	CERAMIC PLUNGER D22	3
1221.14	PRESS. RING D25 ****	3

Part #	Description	Qty
1403.05	WASHER D8.4	14
1403.33	WASHER D13.4**	3
1411.02	SCHNORR WASHER D8	6
1411.03	SCHNORR WASHER D10	8
1502.14	PIN D14X32	3
1512.09	PLUG D5X20 UNI1707	6
1534.03	SHIM 0.1MM	-
1534.04	SHIM 0.2MM	-
1534.13	SHIM 0.05MM	-
1603.64	PLUG G3/8	2
1603.74	PLUG G3/4	1
1603.B8	OIL PLUG G3/4 + GASKET	1
1603.H7	VALVE PLUG "CK" PISTON D22/25	6
1604.M5	HEAD "CK" D22/25	1
1625.05	OIL PLUG G3/8	1
1804.09	HEX SCREW M8X40 UNI5737	6
1804.52	HEX SCREW M6X45 UNI5737	1
1804.82	HEX SCREW M8X22 UNI5739	8
1805.32	ALLEN SCREW M10X75 UNI5931	8
6000.52	ROD ASSEMBLY	3
6006.27	VALVE ASSY W/O O-RING *	6
6030.30	LOW PRESSURE SEAL KIT D25***	3
6061.03	KIT 3 VALVE KIT	
6061.06	KIT 6 PLUNGER KIT	
6061.11	KIT 11 WATER SEAL KIT D25 "C/CK"	
6061.18	KIT 18 BRASS RING KIT D25 "C/CK"	

* Parts in 6061.03 (Kit 3).Not sold separately
 ** Parts in 6061.06 (Kit 6).Not sold separately
 *** Parts in 6061.11 (Kit 11).Not sold separately
 **** Parts in 6061.18 (Kit 18).Not sold separately

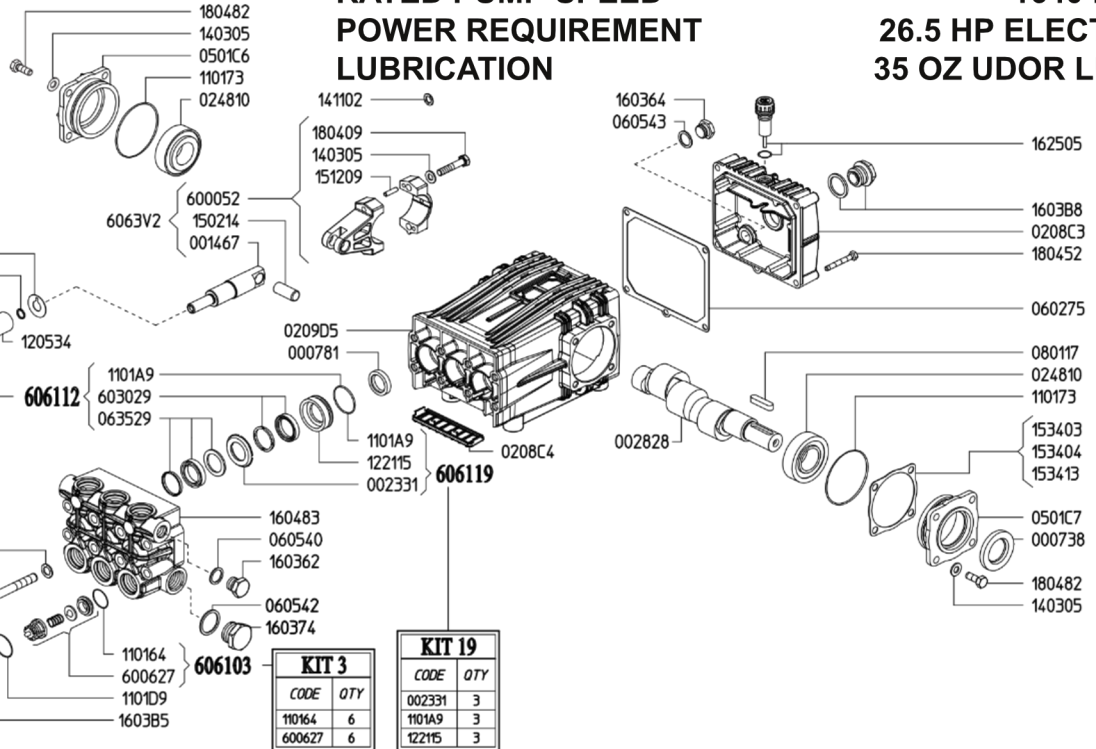
**MAX OUTPUT
RATED PUMP SPEED
POWER REQUIREMENT
LUBRICATION**

**12.0 GPM @ 3000 PSI
1640 RPM
26.5 HP ELECTRIC
35 OZ UDOR LUBE**

KIT 6	
CODE	QTY
002323	3
010212	3
030141	3
1101A8	3
140333	3

606106

KIT 12	
CODE	QTY
063529	3
1101A9	3
603029	3



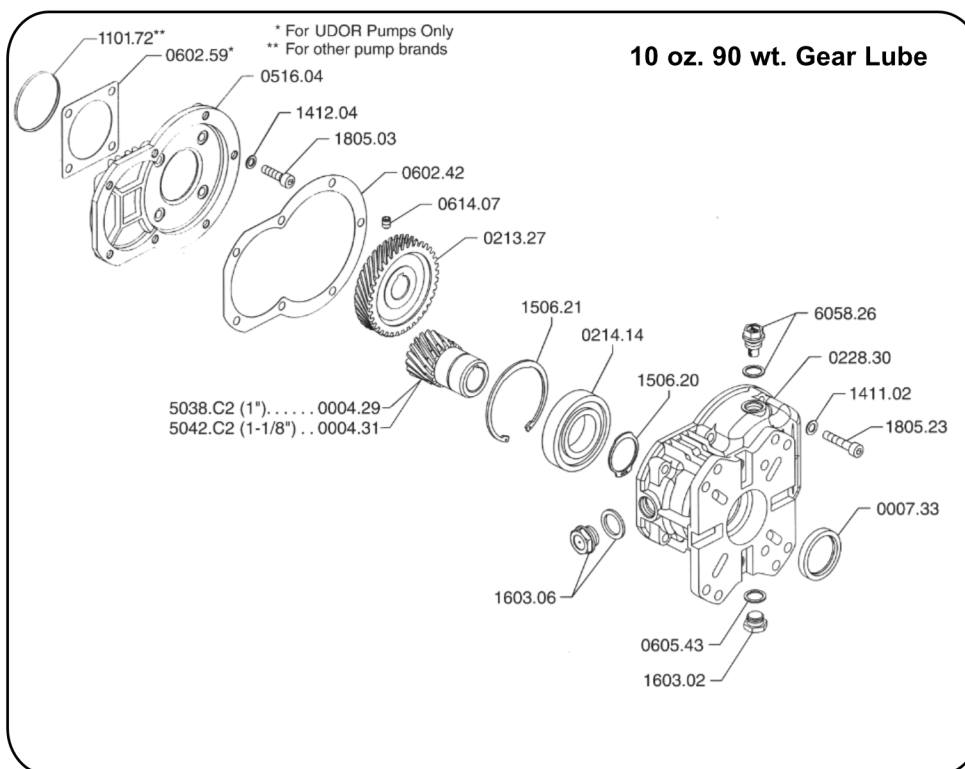
Part #	Description	Qty
0007.38	OIL SEAL D30	1
0007.81	OIL SEAL D20	3
0014.67	PLUNGER GUIDE D22/25/28 "C/CK"	3
0023.23	RING D10.4 **	3
0023.31	UPPER RING D28 ****	3
0028.28	MALE SHAFT D24	1
0102.12	PLUNGER BOLT **	3
0208.C3	BACK COVER "C/CK"	1
0208.C4	COVER "CK"	1
0209.D5	CRANKCASE "C/CK/CH"	1
0248.10	ROLLER BEARING D30	2
0301.41	DISC **	3
0501.C6	BEARING CLOSED FLANGE	1
0501.C7	BEARING HOLLOW FLANGE	1
0602.75	BACK COVER GASKET	1
0605.40	GASKET D21.5	1
0605.42	GASKET D27	1
0605.43	GASKET D17	1
0635.29	HIGH PRESS. SEAL KIT D28***	3
0801.17	KEY A8X7X35 UNI6604	1
1101.64	O-RING D20.24 (RIF.3081) 90SHORE *	6
1101.73	O-RING D67.95 (RIF.3268)	2
1101.A8	O-RING D9.25 (RIF.2037) **	3
1101.A9	O-RING D33.77 (RIF.3150)***	3
1101.A9	O-RING D33.77 (RIF.3150) ****	3
1101.D9	O-RING D21.89 (RIF.3087) 90SHORE	6
1205.34	CERAMIC PLUNGER D28	3
1221.15	PRESS. RING D28 ****	3
1403.05	WASHER D8.4	14

Part #	Description	Qty
1403.33	WASHER D13.4**	3
1411.02	SCHNORR WASHER D8	6
1411.03	SCHNORR WASHER D10	8
1502.14	PIN D14X32	3
1512.09	PLUG D5X20 UNI1707	6
1534.03	SHIM 0.1MM	-
1534.04	SHIM 0.2MM	-
1534.13	SHIM 0.05MM	-
1603.62	PLUG G31/2	1
1603.64	PLUG G3/8	1
1603.74	PLUG G3/4	1
1603.B8	OIL PLUG G3/4 + GASKET	1
1603.H7	VALVE PLUG "CK" PISTON D22/25	6
1604.83	HEAD "CK" D28	1
1625.05	OIL PLUG G3/8	1
1804.09	HEX SCREW M8X40 UNI5737	6
1804.52	HEX SCREW M6X45 UNI5737	1
1804.82	HEX SCREW M8X22 UNI5739	8
1805.32	ALLEN SCREW M10X75 UNI5931	8
6000.52	ROD ASSEMBLY	3
6006.27	VALVE ASSY W/O O-RING *	6
6030.29	LOW PRESSURE SEAL KIT D28***	3
6061.03	KIT 3 VALVE KIT	
6061.06	KIT 6 PLUNGER KIT	
6061.12	KIT 12 WATER SEAL KIT D28 "C/CK"	
6061.19	KIT 19 BRASS RING KIT D28 "C/CK"	

* Parts in 6061.03 (Kit 3).Not sold separately
 ** Parts in 6061.06 (Kit 6).Not sold separately
 *** Parts in 6061.12 (Kit 12).Not sold separately
 **** Parts in 6061.19 (Kit 19).Not sold separately



GAS ENGINE GEAR REDUCTIONS



NOTE: For G-Series gear reduction applications, a pump support rail with vibration isolators or an UDOR torque plate must be used.
Contact UDOR U.S.A. for more information.

* Refer to proper pump breakdown & plunger pump torque spec sheet before rebuilding or servicing any pump. www.udorusa.com

REPLACING PUMP VALVES

1. All inlet and discharge valves can be serviced without disrupting the inlet or discharge plumbing.
2. To service the valves, remove valve caps.
3. Remove the valve assembly from the valve cavity.
4. Remove o-ring from valve cavity.
5. Only one valve kit is necessary to replace all the valves in the pump. The kit includes new valve o-rings and valve assemblies.
6. Install o-ring into cavity.
7. Insert valve assembly into valve cavity.
8. Install valve cap and torque to specifications. **NOTE:** Use "blue" threadlocker or equivalent on all valve caps.

REMOVING PUMP HEAD

1. Remove the bolts from the pump head.
2. Separate the head from the crankcase. **NOTE:** It may be necessary to tap head lightly with a plastic or rubber mallet to loosen.
CAUTION: Do not damage plungers when removing the head.
3. The packing assemblies typically come off with the head. At this point, inspect ceramic plungers. Plunger surfaces should be smooth and free from scoring and cracks. **IF NOT,** replace plunger.

REPLACING CERAMIC PLUNGERS

1. Remove plunger nut or bolt, then remove plunger from piston rod.
2. If slinger washer comes off with the plunger, be certain this is reinstalled or replaced before a new plunger is installed.
3. Separate plunger bolt from plunger.
4. Install new o-ring, teflon back-up ring and washer on plunger bolt or stem. **NOTE:** A film of grease on the outside of the o-rings ensures a better installation.
5. Carefully insert plunger bolt into plunger. **NOTE:** Use "red" threadlocker or equivalent on all plunger nuts or bolts.
6. Slide new plunger over the piston guide and torque to specifications.

REPLACING WET END SEAL KIT

1. Insert proper seal stack extractor tool or reversible pliers through seal retainer. Extract retainers, packings and spreader rings.
2. Only one seal kit is necessary to replace the wet end seals in the pump. The kit includes low pressure seals, high pressure seals, spreader rings and long life rings.
3. Place proper seal insertion sleeve into cylinder and install plastic spreader ring into bottom of the cylinder flat side down. Insert brown high pressure seal into seal insertion sleeve flat side up and tap firmly into place. Remove insertion sleeve.
4. Install long life ring on top of the high pressure seal and insert middle brass ring.
5. Install the black low pressure seal into upper brass ring (flat side goes into the upper brass ring), lightly grease the outer o-ring and insert into cylinder.
6. Coat each plunger and seal stack with grease and carefully reinstall the pump head. **NOTE:** It may be necessary to tap pump head lightly with a plastic or rubber mallet. Install head bolts and torque to specifications.

CHANGING PUMP OIL

1. Change pump oil after the first 50 hour break-in period, then change pump oil after every 500 hours of use.
2. Remove oil drain plug from back cover or under pump. Drain oil.
3. Re-install oil drain plug.
4. Fill pump crankcase with UDOR LUBE Premium Pump Oil or SAE 30W non-detergent oil to the recommended mark on the oil sight glass/gauge, about halfway on the oil sight glass/gauge.

WARNING!: UDOR Plunger Pumps are positive displacement pumps, therefore a properly designed pressure relief valve or unloader valve must be installed on the pump or in the discharge plumbing. A secondary safety relief valve is also recommended. Failure to install a pressure relief valve or unloader valve could result in personal injury, property damage or damage to the pump or system and void any warranty. In no way does UDOR USA assume any liability or responsibility for the construction or operation of a customer's or potential customer's high pressure system.



LIMITED PRODUCT WARRANTY

UDOR Plunger Pumps & Accessories

In the course of marketing or servicing the customer or potential customer's needs, UDOR USA will use its best judgement in its product recommendations. However, the ultimate responsibility for product application decisions shall rest with the customer. The sole and only warranty made by UDOR USA is the limited warranty described below.

UDOR Standard Series P, M, G, and Vehicle Cleaning Plunger Pumps are warranted by the manufacturer to the original purchaser to be free from defects in materials and workmanship under normal use and service for a period of five (5) years.

UDOR Industrial Series GAMMA, PENTA, NX, VX, and All Hydraulic Drive Plunger Pumps are warranted by the manufacturer to the original purchaser to be free from defects in materials and workmanship under normal use and service for a period of one (1) year.

UDOR Accessories are warranted to be free from defects in materials and workmanship under normal use and service for a period of ninety (90) days.

"Normal use and service" is defined as applications not in excess of recommended maximum speeds, pressures, temperatures or vacuums, only handling fluids which are compatible with pump or accessory materials and maintaining proper oil change intervals.

"Proper oil change intervals" for Plunger Pumps is changing PUMP OIL after the first 50 hour break-in period, and after every 500 hours of use thereafter using UDOR LUBE Premium Pump Oil and UDOR USA original equipment parts.

This Warranty DOES NOT APPLY to freight damage, damage due to freezing, running pump dry or improper lubrication of crankcase, normal wear of moving parts, damage due to misuse or misapplication, defects caused by the fault or negligence of the buyer or third party, or damage due to use of parts or accessories not obtained from or approved by UDOR USA.

This Warranty also does not apply to any pump or accessory which has been altered or modified to affect its performance or reliability or any pump or accessory that has been returned disassembled.

This Warranty excludes "normal wear items" such as elastomers, seals and valves.

All pumps and accessories being returned to UDOR USA for repair or warranty evaluation must be flushed of any and all chemicals. This also pertains to crankcases that have contaminated oil. Any pump received that has not been properly flushed will be immediately returned to sender freight collect. This policy has been put into place to protect our personnel from possible exposure to hazardous or unknown substances.

All warranty evaluation returns must be accompanied by the original purchase invoice and a RMA number. If invoice is not included, UDOR USA will determine warranty by manufacturer's serial number and date of manufacture on the pump label. Any collect shipments or any product returned without a RMA number will be refused and returned to sender.

UDOR USA's obligation under this warranty is limited to repair or replacement of product in question, at UDOR's option, upon return of the product, freight prepaid, to UDOR USA. UDOR USA agrees to be responsible for return shipping costs ONLY on any approved warranty repair or replacement product via ground transportation ONLY. This warranty is in lieu of all other warranties expressed or implied, including any warranty of merchantability and any warranty of fitness for a particular purpose.

IN NO EVENT SHALL UDOR USA BE LIABLE FOR ANY INCIDENTAL OR CONSEQUENTIAL DAMAGES OR EXPENSES OF ANY KIND. This includes lost income, travel time and expenses, lodging expenses, labor expenses, down time, shipping costs and any other INCIDENTAL or CONSEQUENTIAL damages or expenses.

The only and total liability of UDOR USA under this limited warranty or in any claim regarding or involving UDOR USA is expressly limited to the repair, replacement or purchase price of the product.

WARNING!: DO NOT PUMP OR FLUSH PUMP WITH ANY FLAMMABLE, EXPLOSIVE, CAUSTIC OR CORROSIVE FLUIDS. DO NOT USE ANY OF THESE PRODUCTS IN AN EXPLOSIVE ATMOSPHERE. FAILURE TO FOLLOW THIS WARNING CAN RESULT IN PERSONAL INJURY OR PROPERTY DAMAGE AND WILL VOID ANY AND ALL WARRANTIES.

This Warranty supersedes any and all previous Warranties.

Diagnosis & Maintenance, UDOR U.S.A. Plunger Pumps

Problem	Probable Cause	Solution
Low Pressure	Worn or Plugged Nozzle	Replace or clean nozzle, of proper size.
	Belt Slippage.	Tighten or replace belt.
	Air leak in inlet plumbing.	Disassemble, reseal and reassemble.
	Pressure gauge inoperative or not registering accurately.	Check with new gauge; replace worn or damaged gauge.
	Relief / unloader valve stuck, partially plugged or improperly adjusted; valve seat worn.	Repair/replace and adjust relief / unloader valve; check for worn and dirty valve seats.
	Inlet suction strainer clogged or improper size.	Clean, use adequate size, check more frequently.
	Worn seals. Abrasives in pumped fluid or severe cavitation. Inadequate water supply.	Install and maintain proper filter. Replace seals. Check inlet water supply. Max. 6 in. inlet vacuum.
	Fouled or dirty inlet or discharge valves.	Clean inlet and discharge valve assemblies.
	Worn inlet or discharge valves.	Replace worn valves.
	Leaky discharge hose.	Replace discharge hose.
Pump runs extremely rough, pressure very low	Restricted inlet or air entering the inlet plumbing.	Proper size inlet plumbing; check for air tight seal at fittings & filter.
	Inlet restrictions and/or air leaks. Stuck inlet or discharge valves.	Replace worn seals, clean out material in valves or replace worn valves.
	Plugged Inlet Filter	Clean or replace filter.
Water leakage from under the manifold.	Worn inlet seals, Cracked plunger.	Replace seals. Install new plungers.
Oil leak between crankcase and pumping section.	Worn crankcase oil seals.	Replace crankcase oil seals.
Oil leaking in the area of crankshaft.	Worn crankshaft seal, bearing or case o-ring.	Replace crankshaft seal, bearing or case o-ring.
	Bad bearing.	Replace bearing.
Excessive play in the end of the crankshaft	Worn bearing.	Replace ball bearing.
Water in crankcase.	May be caused by humid air condensing into water inside the crankcase.	Change oil at 3 month or 500 hour intervals using UDOR LUBE (or SAE 30W non-detergent oil).
	Worn or improperly installed inlet water seals.	Replace seals. Follow proper installation procedures. Contact UDOR pump supplier for servicing.
Oil leaking at the rear portion of the crankcase.	Damaged or improperly installed sight glass or crankcase rear cover gasket and drain plug gasket.	Replace sight glass, crankcase cover gasket or drain plug gasket.
Loud knocking noise in pump.	Pulley loose on crankshaft.	Check key and tighten set screw.
	Broken or worn bearing.	Replace bearings.
Frequent or premature failure of the packing	Scored plungers. Over pressure to inlet manifold. Abrasive material in the fluid being pumped. Excessive temperature of fluid being pumped Running pump dry.	Replace plungers Reduce inlet pressure. Max. 75 PSI. Install proper filtration on pump inlet plumbing. Assure fluid inlet temperature are within specified range. Max. 160° F DO NOT run pump without fluid.
Strong surging at the inlet and low pressure discharge.	Foreign particles in the inlet or discharge valve or worn inlet and/or discharge valves.	Replace worn valves. Check supply tank for contamination. Install and regularly clean filter. Never pump abrasive fluids.

SEWER & DRAIN JETTING EQUIPMENT



WARRANTY POLICY for JETTERS NORTHWEST Equipment

WHAT IS COVERED: *Jetters NorthWest* (“JNW”), a division of *Seattle Pump & Equipment Co.*, warrants new items of our manufacture from defects in materials or workmanship for a period of one year from date of delivery to the 1st customer. This policy is limited to products manufactured by JNW. ***Products that we purchase from other manufacturers, such as the engine and the pump, are covered by their own warranties which typically go beyond our one year.*** Refer to the original manufacturer's policy for warranty details on these types of products:

- **KOHLER Engines:** 3-YEAR Limited Warranty
- **HONDA Engines:** 3-YEAR Limited Warranty
- **KAWASAKI Engines:** 3-YEAR Limited Warranty
- **UDOR Pumps:** 5-YEAR Limited Warranty
- **Trailer Axles (Suspension):** 2-YEAR Limited Warranty
- **Trailer Framework:** LIFETIME Limited Warranty

WHAT IS NOT COVERED: The warranty shall not apply to product malfunctions or failures as a result of misuse, abuse, neglect, loss, damage caused by disasters such as fire, flood, lightning, or earthquake, interaction with products not approved by JNW/SP, or improper repairs to any part of the equipment. Improper repairs shall include repairs made by other than JNW authorized agents, or repairs utilizing parts or materials not equal to those furnished by JNW. ***JNW will NOT pay for unauthorized repairs.*** The warranty shall not cover failure due to normal wear. Jetting hoses and fittings are not covered as they are subject to pipe conditions.

WHAT JNW WILL DO: Should a JNW manufactured product prove defective during the warranty period, the customer is required to notify the selling dealer or JNW. The defective components or parts shall be securely packaged, including a packing list identifying the components or parts, and description of the defect and shipped to the JNW/SP Service Department within ten working days. **Shipping costs are the responsibility of the customer.**

After determination of warranty eligibility, JNW will, at its option, repair or replace the defective components or parts and return them to the customer. We shall also pay – ***if pre-authorized by JNW*** – reasonable labor to fix any items found to be defective, and/or refer the customer to the nearest warranty center (especially for engine warranties and the like).

JNW SHALL NOT BE LIABLE FOR ANY LOSS, INCONVENIENCE, INJURY, OR DAMAGE, INCLUDING DIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, RESULTING FROM THE USE OF OR INABILITY TO USE ANY JNW PRODUCT, OR ANY BREACH OF WARRANTY, EXPRESSED OR IMPLIED.

QUESTIONS? Call or E-mail us, RE: “Jetter Warranty”

Providing Personal Service to your Sales, Parts and Repair needs for over 50 years!

1 MILE SOUTH OF THE BALLARD BRIDGE SINCE 1952

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