



WGR MAGNUM SERIES CONTROLLED ROTATION SEWER NOZZLE USER MANUAL



TABLE OF CONTENTS

MANUFACTURER'S INFORMATION	3
SPECIFICATIONS.....	3
DESCRIPTION OF EQUIPMENT AND INTENDED USE	3
KEY FEATURES	3
TOOL OVERVIEW	4
OPERATION	6
TROUBLESHOOTING	7
HEAD REMOVAL AND REPLACEMENT	9
FLUID REPLACEMENT	10
DISASSEMBLY	11
ASSEMBLY	14
PART NAMES/NUMBERS AND SERVICE KITS	18
TERMS AND CONDITIONS AND WARRANTY	20

MANUFACTURER'S INFORMATION

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This manual must be used in accordance with all applicable national laws. The manual shall be regarded as a part of the machine and shall be kept for reference until the final dismantling of the machine, as defined by applicable national law(s).

Updated manuals can be downloaded at:
<https://www.stoneagetools.com/manuals>

SPECIFICATIONS		
Tool Family:	Warthog Magnum	
Tool Model:	WGR-1	WGR-1-1/4
Pipe Size:	8-36 in. (203-914 mm)	8-36 in. (203-914 mm)
Pressure Range:	1500-8000 psi (100-550 bar)	1500-5000 psi (100-350 bar)
Flow Range:	50-80 GPM (190-300 l/min)	80-120 GPM (300-455 l/min)
Flow Rating:	6 Cv	6 Cv
Rotation Speed:	150-400rpm	150-300rpm
Pulling Force:	30 to 90 lbs (13 to 41 kg)	30 to 90 lbs (13 to 41 kg)
Inlet Connection:	1" NPT or BSPP	1 1/4" NPT or BSPP
Nozzle Ports:	7 x 1/8" NPT	7 x 1/8" NPT
Outside Diameter:	4.5 in. 114 mm	5.75 in. 146 mm
Overall Length:	10.25 in. 260 mm	10.25 in. 260 mm
Weight:	13 lbs 5.9 kg	13 lbs 5.9 kg

DESCRIPTION OF EQUIPMENT AND INTENDED USE

The WGR Magnum is the first tool in the Warthog Magnum series, specifically designed for extended tool durability and optimal handling of dirty or recycled water.

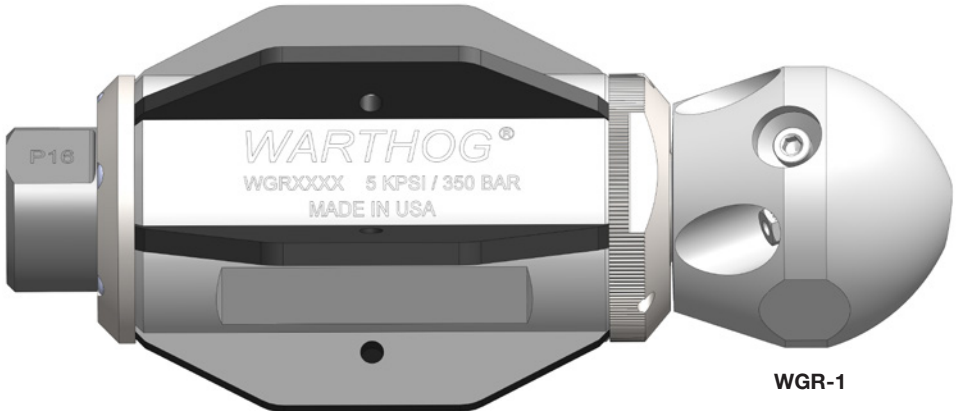
KEY FEATURES:

- Optimized speed control extends maintenance intervals
- Streamlined design prevents tool from catching inside of piped.
- Replaceable fins made of hardened steel for longer life available in different sizes.
- Flush style head protects front shaft seals for extended fluid life.
- Easily convertible from pulling to descaling
- Descaling ports now come standard.
- Latest seal technology effectively handles dirty or recycled water for improved performance
- Choose your rotation speed with 3 viscous fluid options.

DESCRIPTION:

The Magnum Series Warthog WGR (hereafter WGR) Controlled Rotation Sewer Nozzle is designed for waterjet cleaning of pipes and sewer lines.

- Jet thrust from the water powers the rotation of the head and pulls the tool through the line.
- The WGR is available with one of four female threaded inlet nuts; 1" NPT, 1 1/4" NPT, 1"BSPP, or 1 1/4" BSPP
- The WGR-1 is capable of working pressures up to 5000 psi and flow rates of 50 to 80 gpm.
- The WGR-1 1/4 is capable of working pressures up to 5000 psi and flow rates of 80 to 120 gpm.
- The carbide face seals allow the use of recycled water or fresh water for jetting.
- The nozzle utilizes a rotor and viscous fluid speed control mechanism to provide consistent rotation speed.
- As with all Warthog nozzles, the orifice sizes are selected to best match the desired operating conditions of pressure and flow.
- Hose length and size must be known to correctly determine the proper orifice sizes.
- Contact your distributor or reference www.sewernozzles.com to help in nozzle selection.



⚠ WARNING

Operations with this equipment can be potentially hazardous. Caution must be exercised prior to and during machine and water jet tool use. Please read and follow all of these instructions, in addition to the guidelines in the WJTA Recommended Practices handbook, available online at www.wjta.org. Deviating from safety instructions and recommended practices can lead to severe injury and/or death.

- Always inspect the nozzle for damage prior to operation.
- Do not exceed the maximum operating pressure specified for any component in a system. The immediate work area must be marked off to keep out untrained persons.
- Inspect the equipment for visible signs of deterioration, damage, and improper assembly. Do not operate until repaired. Make sure all threaded connections are tight and free of leaks.
- All operators and persons in close proximity must wear personal protective equipment, including approved protection for body, hands, feet, face, ears, eyes, and air passages. Please refer to the WJTA Recommended Practices, Section 6.
- Inspect the high pressure hose for damage. Only high quality hoses intended for waterblast applications should be used.

**WGR-1 1/4**

OPERATION

NOTE: A 15-25 foot long section of leader hose of a different color than the jetter hose is recommended to indicate how close the tool is to exiting the pipe.

Flush the jetter hose prior to installing the nozzle to remove debris. Install the hose guard or Tiger Tail. If the WGR is being used in pipe diameters less than 10 inches it can be attached directly to the hose end. If being used in larger pipes a straight rigid pipe or centralizer must be placed behind the tool such that the rigid length is greater than the pipe diameter to ensure the tool cannot turn around in the pipe.

DANGER

Do not attempt to clean a manhole with the WGR hanging by the hose. The tool can turn around and strike the Operator. Specific accessories are offered and are required to safely clean manholes. Do not allow the tool to enter a manhole or vault while in operation. If the tool is not contained in a pipe it presents a serious hazard and if not avoided could result in death or serious injury.

To clean lines, position the WGR and Tiger Tail so it can enter the pipe to be cleaned. The recommended cleaning direction is upstream from the manhole.

Slowly bring the pump up to pressure, making certain that the WGR begins to pull its way into the pipe in the proper direction; allow it to advance a few feet and note the location of the leader hose or other hose marker being used. Once the pump is up to operating pressure, feed out the reel at a reasonable rate to allow the jets time to clean the pipe.

If roots are present, feeding at a slower rate will improve the cleaning results. Depending on the amount of debris in the pipe, it may be necessary to occasionally pull the WGR back toward the manhole to prevent buildup of debris behind the tool.

When finished cleaning, withdraw the tool back to its initial starting point noted by the location of the leader or hose marker.

Shut down and secure the pump before removing the WGR from the line.

After the job has been completed, remove the WGR from the hose and blow out the water with compressed air to prolong the life of the internal components.

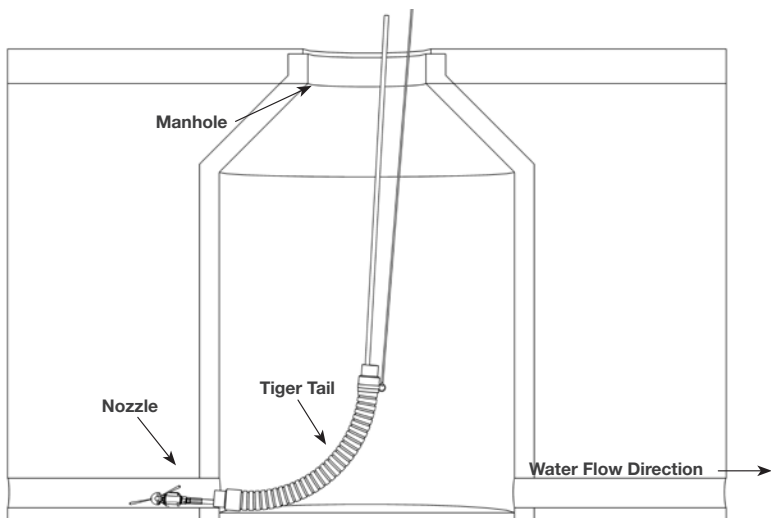


Figure 1. Proper Nozzle Setup

HEAD WILL NOT ROTATE:

- Check to see if any jets, or inserts, are plugged. Even if a jet is only partially blocked it can keep the head from rotating. Jets must be removed from the head to be properly cleaned. Poking the material plugging the jet back into the head will not fix the problem because it will re-plug the jet once water starts flowing. If the jets are all clear, wash the nozzle off with water to remove any debris or grit between the head, body and shaft. Then try rotating head by hand. It should feel free with a slight amount of smooth resistance. If it feels rough, gritty, or hard to turn, the tool needs to be repaired. It may need new bearings and shaft seals or high pressure seals. It is possible the tool needs viscous fluid added or changed, but if viscous fluid is confirmed to be present, a rebuild should be considered.

HEAD SPINS TOO FAST:

- If the nozzle is spinning significantly faster than normal, or if the nozzle starts to sound different (like a jet engine or a turbo charger) the nozzle may be low on viscous fluid, or the viscous fluid may be contaminated. In this case, add or change the fluid as appropriate. Continued operation in this state can mechanically damage the tool and a rebuild may be required to replace the faulty shaft seals.

HIGH-PRESSURE WATER SEALS LEAK:

- The WGR's seal design uses a slight amount of water for lubrication. At full pressure it should not leak more than a few drops with a new set of seals. The high pressure seals may need to be replaced if you are not able to get to full pressure or when a continuous spray comes from under the WGR Back Plate.

LOCK-UP TROUBLESHOOTING TIP:

- Rotate in reverse 1 1/4 to 1 1/2 turns to unlock braking mechanism. If tool rotates smoothly then redress may not be required.
- If the head rotates freely by hand, check the jet sizes and calculate pressure loss through the coil tubing and check with your distributor or StoneAge® to make certain there is enough jet torque to provide rotation.
- Verify jetting at <http://jetting.stoneagetools.com/#/>, contact your factory authorized Warthog® dealer or contact StoneAge®, Inc.

HEAD REMOVAL/REPLACEMENT

LIST OF TOOLS:

- Bench Vice (recommended)
- Arbor Press (recommended)
- Smooth Jaw Adjustable Wrench (such as Crescent® C718 Automotive Wrench)
- Large Adjustable Wrench (such as a 12" Crescent® Wrench)
- Medium size flat-head screw driver
- Pick
- Bearing Splitter
- 3/8 Drive Ratchet with 3" Extension
- WGR 612 Tool Kit (Includes)
 - WGR 180 Magnum Shaft Lock Pin
 - WGR 181 Removal Press Tube
 - WGR 182 Installation Press Tube
 - WGR 183 Hex Tool
 - WGR 184 HP Seal Press
 - WGR 186 HP Seal Puller
 - SC287 105 2-1/2 Wrench

LIST OF MATERIALS:

- Clean lint free rags or blue shop towels
- Anti-Seize -
 - StoneAge PN (GP 043 Blue Goop)
- Lithium Soap Grease –
 - StoneAge PN (GP 048 Grease)
- Blue Loctite® 242
- Isopropyl Alcohol

HEAD REMOVAL/REPLACEMENT

*****Product training and proper tools are required to service this nozzle. If you are uncomfortable performing the service, bring the nozzle to your authorized dealer.*****

The use of a bench vice and an arbor press is recommended. Take care throughout the entire procedure to keep the internals clean and free from grit, lint, and contamination. Failure to do so could result in premature failure after service.

The WGR head is easily removed. Different heads can be configured to match specific jobs. Changing heads is a quick way to get optimal performance for every job type - from flushing lines to removing grease and roots. The shaft and head utilize an O-Ring and straight thread connection, eliminating the need for Teflon Tape and decreasing the change time.

Remove the head. Insert the provided Magnum Shaft Lock Pin (WGR 180) into the hole through the Front Nut (WGR 004) then rotate the Head (WGR 040-R31-XXX or WGR 042-R20-XXX) until the Shaft Lock Pin slides all the way through and locks the Shaft (WGR 101) from rotating. Use one wrench on the Front Nut and another wrench on the Head to remove the Head. DO NOT loosen the Head using the Centralizer Fins (WGR 081 or 082) or Body (WGR 003) as tool damage may occur.

Replace the Head. Before reinstalling the head, make sure the threads on the shaft and in the head are free from grit, debris, and old Loctite®. Make sure the O-Ring on the shaft is clean and in good condition. Apply Blue Loctite® 242 to the Shaft threads.

The Centralizer Fins are replaceable without opening the nozzle. Specific fin sizes are available to help optimize cleaning in larger diameter pipes. Keeping the nozzle close to the center of the pipe will increase the effectiveness of the water jets in cleaning the entire pipe.

Fin Removal and Replacement. Remove the six Torx Screws (WHR 030) at the rear of the tool using the provided Magnum Shaft Lock Pin (WGR 180). The Back Plate (WGR 020 or WGR 022) and Fins (WGR 081 or 082) can now be removed. Pull the fins rearward and outward. When reinstalling new fins, make sure the front of the groove is free from debris. Replace the Back Plate, apply Blue Loctite® 242 to the Screws, and then tighten the Screws evenly in a star pattern. Tighten Screws to 20 in-lb.

There are more detailed Disassembly and Assembly instructions in the following pages of this manual.

HEAD REMOVAL/REPLACEMENT

**Indicates part number for WGR-1 1/4 Model*

WGR 040-R31-XXX
Or
*WGR 042-R20-XXX
Head

GP 025-P2SS
Hex Socket Plug (2)

CNP2 XXX Nozzles (5)
or
*CNP2 XXX Nozzles (6)

WGR 180
Magnum Shaft
Lock Pin

WGR 101
Shaft

WGR 003
Body

WGR 081 or 082
Fin (6)

**WGR 082 Fins
are available
for 10"-12" pipe*

WGR 020
or
*WGR 022
Back Plate

WHR 030
Torx Screws

Head and Fin Removal

SPEED CONTROL FLUID CHANGE

The speed control fluid changing is made easy with the WGR and disassembly of the tool is not required. This means there is less chance for contamination and longer overall tool life. Fluid changes should only be performed by qualified persons.

NOTE: Improper fluid change maintenance can result in reduced bearing or shaft seal life. **DO NOT PRESSURIZE THE WGR BODY** by forcing new fluid in too fast. The fluid is thick and only very light pressure should be applied to the syringe. Excess pressure will force fluid past the inner shaft seals and into the bearings. Use extreme care when performing this procedure.

The WGR is designed for maximum viscous fluid life and frequent fluid changes should not be required. A fluid change should be performed when replacing bearings and shaft seals.

FLUID REPLACEMENT

Fill the Syringe (BC 410) with new Viscous Fluid (BJ 048-M). Position the tool at an angle with one Port Plug (BJ 026) at the highest point and the other Port Plug at the lowest point (preferably mounted in a vise). Clean around, then remove the upper Port Plug from the body. Screw the syringe into the upper port, then remove the lower Port Plug. Using the assistance of gravity, gently ease the new fluid into the Body (WGR 003) while letting the old fluid flow out the opposite hole. Rotate the Head while flushing. ***DO NOT PRESSURIZE THE CHAMBER** by aggressively forcing in fluid.* The fluid is thick and some time is required to complete the flush. Reinstall the exit Port Plug, then remove the Syringe and install the inlet Port Plug.

This flushing procedure is only recommended for replacing the fluid with the same fluid. Not all of the fluid will be replaced using this procedure, therefore full disassembly and cleaning of the tool is recommended when changing to a different speed, or viscosity of fluid.

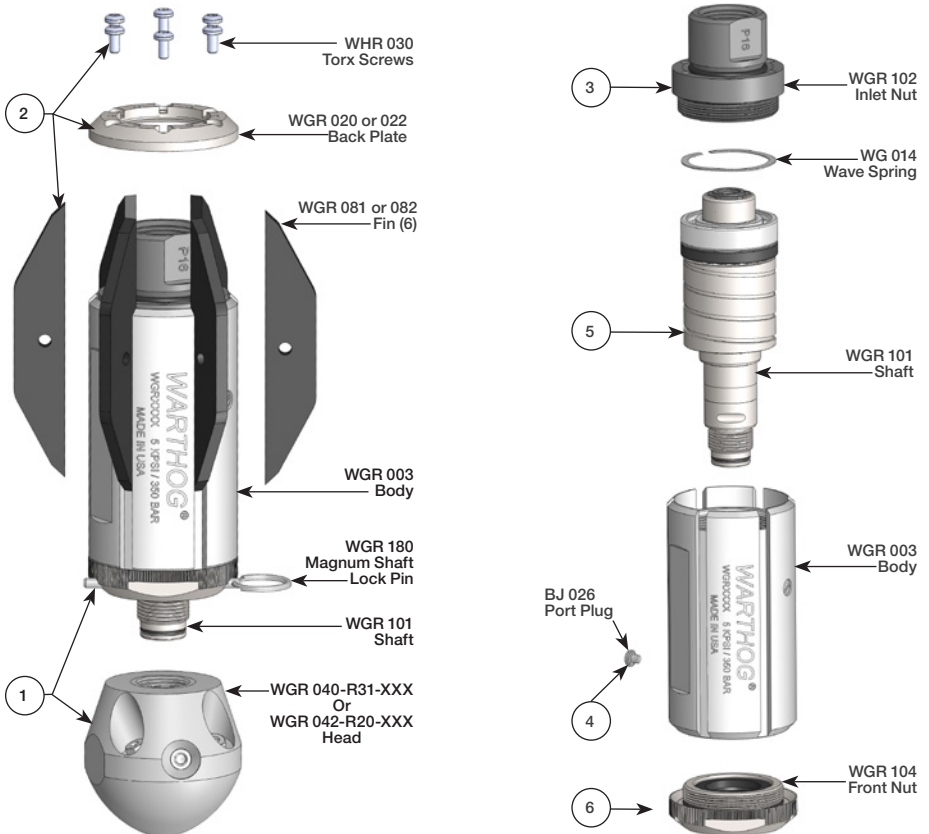


TECH TIP:

The rotation speed of the head can be fine tuned with three different viscous fluid choices to optimize performance for specific applications (Slow Fluid: BJ 048-S, Medium Fluid: BJ 048-M and Fast Fluid: BJ 048-F). The medium viscosity fluid is recommended by StoneAge for maximized performance and minimized maintenance. Please contact your Dealer or StoneAge Customer Service to select the right fluid for your application.

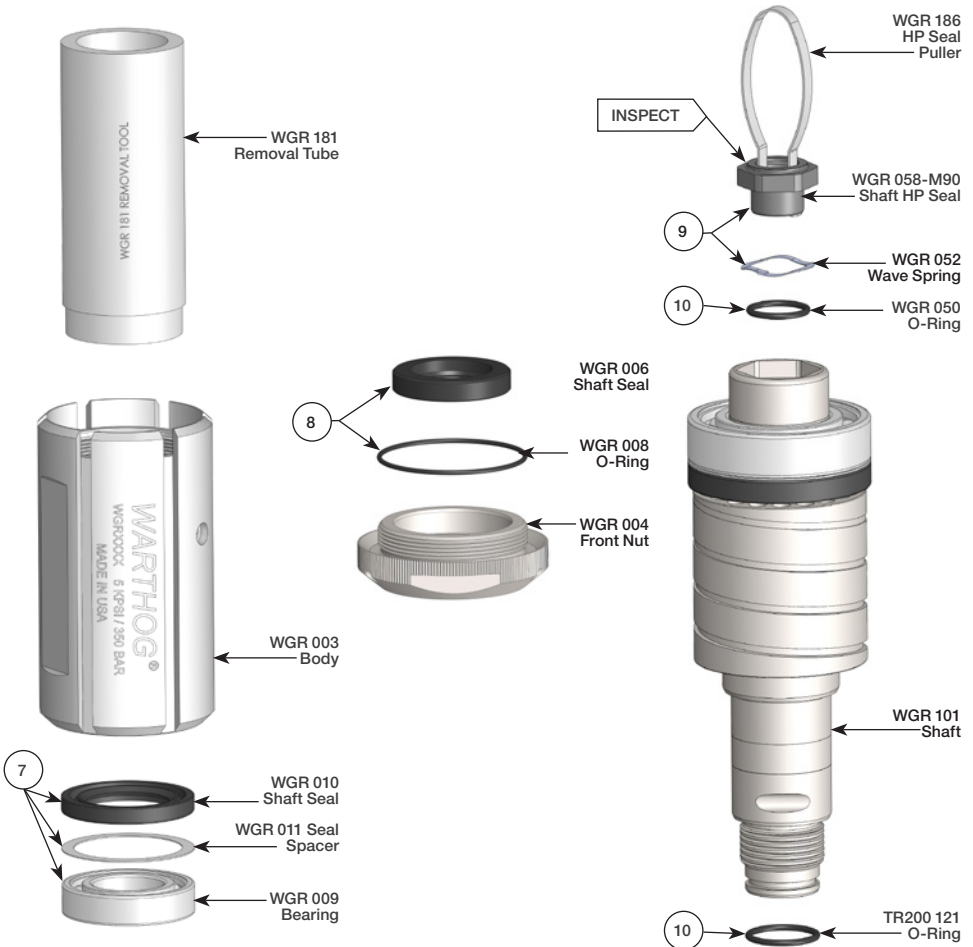
DISASSEMBLY

1. Remove the Head (WGR 040-R31-XXX or WGR 042-R20-XXX). Insert the provided Magnum Shaft Lock Pin (WGR 180) in through the hole in the Front Nut (WGR 004) in order to lock the shaft. Rotating the Head relative to the tool may be required to align the through hole and the shaft. Completely insert the Shaft Lock Pin. Use a wrench on the Front Nut and a wrench or a vice on the Head to remove the Head.
2. Remove the Fins (WGR 081 or 082 or WGR 082). Remove the six Screws (WHR 030) which attach the Back Plate (WGR 020). Once the Back Plate is off the Fins can then be removed.
3. Remove the Inlet Nut (WGR 102-XX) from the Body (WGR 003). Use care to not ovalize Body or Inlet Nut. The use of a bench vice is recommended.
4. Remove forward most Port Plug (BJ 026).
5. Remove the Shaft (WGR 101). The Shaft presses out rearward, toward the Inlet Nut (WGR 102-XX). Fluid may bleed out of the Port Plug hole during removal. The front Bearing (WGR 009) is pressed into the Body (WGR 003) and should remain in place. The rear Bearing is pressed onto the shaft and should slide out with the Shaft, along with the Seal Spacer (WGR 011) and inner Shaft Seal (WGR 010) when the Shaft is removed.
6. Remove the Front Nut (WGR 004) from the Body (WGR 003). Use care to not ovalize Body. The use of a bench vice is recommended.

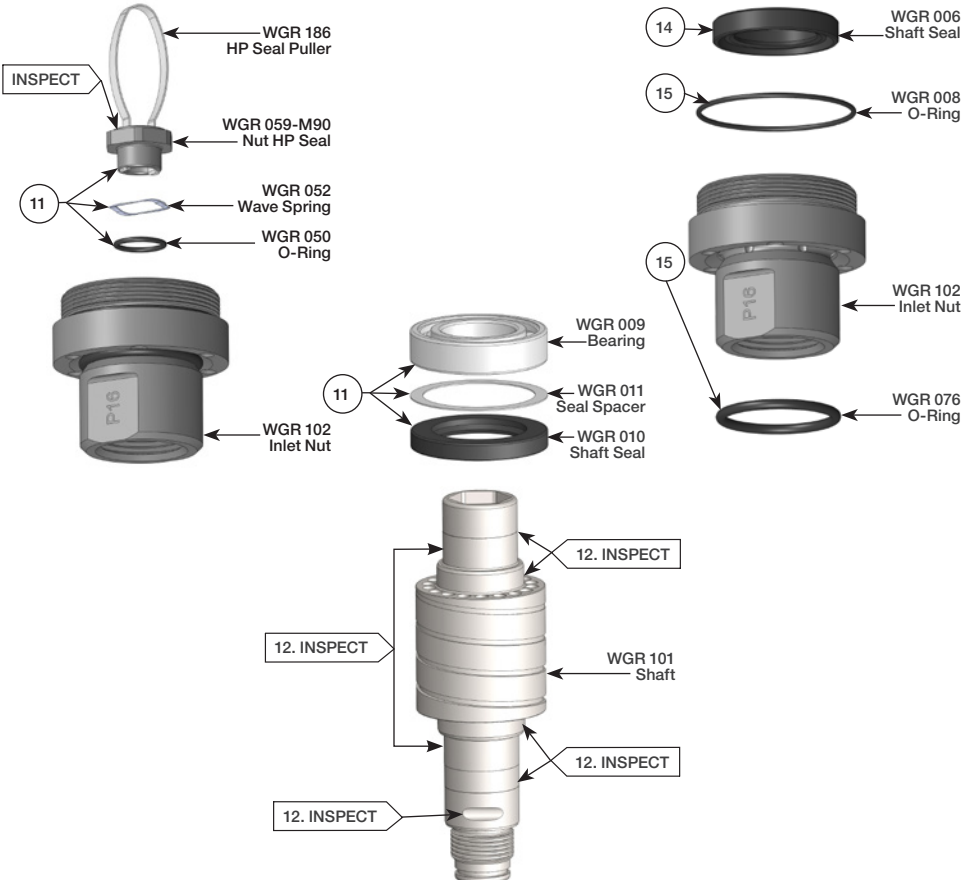


DISASSEMBLY

7. Press the front Bearing (WGR 009) out of the Body (WGR 003). Use the Removal Tube (WGR 181) seated against the inside of the Shaft Seal (WGR 010) to press the Shaft Seal, Seal Spacer (WGR 011) and Bearing forward out of the Body (WGR 003), toward the Head.
8. Remove the Shaft Seal (WGR 006) from the Front Nut (WGR 004). Use care not to scratch or damage the seal bore of the Front Nut.
9. Remove the Shaft HP Seal (WGR 058-M90). Squeeze the HP Seal Puller (WGR 186) together and insert it into the bore of the Shaft HP Seal, then release. The HP Seal Puller should hook the bottom edge of the Shaft HP Seal; pull upward in a circular pattern to work the Shaft HP Seal out of the Shaft (WGR 101). Remove the Wave Spring (WGR 052). *Removing the Shaft HP Seal is required to prevent it from being damaged while removing the Bearing (WGR 009) in the next step.* Inspect the polished faces, if damaged, replace HP Seal set (WGR 058-M90 and WGR 059-M90) together.
10. Remove O-Rings from the Shaft (WGR 101). Remove TR200 121 and WGR 050. Do not scratch the glands in the shaft otherwise leakage may occur.

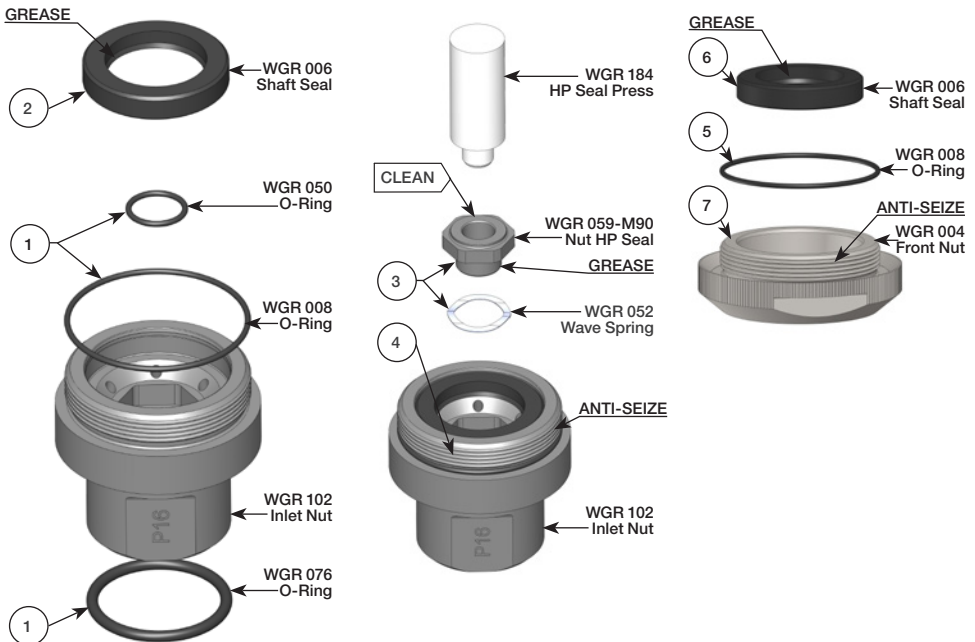


11. **Remove the Rear Bearing (WGR 009).** Evenly seat a bearing puller under the Rear Bearing then press on the end of the Shaft (WGR 101) to remove Bearing. Use care to not catch or bend the Seal Spacer (WGR 011). The Seal Spacer and Shaft Seal (WGR 010) will then slip off the shaft.
12. **Inspect the Shaft (WGR 101).** Inspect for grooving where the four shaft seals ride. Inspect where the bearings ride for signs of the bearings slipping or scratches which extend into the area where the seals operate. Inspect the front shaft lock grooves for interfering deformation. Remove burrs or high spots by grinding or filing. If any place is severely damaged or worn, the shaft may need to be replaced.
13. **Remove the Nut HP Seal (WGR 058-M90).** Squeeze the HP Seal Puller (WGR 186) together and insert it into the bore of the Nut HP Seal, then release. The HP Seal Puller should hook the bottom edge of the Nut HP Seal; pull upward in a circular pattern to work the Nut HP Seal out of the Inlet Nut (WGR 102-XX). Remove the Wave Spring (WGR 052). Inspect the polished faces, if damaged, replace HP Seal set (WGR 058-M90 and WGR 059-M90) together.
14. **Remove the Shaft Seal (WGR 006) from the Inlet Nut (WGR 102-XX).** Use care to not scratch or damage the seal bore of the Inlet Nut.
15. **Remove O-Rings from the Inlet Nut (WGR 102-XX).** Remove WGR 076, WGR 008 and WGR 050. Do not scratch the glands in the Inlet Nut otherwise leakage may occur.

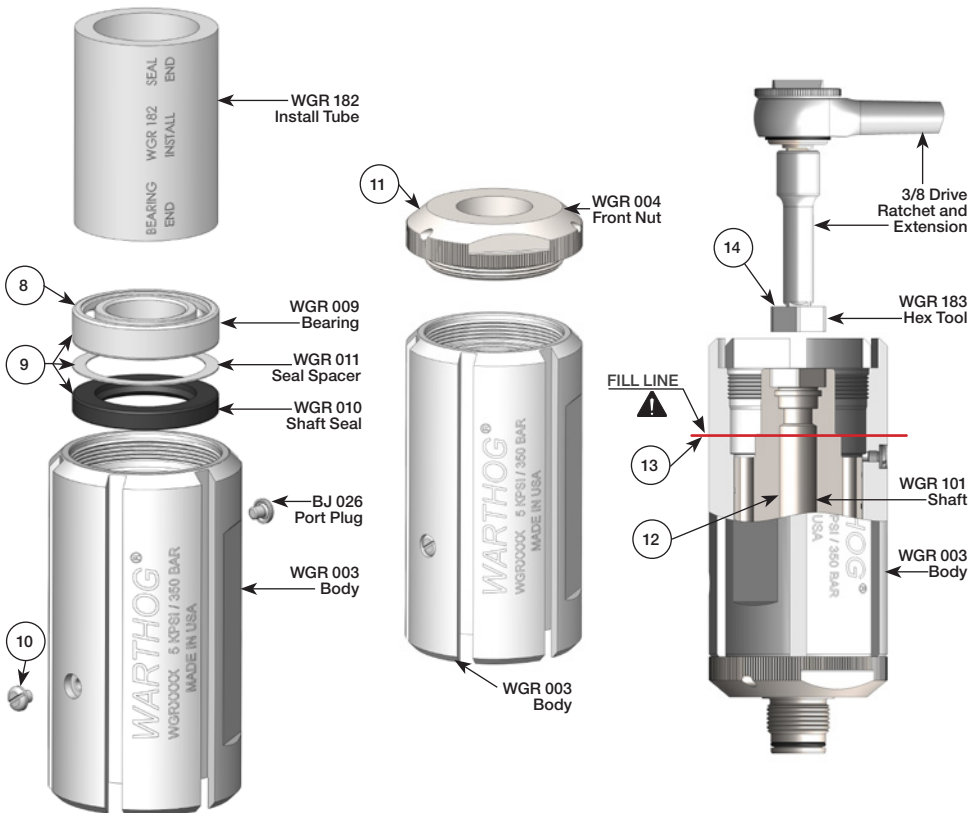


ASSEMBLY

1. Assemble the O-Rings into the Inlet Nut (WGR 102-XX). The O-Ring (WGR 050) is installed into the bore for the Nut HP Seal. Apply grease after assembly. The O-Ring (WG 008) seats at the base of the threads. The O-Ring (WGR 076) covers the weep holes.
2. Install the Shaft Seal (WGR 006). Install with the lip inward, the lip spring should face into the Inlet Nut. Generously coat the ID lip of the Shaft Seal with grease.
3. Install the Nut HP Seal (WGR 059-M90). First place the Wave Spring (WGR 052) into the Inlet Nut (WGR 102-XX). Apply a light coating of grease to the stem of the Nut HP Seal. Using the HP Seal Press (WGR 184) gently press the Nut HP Seal into the Inlet Nut. Rocking the Nut HP Seal in a small circular pattern while applying light pressure may aid in installation. *Pressing too hard will damage or chip the seal. Always use the Seal Install Tool to avoid damage to the polished face.* The Nut HP Seal should compress freely into the Inlet Nut and spring return. Clean the polished face with Isopropyl alcohol. The polished face needs to be clean and free from lint, grease and oils.
4. Apply anti-seize to the threads of the Inlet Nut (WGR 102-XX). StoneAge recommends Blue Goop® (GP 043).
5. Install the Shaft Seal (WGR 006). Install with the lip inward, the lip spring should face into the Front Nut. Generously coat the ID lip of the Shaft Seal with grease.
6. Assemble the O-Ring onto the Front Nut (WGR 004). The O-Ring (WG 008) seats at the base of the threads.
7. Apply anti-seize to the threads of the Front Nut (WGR 004). StoneAge recommends Blue Goop® (GP 043).

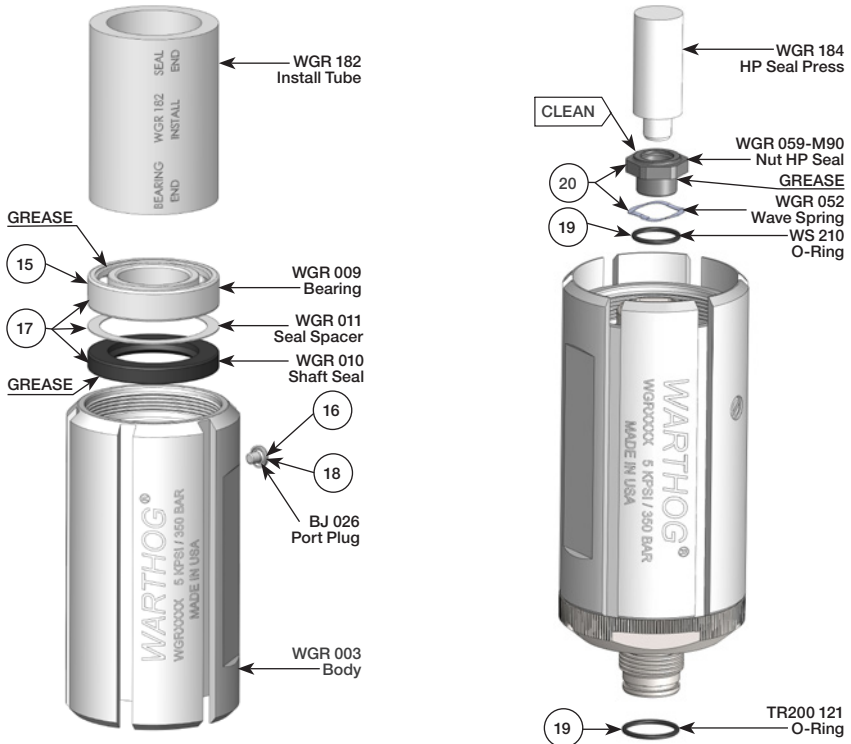


8. Pack the front Bearing (WGR 007) with grease. StoneAge recommends Lithium Complex NLGI 1 Grease. Coat the ID, OD, and every surface of the Bearing with grease.
9. Install the front Bearing Stack. Use the Install Tube (WGR 182) to install the front Bearing (WGR 007), Seal Spacer (WGR 011), and Shaft Seal (WGR 010) into the Body (WGR 003). Install with the Shaft Seal lip inward; the lip spring should face in toward the center of the Body. Lightly coat the lip with grease. The use of a press is recommended.
10. Install the Port Plugs (BJ 026).
11. Install the assembled Front Nut (WGR 004). Apply anti-seize to the threads. Install the Front Nut tightly. Torque to 115-135 ft-lbs.
12. Install the Shaft (WGR 101). Lightly coat the Shaft with grease where the Shaft Seals and Bearings ride. Gently insert the Shaft into the Body (WGR 003) then push the Shaft into place by hand. The shoulder on the Shaft should stick out slightly from the Front Nut.
13. Fill with Fluid (BJ 048-M). Fill the Body with fluid to the bottom of the chamfer of the shoulder on the Shaft. **▲ This fluid level height is critical.**
14. Spin the Shaft (WGR 101) to bleed the Fluid (BJ 048-M). Attach the Hex Tool (WGR 183) to a 3/8" drive ratchet with a 3" extension and insert it into the internal hex in the end of the Shaft. Spin the Shaft slowly in a Counterclockwise direction to work out all the air bubbles from the system.

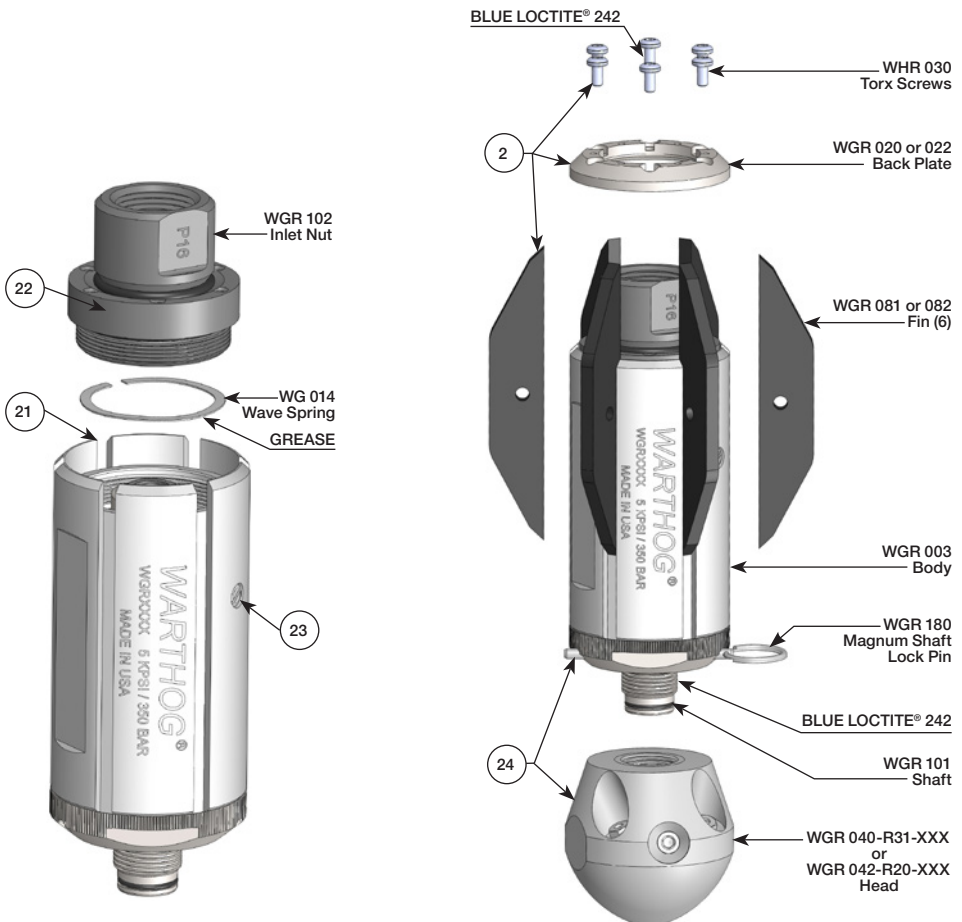


ASSEMBLY

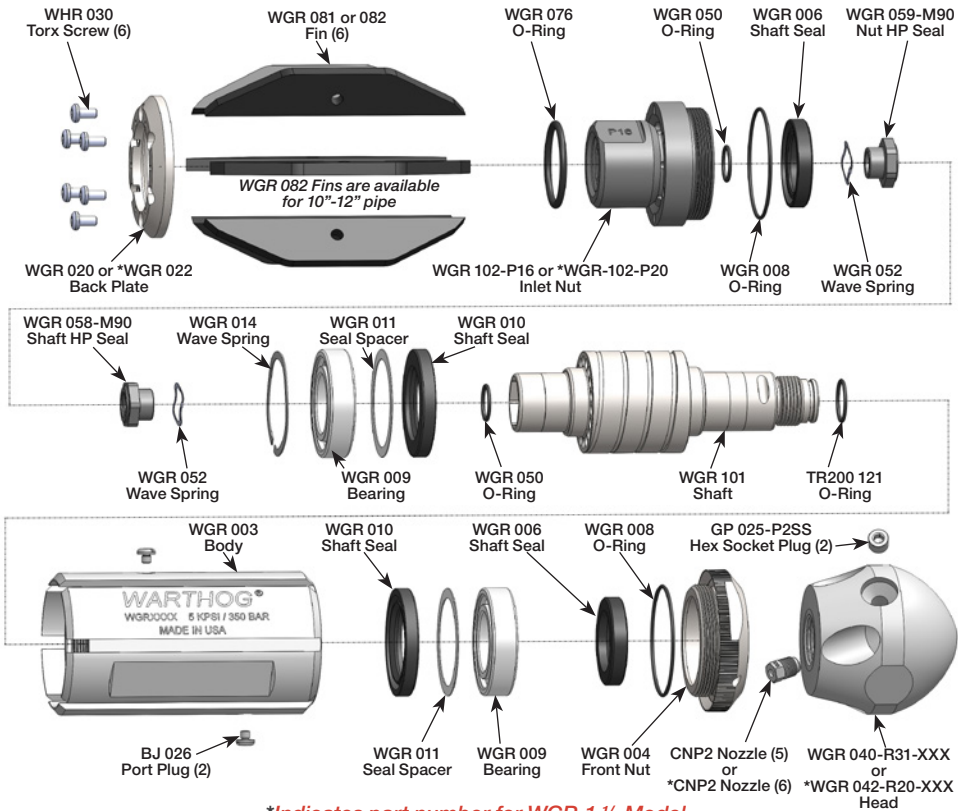
15. Pack the rear Bearing (WGR 009) with grease. StoneAge recommends Lithium Complex NLGI 1 Grease. Coat the ID, OD, and every surface of the Bearing with grease.
16. Remove the rearward Port Plugs (BJ 026).
17. Install the rear Bearing Stack. Use the Install Tube (WGR 182) to install the rear Bearing (WGR 007), Seal Spacer (WGR 011), and Shaft Seal (WGR 010) into the Body (WGR 003). Install with the Shaft Seal lip inward; the lip spring should face in toward the center of the Body. Lightly coat the lip with grease. As the stack is installed, fluid mixed with air will bleed out of the port in the side of the Body. The use of a press is recommended.
18. Install the rearward Port Plugs (BJ 026).
19. Assemble the O-Rings into the Shaft (WGR 101). The O-Ring (WGR 050) is installed into the bore for the Shaft HP Seal. The O-Ring (TR200 121) seats in the gland before the start of the threads. Grease both O-Rings after assembly.
20. Install the Shaft HP Seal (WGR 058-M90). First place the Wave Spring (WGR 052) into the Shaft (WGR 101). Apply a light coating of grease to the stem of the Shaft HP Seal. Using the HP Seal Press (WGR 184) gently press the Shaft HP Seal into the Shaft. Rocking the Shaft HP Seal in a small circular pattern while apply light pressure may aid in installation. *Pressing too hard will damage or chip the seal. Always use the Seal Install Tool to avoid damage to the polished face.* The Shaft HP Seal should compress freely into the Shaft and spring return. Clean the polished face with Isopropyl alcohol. The polished face needs to be clean and free from lint, grease and oils.



21. Install the Wave Spring (WG 014). Generously coat the Wave Spring with grease. Drop into the Body on top of the Bearing.
22. Install the assembled Inlet Nut (WGR 102-XX). Apply anti-seize on the threads if not already done. Install the Inlet Nut tightly. (A torque of 115-135 ft-lb. is recommended)
23. Remove the Port Plug (BJ 026) to relieve any internal pressure. Hold the tool at an angle so one of the ports is the highest position, remove the Port Plug to relieve any pressure built up from installing the Inlet Nut (WGR 102-XX) then reinstall the Port Plug.
24. Install the Head (WGR 040-R31-XXX or WGR 042-R20-XXX). Clean the threads of the Shaft, then apply Blue Loctite® 242 to threads. Install the Head tightly. (A torque of 50 ft-lb. is recommended).
25. Install the Fins (WGR 081 or 082 or WGR 082). Place the Fins into the slots in the Body (WGR 003); a rubber band may be helpful in holding them in place until installed. Install the Back Plate (WGR 020 or WGR 022). Clean the threads of the six Screws (WHR 030) then apply Blue Loctite® 242 to the Screws. Evenly tighten the Screws in a star pattern until they are all tight. (A torque to 20 in-lb. is recommended).



PART NAMES/NUMBERS AND SERVICE KITS



**Indicates part number for WGR-1 ¼ Model*

MAINTENANCE & OVERHAUL KITS

WGR 600 – SERVICE KIT

- 1 BJ 048-M Visc Fluid, Medium, 6oz
- 1 BJ 062-S Anti-seize, 2g
- 1 GP 049 Bearing Grease Syringe
- 1 TR200 121 Head – Shaft O-Ring
- 1 WG 008 Nut O-Ring
- 1 WG 014 Wave Spring
- 2 WGR 006 Shaft Seal – Outer
- 2 WGR 009 Bearing
- 2 WGR 010 Shaft Seal – Inner
- 2 WGR 011 Seal Spacer
- 2 WGR 076 O-Ring
- 6 WHR 030 Torx Screws

WGR 601 - FLUID SERVICE KIT

- 1 BC 410 Syringe
- 2 BJ 026 Port Plug
- 1 BJ 048-M Visc Fluid, Medium, 6oz

WGR 602 - HP SEAL KIT

- 1 BJ 062-S Anti-seize, 2g
- 2 GP 805 Container, Round Lid
- 2 WGR 050 O-Ring
- 2 WGR 052 HP Seal Wave Spring
- 1 WGR 058-M90 HP Seal - Shaft
- 1 WGR 059-M90 HP Seal - Nut

WGR 610 - OVERHAUL KIT

- 2 BJ 026 Port Plug
- 1 BJ 048-M Visc Fluid, Medium, 6oz
- 1 BJ 062-S Anti-seize, 2g
- 1 GP 025-P2SS Front Jet Plug
- 1 GP 049 Bearing Grease Syringe
- 2 GP 805 Container, Round Lid
- 1 PL 533 WGR User Manual
- 1 TR200 121 Head – Shaft O-Ring
- 2 WG 008 Nut O-Ring
- 1 WG 014 Bearing Wave Spring
- 2 WGR 006 Shaft Seal – Outer

- 2 WGR 009 Bearing
- 2 WGR 010 Shaft Seal – Inner
- 2 WGR 011 Seal Spacer
- 6 WHR 030 Torx Screws
- 2 WGR 050 O-Ring
- 2 WGR 052 HP Seal Wave Spring
- 1 WGR 058-M90 HP Seal - Shaft
- 1 WGR 059-M90 HP Seal – Nut
- 1 WGR 076 Weep Seal O-Ring
- 1 WGR 180 Magnum Shaft Lock Pin

WGR 612 - TOOL KIT

- 1 SC287 105 Front Nut Wrench
- 1 WGR 180 Magnum Shaft Lock Pin
- 1 WGR 181 Removal Press Tube
- 1 WGR 182 Installation Press Tube
- 1 WGR 183 Hex Tool
- 1 WGR 184 HP Seal Install Tool
- 1 WGR 186 HP Seal Puller

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TERMS AND CONDITIONS AND WARRANTY INFORMATION

1. Acceptance of Terms and Conditions. Receipt of these Terms and Conditions of Sale ("Terms and Conditions") shall operate as the acceptance by StoneAge, Inc. ("Seller") of the order submitted by the purchaser ("Buyer"). Such acceptance is made expressly conditional on assent by Buyer to these Terms and Conditions. Such assent shall be deemed to have been given unless written notice of objection to any of these Terms and Conditions (including inconsistencies between Buyer's purchase order and this acceptance) is given by Buyer to Seller promptly on receipt hereof.

Seller desires to provide Buyer with prompt and efficient service. However, to individually negotiate the terms of each sales contract would substantially impair Seller's ability to provide such service. Accordingly, the product(s) furnished by Seller are sold only according to the terms and conditions stated herein and with the terms and conditions stated in any effective StoneAge Dealer Agreement or StoneAge Reseller Agreement, if applicable. Notwithstanding any terms and conditions on Buyer's order, Seller's performance of any contract is expressly made conditional on Buyer's agreement to these Terms and Conditions unless otherwise specifically agreed to in writing by Seller. In the absence of such agreement, commencement of performance, shipment and/or delivery shall be for Buyer's convenience only and shall not be deemed or construed to be an acceptance of Buyer's terms and conditions.

2. Payment/Prices. Unless other arrangements have been made in writing between Seller and Buyer, payment for the product(s) shall be made upon receipt of invoice. The prices shown on the face hereof are those currently in effect. Prices invoiced shall be per pricelist in effect at the time of shipment. Prices are subject to increase for inclusion of any and all taxes which are applicable and which arise from the sale, delivery or use of the product(s), and the collection of which Seller is or may be responsible to provide to any governmental authority, unless acceptable exemption certificates are provided by Buyer in accordance with applicable law. Buyer shall pay all charges for transportation and delivery and all excise, order, occupation, use or similar taxes, duties, levies, charges or surcharges applicable to the product(s) being purchased, whether now in effect or hereafter imposed by any governmental authority, foreign or domestic.

3. Warranty. SELLER MAKES NO WARRANTIES OR REPRESENTATIONS AS TO THE PERFORMANCE OF ANY PRODUCT EXCEPT AS SET FORTH IN THE STONEAGE LIMITED WARRANTY PROVIDED WITH THE PRODUCT.

4. Delivery. Seller is not obligated to make delivery by a specified date, but will always use its best efforts to make delivery within the time requested. The proposed shipment date is an estimate. Seller will notify Buyer promptly of any material delay and will specify the revised delivery date as soon as practicable. UNDER NO CIRCUMSTANCES SHALL SELLER HAVE ANY LIABILITY WHATSOEVER FOR LOSS OF USE OR FOR ANY DIRECT OR CONSEQUENTIAL DAMAGES RESULTING FROM DELAY REGARDLESS OF THE REASON(S).

All product(s) will be shipped F.O.B. point of origin, unless specifically agreed otherwise, and Buyer shall pay all shipping costs and insurance costs from that point. Seller, in its sole discretion, will determine and arrange the means and manner of transportation of the product(s). Buyer shall bear all risk of loss commencing with the shipment or distribution of the product(s) from Seller's warehouse. Order shortages or errors must be reported within fifteen (15) business days from receipt of shipment to secure adjustment. No product(s) may be returned without securing written approval from Seller.

5. Modification. These Terms and Conditions are intended by Seller and Buyer to constitute a final, complete and exclusive expression of agreement relating to the subject matter hereof and cannot be supplemented or amended without Seller's prior written approval.

6. Omission. Seller's waiver of any breach or Seller's failure to enforce any of these Terms and Conditions at any time, shall not in any way affect, limit or waive Seller's right thereafter to enforce and compel strict compliance with every term and condition hereof.

7. Severability. If any provision of these Terms and Conditions is held to be invalid or unenforceable, such invalidity or unenforceability shall not affect the validity or enforceability of the other portions hereof.

TERMS AND CONDITIONS AND WARRANTY INFORMATION

8. Disputes. Seller and Buyer shall attempt in good faith to promptly resolve any dispute arising under these Terms and Conditions by negotiations between representatives who have authority to settle the controversy. If unsuccessful, Seller and Buyer shall further attempt in good faith to settle the dispute by nonbinding third-party mediation, with fees and expenses of such mediation apportioned equally to each side. Any dispute not so resolved by negotiation or mediation may then be submitted to a court of competent jurisdiction in accordance with the terms hereof. These procedures are the exclusive procedures for the resolution of all such disputes between the Seller and Buyer.

9. Governing Law. All sales, agreements for sale, offers to sell, proposals, acknowledgments and contracts of sale, including, but not limited to, purchase orders accepted by Seller, shall be considered a contract under the laws of the State of Colorado and the rights and duties of all persons, and the construction and effect of all provisions hereof shall be governed by and construed according to the laws of such state.

10. Jurisdiction and Venue. Seller and Buyer agree that the state or federal courts located within the City and County of Denver, Colorado shall have sole and exclusive jurisdiction over any litigation concerning any dispute arising under these Terms and Conditions not otherwise resolved pursuant to Section 9 as well as any alleged defects of any Products or damages sustained as a result of such alleged defects. Seller and Buyer further agree that should any litigation be commenced in connection with such a dispute, it shall only be commenced in such courts. Seller and Buyer agree to the exclusive jurisdiction of such courts and neither will raise any objection to the jurisdiction and venue of such courts, including as a result of inconvenience.

11. Attorney's Fees. If any litigation is commenced between Seller and Buyer, or their personal representatives, concerning any provision hereof, the party prevailing in the litigation shall be entitled, in addition to such other relief that is granted, to a reasonable sum as and for their attorneys' fees and costs in such litigation or mediation.

STONEAGE TRADEMARK LIST

View the list of StoneAge's trademarks and service marks and learn how the trademarks should be used. Use of StoneAge trademarks may be prohibited, unless expressly authorized.

<http://www.StoneAgetools.com/trademark-list/>

STONEAGE PATENT DATA

View the list of StoneAge's current U.S. patent numbers and descriptions.

<http://www.sapatents.com>

STONEAGE TERMS AND WARRANTY

View StoneAge's Terms and Warranty Conditions online.

<http://www.stoneagetools.com/terms>

<http://www.stoneagetools.com/warranty>

TERMS AND CONDITIONS AND WARRANTY INFORMATION

WARRANTY:

Warranties set forth herein extend only to End-Users, meaning customers acquiring, or that have previously acquired, a product manufactured by StoneAge ("Product") for their own use and not for resale, either directly from StoneAge Inc. ("StoneAge") or from a StoneAge Authorized Dealer or Reseller ("Dealer"). No warranty of any kind or nature is made by StoneAge beyond those expressly stated herein.

1. LIMITED WARRANTY PERIOD. Subject to the limitations and conditions hereinafter set forth, StoneAge warrants its Product to be free from defects in workmanship and material for a period of one (1) year from the date of purchase by the End-User, provided that the end of the limited warranty period shall not be later than eighteen (18) months from the date of shipment of the Product to the Dealer or the End-User by StoneAge ("Limited Warranty Period"). All replacement parts which are furnished under this Limited Warranty and properly installed shall be warranted to the same extent as the original Product under this Limited Warranty if, and only if, the original parts were found to be defective within the original Limited Warranty Period covering the original Product. Replacement parts are warranted for the remainder of the original Limited Warranty Period. This Limited Warranty does not cover any component part of any Product not manufactured by StoneAge. Any such component part is subject exclusively to the component manufacturer's warranty terms and conditions.

2. LIMITED WARRANTY COVERAGE. StoneAge's sole obligation under this Limited Warranty shall be, at StoneAge's option and upon StoneAge's inspection, to repair, replace or issue a credit for any Product which is determined by StoneAge to be defective in material or workmanship. StoneAge reserves the right to examine the alleged defective Product to determine whether this Limited Warranty is applicable, and final determination of limited warranty coverage lies solely with StoneAge. No statement or recommendation made by a StoneAge representative, Dealer or agent to End-User shall constitute a warranty by StoneAge or a waiver or modification to any of the provisions hereof or create any liability for StoneAge.

3. WARRANTY SERVICE PROVIDERS. Service and repair of the Product is to be performed only by StoneAge authorized service representatives, including Dealers who are authorized repair centers, with StoneAge approved parts. Information about StoneAge authorized service representatives can be obtained through the StoneAge website at www.stoneageetools.com/service. Unauthorized service, repair or modification of the Product or use of parts not approved by StoneAge will void this Limited Warranty. StoneAge reserves the right to change or improve the material and design of the Product at any time without notice to End-User, and StoneAge is not obligated to make the same improvements during warranty service to any Product previously manufactured.

4. WARRANTY EXCLUSIONS. This Limited Warranty does not cover, and StoneAge shall not be responsible for the following, or damage caused by the following: (1) any Product that has been altered or modified in any way not approved by StoneAge in advance in writing; (2) any Product that has been operated under more severe conditions or beyond the rated capacity specified for that Product; (3) depreciation or damage caused by normal wear and tear, failure to follow operation or installation instructions, misuse, negligence or lack of proper protection during storage; (4) exposure to fire, moisture, water intrusion, electrical stress, insects, explosions, extraordinary weather and/or environmental conditions including, but not limited to lightning, natural disasters, storms, windstorms, hail, earthquakes, acts of God or any other force majeure event; (5) damage to any Product caused by any attempt to repair, replace, or service the Product by persons other than StoneAge authorized service representatives; (6) costs of normal maintenance parts and services; (7) damage sustained during unloading, shipment or transit of the Product; or (8) failure to perform the recommended periodic maintenance procedures listed in the Operator's Manual accompanying the Product.

5. REQUIRED WARRANTY PROCEDURES. To be eligible for warranty service, the End-User must: (1) report the Product defect to the entity where the Product was purchased (i.e. StoneAge or the Dealer) within the Limited Warranty Period specified in this Limited Warranty; (2) submit the original invoice to establish ownership and date of purchase; and (3) make the Product available to a StoneAge authorized service representative for inspection to determine eligibility for coverage under this Limited Warranty. This Limited Warranty shall not extend to any person or entity who fails to provide proof of original purchase from StoneAge or a Dealer. No Product may be returned for credit or adjustment without prior written permission from StoneAge.

6. DISCLAIMER OF IMPLIED WARRANTIES AND OTHER REMEDIES. EXCEPT AS EXPRESSLY STATED HEREIN (AND TO THE FULLEST EXTENT ALLOWED UNDER APPLICABLE LAW), STONEAGE HEREBY DISCLAIMS ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION ALL IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, AND ANY AND ALL WARRANTIES, REPRESENTATIONS OR PROMISES AS TO THE QUALITY, PERFORMANCE OR FREEDOM FROM DEFECT OF THE PRODUCT COVERED BY THIS LIMITED WARRANTY. STONEAGE FURTHER DISCLAIMS ALL IMPLIED INDEMNITIES.

TERMS AND CONDITIONS AND WARRANTY INFORMATION

7. LIMITATION OF LIABILITY. End-User specifically acknowledges that the Product may be operated at high speeds and/or pressures, and that as such it may be inherently dangerous if not used correctly. End-User shall familiarize itself with all operation materials provided by StoneAge and shall at all times use and require its agents, employees and contractors to use all necessary and appropriate safety devices, guards and proper safe operating procedures. In no event shall StoneAge be responsible for any injuries to persons or property caused directly or indirectly by the operation of the Product if End-User or any agent, employee, or contractor of End-User: (1) fails to use all necessary and appropriate safety devices, guards and proper safe operating procedures; (2) fails to maintain in good working order such safety devices and guards; (3) alters or modifies the Product in any way not approved by StoneAge in advance in writing; (4) allows the Product to be operated under more severe conditions or beyond the rated capacity specified for the Product; or (5) otherwise negligently operates the Product. End-User shall indemnify and hold StoneAge harmless from any and all liability or obligation incurred by or against StoneAge, including costs and attorneys' fees, to or by any person so injured.

TO THE FULL EXTENT ALLOWED BY APPLICABLE LAW, STONEAGE SHALL NOT BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL, CONSEQUENTIAL, OR PUNITIVE DAMAGES (INCLUDING WITHOUT LIMITATION, LOSS OF PROFITS, LOSS OF GOODWILL, DIMINUTION OF VALUE, WORK STOPPAGE, INTERRUPTION OF BUSINESS, RENTAL OF SUBSTITUTE PRODUCT, OR OTHER COMMERCIAL LOSS EVEN TO THE EXTENT SUCH DAMAGES WOULD CONSTITUTE DIRECT DAMAGES), WITH RESPECT TO THE COVERED STONEAGE PRODUCT, OR OTHERWISE IN CONNECTION WITH THIS LIMITED WARRANTY, REGARDLESS OF WHETHER STONEAGE HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

IT IS UNDERSTOOD THAT STONEAGE'S LIABILITY, WHETHER IN CONTRACT, IN TORT, UNDER ANY WARRANTY, IN NEGLIGENCE, OR OTHERWISE SHALL NOT EXCEED THE AMOUNT OF THE PURCHASE PRICE PAID BY THE END-USER FOR THE PRODUCT. STONEAGE'S MAXIMUM LIABILITY SHALL NOT EXCEED, AND END-USER'S REMEDY IS LIMITED TO EITHER (1) REPAIR OR REPLACEMENT OF THE DEFECTIVE WORKMANSHIP OR MATERIAL OR, AT STONEAGE'S OPTION, (2) REFUND OF THE PURCHASE PRICE, OR (3) ISSUANCE OF A CREDIT FOR THE PURCHASE PRICE, AND SUCH REMEDIES SHALL BE END-USER'S ENTIRE AND EXCLUSIVE REMEDY.

YOU, THE END-USER, UNDERSTAND AND EXPRESSLY AGREE THAT THE FOREGOING LIMITATIONS ON LIABILITY ARE PART OF THE CONSIDERATION IN THE PRICE OF THE STONEAGE PRODUCT YOU PURCHASED.

Some jurisdictions do not allow the limitation or exclusion of liability for certain damages, so the above limitations and exclusions may not apply to you. This Limited Warranty gives you specific legal rights, and you may also have other rights which vary from jurisdiction to jurisdiction. If any provisions of this Limited Warranty is held to be invalid or unenforceable, such invalidity or unenforceability shall not affect the validity or enforceability of the other portions hereof.



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