

# REFERENCE MANUAL



**Reference Manual and User's Guide**





# Welcome

Thank you for purchasing Hurco's Old Faithful Pumper hydrostatic test pump. Like its namesake, the "Old Faithful" line of hydrostatic test pumps are engineered for reliability and durability, with low cost maintenance and nearly "wear free" operation. Hurco revolutionized the manifold system back in the 1980's when we first introduced our hydrostatic test pumps. The manifold system replaces many of the traditional pipe fittings it would take to build the hydrostatic test pump. This eliminated as many as 21 potential leak points and made maintenance and repairs much easier.

## Old Faithful Pumper:

- Available in two models. 10 GPM @ 500 PSI and 23 GPM @ 700 PSI, both featuring Annovi Reverberi Pumps.
- Capable of handling chlorine solutions up to 10%.
- Bypass relief valve take pressure off the pump during start up and safeguards against valve seat sticking that could cause pump damage.
- Utilizes a damper diaphragm to help eliminate damage to the pump caused by pressure spikes.

**Hurco Technologies, Inc.** would like to take this opportunity to welcome you as a new customer and user of the Old Faithful Pumper. You have just purchased the best hydrostatic test pump available. The Old Faithful Pumper is simple to use and will provide you with years of service.

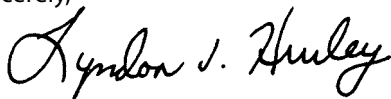
This manual, along with the AR Medium or High Pressure Diaphragm Pumps manuals, will take you through the step by step procedures for using the Old Faithful Pumper. We use simple to understand instructions and photos to assist you in learning how to get the best results from your Old Faithful Pumper. Please follow each step completely to insure maximum performance from your Old Faithful Pumper.

Your Old Faithful Pumper will give you many years of service if you take care of it as you would any expensive piece of equipment. The Old Faithful Pumper is rugged and built to last. It will withstand the demands of your jobsite; however, is not abuse proof! Be sure to assign the use of your Old Faithful Pumper to a competent worker who will take care of it.

In this manual, we will be giving you suggestions on basic line hydrostatic pressure testing activities. As a general rule, these suggestions are based on testing that was done on the Old Faithful hydrostatic test pump and methods commonly used in the field. Each community or engineering firm may have their own requirements for hydrostatic pressure testing of their water lines. You should always follow their instructions for testing. However, regardless of the instructions you are using, always keep in mind safety. Hydrostatic testing can be extremely dangerous if it is done incorrectly.

If you have any questions regarding this manual or hydrostatic testing in general, please call and ask for customer support at 1-800-888-1436.

Sincerely,



Lyndon J. Hurley  
President, Hurco Technologies, Inc.



**WARNING:** Never do hydrostatic pressure testing or use the Old Faithful Pumper in temperatures below 45° F. Call 1-800-888-1436 for more information.

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**WARNING!**  
**READ ALL OPERATING MANUALS**  
**BEFORE OPERATION OF EQUIPMENT**

**GENERAL SAFETY INFORMATION**

**SAFETY FIRST!**

Hydrostatic pressure testing of water mains can be extremely dangerous if not done properly. You must follow all the safety guidelines and use common sense when operating a hydrostatic test pump. **Never take chances; it could cost you your life!**

- **WARNING:** This pump is for pumping water only. Pumping other fluids can be dangerous causing personal injury and will void all warranties.
- **ALWAYS** wear protective clothing and safety glasses when operating machinery.
- **NEVER** service or repair the Old Faithful Pumper while running. Allow engine to cool.
- **ALWAYS** shut off engine and do not smoke when fueling the Old Faithful Pumper.
- **ALWAYS** release all pressure within the pump before servicing any component.
- **NEVER** operate a gasoline engine in an enclosed area. Be sure area is well ventilated.
- **NEVER** pump at pressures higher than the maximum recommended pressures for the pump. (see Specifications in Hypro Manual)
- **NEVER** operate your Old Faithful Pumper in temperatures below 45° F. Doing so will damage the pump and can be extremely dangerous, causing serious injury or death.
- **NEVER** make a connection to your water main with old, worn or inferior parts. These parts can break under pressure and cause serious injury or death.
- **ALWAYS** secure all hoses and fittings. These fittings and hoses are under pressure and if there is a failure, they can "whip," causing serious injury or death.
- **ALWAYS** wear protective clothing and eye protection. When working with chlorine, wear protective clothing as recommended by the chlorine manufacturer.
- Periodically inspect system components. Perform routine maintenance as required.
- Refer to the AR Medium or High Pressure Diaphragm Pumps manuals for additional safety information.

**WARNING: Your life depends on every move you make when hydrostatic testing. Don't leave anything to chance. Check every detail of your Old Faith Pumper and all connections before starting the engine.**

# Hydrostatic Pressure Testing Steps

Hydrostatic pressure testing will help you quickly determine the quality of installation of your water mains. Done right, hydrostatic pressure testing is fast and safe. Please take the time to completely read this manual and understand the steps for safely testing your water mains.



## Operating Instructions



### Old Faithful Pumper Operation Instructions

- Read Engine Manufacturers Owner's manual for operation. Check Oil and Gas levels in your engine.
- **Refer to the AR Medium or High Pressure Pumps manual for specific instructions for pump operation. Check all fluid levels.**
- Connect the clear suction hose to the filter assembly on the pump. Be sure to insert the safety clip into the coupling.
- Put the open end of the suction hose in to a barrel full of water or if you have purchased the optional water tank, connect the suction hose from the tank to the filter assembly. Again, insert the safety clip into the coupling.  
**CAUTION:** DO NOT CONNECT THE SUCTION HOSE TO A PRESSURE SOURCE OF WATER. Doing so can cause damage to your test pump. If you have purchased the optional water tank, you can connect it to a pressure source of water.
- **Refer to Operation Instructions in the AR Manual, included with this manual, for detailed instructions on setting the control unit. Refer to instructions for the 9910-GS40GI Control Unit used on our HTP10-500 pumps and the 9910-VDR50 Control Unit used on our HTP23-700 pump.**
- Before you start the engine, raise the pressure release lever. This will take pressure off the pump and make starting the engine easier.
- Start the engine and let it run for about one minute. Turn the engine off and recheck fluid levels on the pump and the engine.
- You are now ready to make a connection to your water main.

### Filling the water main prior to hydrostatic pressure testing

1. Fill the water main following the recommendations of the American Water Works Association (AWWA). These recommendations can be purchased on line at the AWWA website at [www.awwa.org](http://www.awwa.org). Also, refer to the pipe manufacturers recommendations. Improper filling of the water main can cause damage to the water main and can be a safety hazard.
2. **WARNING! It is important to get as much air out of the water main prior to testing as is possible. Air is a compressible gas and can turn your water main into a potential "bomb" causing extensive damage to the water main and injury or death to workers in the area. If you are pressure testing the water main and it is taking a lot of water to bring the pressure up, abort the test immediately and recheck the water main for trapped air.**

Note: Since water is nearly incompressible, it will not take much water pumped from your Old Faithful Pumper to bring water line pressure up to test pressure. For example, if you had an 8 inch water main, 1,000 feet long and all of the air was removed or purged from the water line, it would only take about one cup of water to bring the pressure up to 150 PSI. **WARNING; IF YOU ARE USING TOO MUCH WATER, ABORT THE TEST IMMEDIATELY AND RECHECK THE WATER MAIN FOR TRAPPED AIR.**

## Connecting your Old Faithful Pumper to the water main

1. Read all **warnings** displayed on the Old Faithful Pumper before operation!
2. **WARNING!** Do not run your Old Faithful Pumper in temperatures below 45° F.
3. **WARNING!** Inspect the supplied high pressure hose for nicks, cuts or abrasions. If there are any signs of wear, discard the hose immediately and call Hurco to order replacement parts or hoses.
4. Connect the supplied high pressure hose to the pressure outlet on the front of the Old Faithful Pumper. Insert the safety clip.
5. Determine where you will be making your connection to the water main. Follow the American Water Works Association (AWWA) recommendations or the recommendations of your project engineer or municipality.
6. This connection is critical. Do not leave anything to chance. You must use high quality parts. Be sure they are in new condition and meet or exceed the pressure maximum pressure rating of your pump and have been properly installed. The supplied high pressure hose has a 1/2 inch male iron pipe thread fitting on the end. You will need to build your connection from this fitting. Use a high quality, high pressure, pipe thread sealer on this fitting.
7. After you have made this connection to the water main, secure the hose so it will not "whip" in the event the connection you have made fails.
8. Recheck all connections and fittings. Be sure all safety clips are in place and the high pressure hose is properly secured to prevent "whipping".

Typical set-up for hydrostatic testing shown

**WARNING:** Do not use your Old Faithful Pumper in temperatures below 45° F. Do not use worn or damaged parts when making connection to water main. Be sure all air is out of water main prior to testing.

## Hydrostatic Testing the Water Main

Now that you have properly made all connections to your water main and have insured that the water main was properly filled to eliminate trapped air, you are ready to start your test. Follow these steps;

1. Read all **warnings** displayed on the Old Faithfull Pumper before operation!
2. **WARNING!** Do not pressure test in temperatures below 45° F.
3. Make sure your water source is full. (Do not connect to a high pressure water source unless you are using the Hurco optional float controlled reservoir.)
4. Raise the pressure release lever to relieve pressure on the pump when starting the engine.
5. Start engine.
6. Be sure the relief or bleed off valve is in the closed position.
7. Lower the pressure release lever into the locked position on the appropriate number setting, (refer to your AR manual).
8. Slowly open the high pressure valve on the front of the Old Faithfull Pumper and allow the pressure to build to the test pressure.
9. Once the desired pressure is achieved, slowly close the high pressure valve. This will isolate the pressure in the water main.
10. Raise the pressure release lever and turn off engine.





### Maintenance Instructions for your Old Faithful Pumper

Your Old Faithful Pumper will give you years of reliable service if you follow these simple maintenance instructions.

1. Always refer to the detailed safety and maintenance instructions in your Hypro manual.
2. After every use, flush the pump with a neutralizing solution for the liquid just pumped. For normal use, a high quality anti-freeze will do the job. Brands such as Prestone and Zerex contain cleaning and lubrication agents as well as rust inhibitors. Flush the pump for 4 or 5 minutes to thoroughly clean the internal working parts of the pump. A simple procedure would be to put the anti-freeze in a 5 gallon bucket, insert both the suction hose and the pressure hose in the bucket and allow to circulate. **WARNING!** Remember to secure the high pressure hose so it does not "Whip".
3. Your Old Faithfull pump came with oil in the pump crankcase. It is recommended to change the oil after 40 hours of break-in operation, and every three months or 500 hours, whichever comes first. Use high grade, non-detergent, SAE 30 weight oil. To drain oil from the pump, remove the drain plug and the sight glass cover and rotate the shaft until the oil stops flowing out. To fill the pump with oil, slowly pour oil into sight tube while turning the pump shaft. Turning the pump shaft purges all the air out of the crankcase. Always change oil when replacing diaphragms.
4. For winter storage of if a freezing condition will be encountered, flush the Old Faithfull Pumper with a 50/50 mixture of water and anti-freeze.
5. Gear Reduction Crankcase – Use 90W Gear Lube. To properly fill, remove side level plug and the vent plug. Fill until the gear lube is no higher than the mark on the dipstick. Replace and tighten the side level plug and the top vent plug.

### Parts Replacement, Miscellaneous Repairs and Troubleshooting

To replace the valves or diaphragms or to do any repairs to your Old Faithful Test Pump, refer to the AR Medium or High Pressure Diaphragm Pumps manuals.

Refer to the engine manufactures Operations Manuals for specific information on routine maintenance and trouble shooting.

### Determining Water Loss for Test Results

There are many methods to determine water loss. Using a water meter would be one method. A simpler method to measure water loss would be as follows;

1. Monitor pressure loss for the specified time recommended by the engineer or municipality.
2. Note the pressure drop. For example, the test called for a 180 PSI test and during the test time period, the pressure dropped to 140 PSI.
3. Now, with your Old Faithfull Pumper still connected to the water main, repeat the instructions for "Hydrostatic Testing the Water Main" on pages 4 and 5 in this manual.
4. Pump the pressure in the water main back to the test pressure. In this example, 180 PSI.
5. Connect a short piece of garden hose to the relief connection on the Old Faithful Pumper.
6. Put the hose into a clean barrel or 5 gallon bucket.
7. Slowly open the relief valve and allow water to drain into barrel until the pressure reading on the pressure gauge drops to the low pressure. In this example that would be 140 PSI.
8. Measure water in barrel, this is your water loss.



# Old Faithful Parts Breakdown

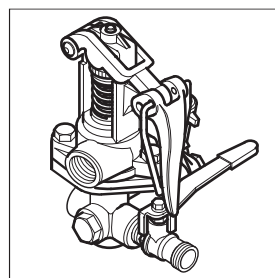
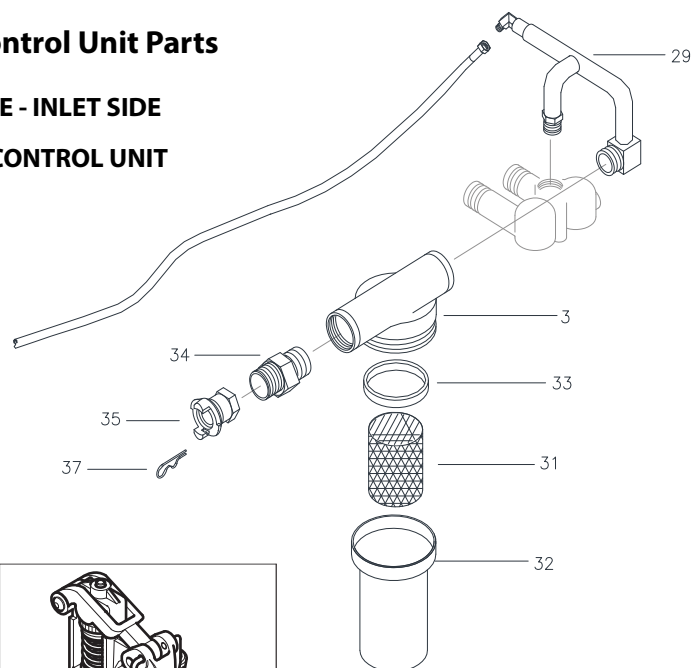
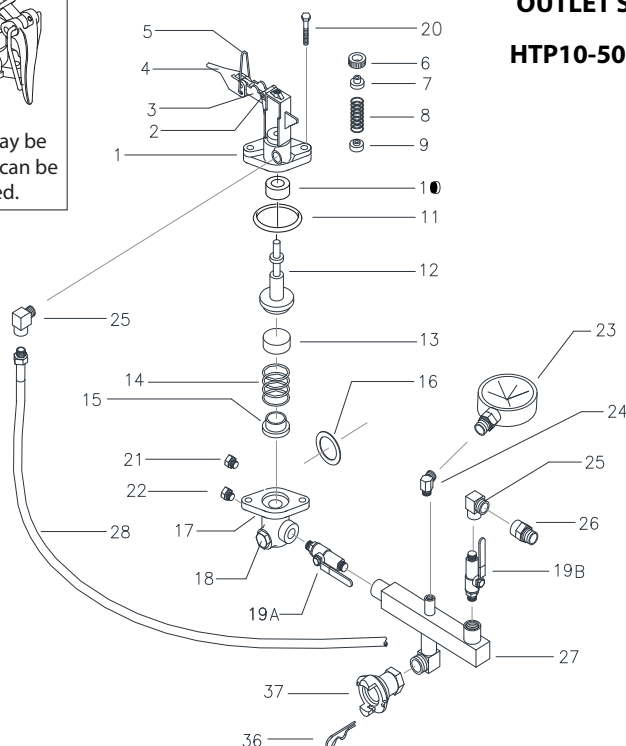
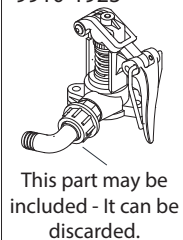
This parts breakdown is to help you identify any parts that may need to be replaced or repaired. For help repairing your Old Faithful Hydrostatic Test Pumps or to order parts, call our office at 1-800-888-1436.

## HTP10-500 Control Unit Parts

OUTLET SIDE - INLET SIDE

HTP10-500 CONTROL UNIT

9910-1923



9910-GS40GI

May include additional parts not used on the test pump. These can be discarded.

REF #	PART #	DESCRIPTION	# REQD
1	9910-320410	tension spring housing	1
2	9910-320480	pin	1
3	9910-320460	lever guide	1
4	9910-320470	pressure relief lever	1
5	9910-320490	locking clip	1
6	9910-320450	pressure adjustment nut	1
7	9910-320440	threaded guide	1
8*	9910-320420	tension spring	1
9	9910-230120	tension spring seat	1
10	9910-320433	relief valve poppet retainer	1
11	9910-320511	gasket seal - o-ring	1
12	9910-390140	tension spring guide/seal	1
13	9910-110121	relief valve seat (red)	1
14	9910-320420	tension spring	1
15	9910-450110	spring holder	1
16	9910-550350	o-ring	1
17	9910-620220	relief valve body	1
18	9910-130171	plug	1
19A	9910-KIT2497	ball valve L (horizontal)	1
19B	9910-130491	ball valve R (vertical)	1
20	9910-180370	bolt	2

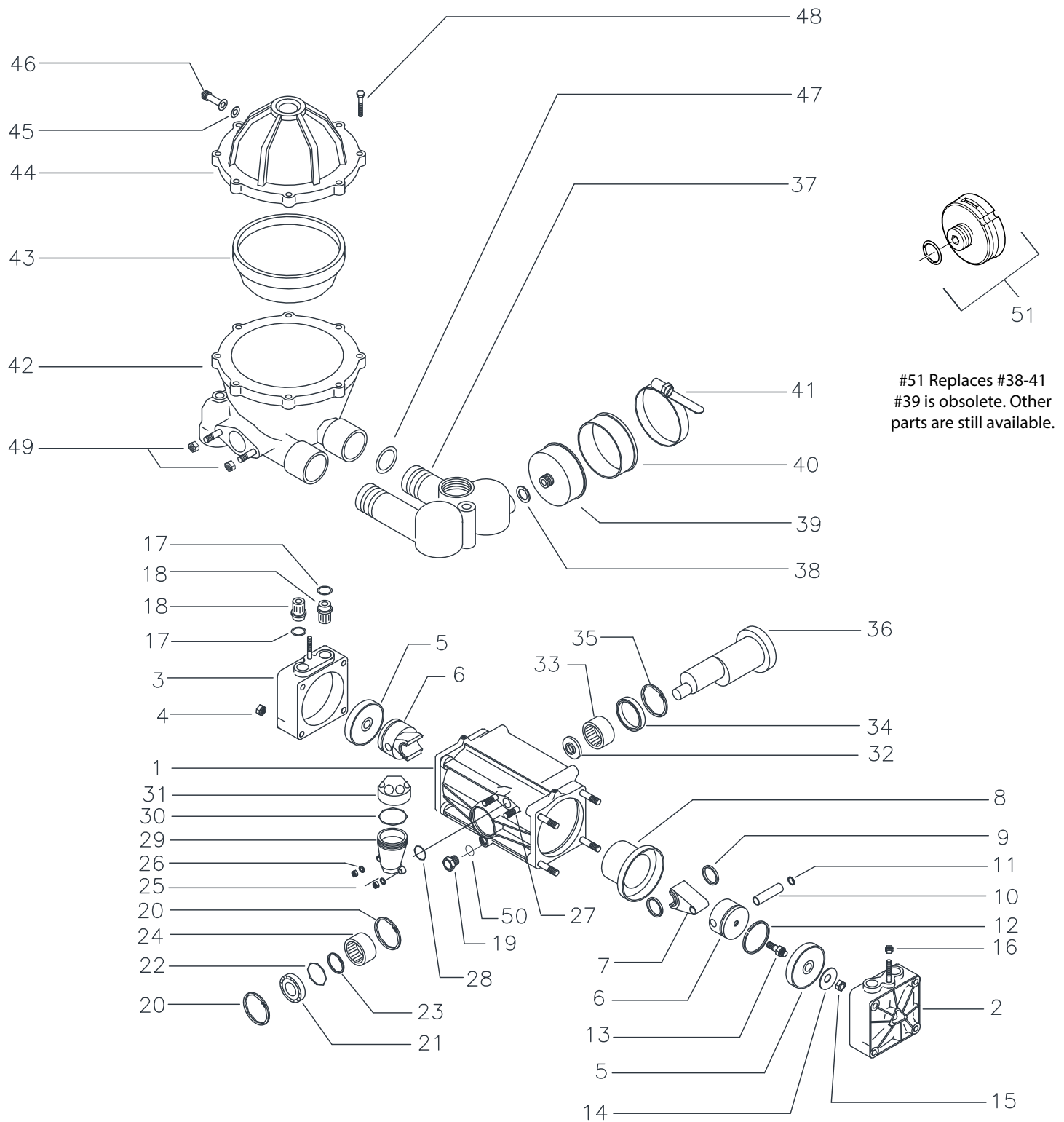
\*Spring style changed mid 2021. New Part: 9910-110190.  
Parts are interchangeable,

REF #	PART #	DESCRIPTION	# REQD
21	961-5406P-4	1/4" plug	2
22	961-5406P-6	3/8" plug	1
23	4200-109	pressure gauge	1
24	961-5503-4-4	45 degree elbow	1
25	961-5502-8-8	90 degree elbow	2
26	4200-118	hose bushing	1
27	4200-107	pressure manifold	1
28	4200-124	recirculation hose	1
29	4200-106	inlet manifold	1
30	4200-111-11	filter body	1
31	4200-111-13	strainer screen	1
32	4200-111-12	filter clear bowl	1
33	4200-111-14	filter gasket	1
34	961-5404-16-16	1" straight fitting	1
35	4200-114	1" compressor fitting	1
36	4200-115-10	r-clip	6
37	4200-113	1/2" coupler	1

### KITS AVAILABLE

9910-1923	regulator valve	ref#1-14
9910-KIT1757	control unit repair kit	ref# 10-15
9910-GS40GI	control unit assembly	ref# 1-20
4200-111	line strainer assembly	ref# 30-33

# HTP10-500 Pump Assembly Parts

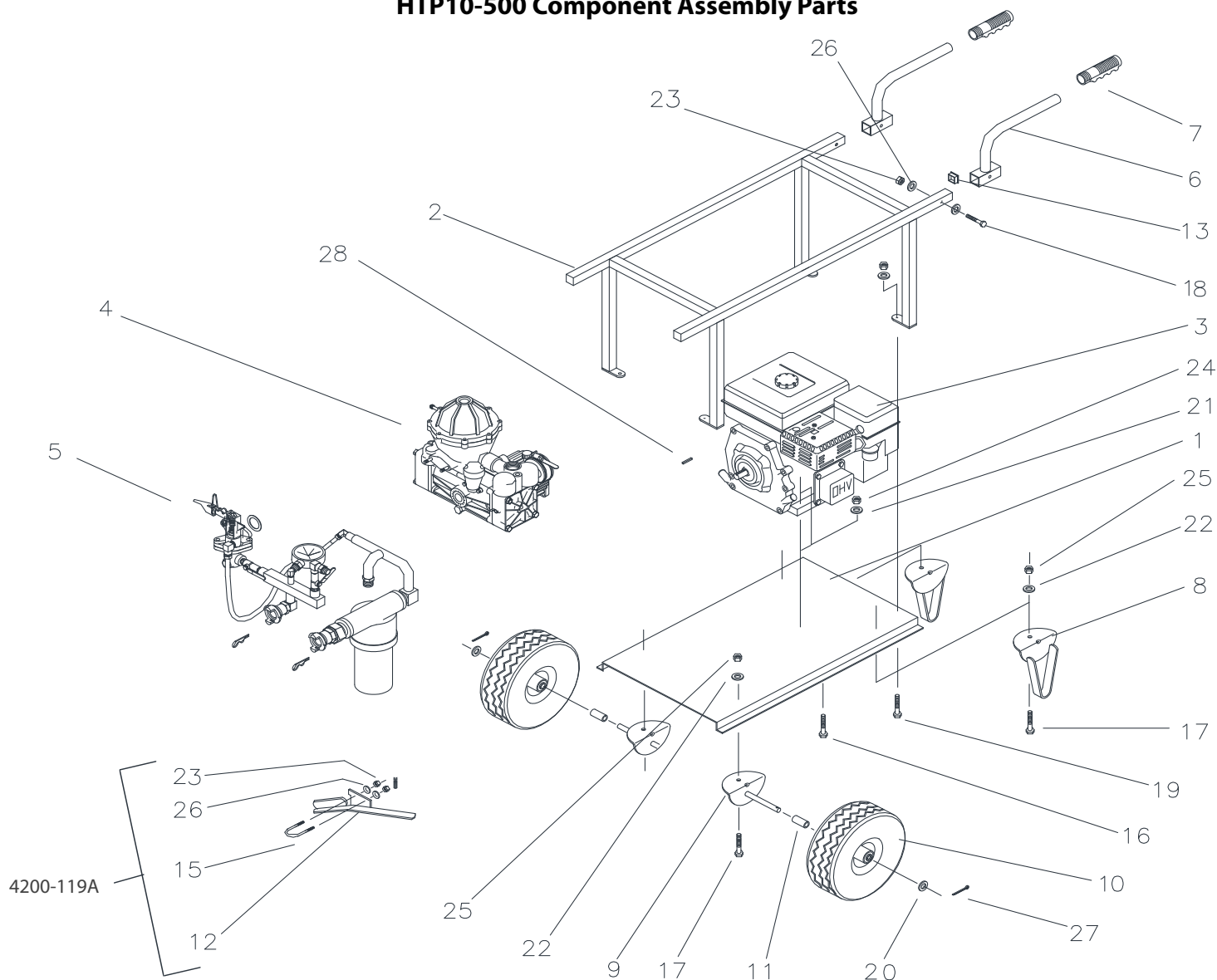


## HTP10-500 Pump Assembly Parts

REF #	PART #	DESCRIPTION	# REQD
1	9910-629011	pump body	1
2	9910-620101	head assembly right	1
3	9910-620102	head assembly left	1
4	9910-621430	bolt 12x55	8
5	9910-620085	diaphragm desmopan clear	2
6	9910-620120	piston	2
7	9910-620140	connecting rod	2
8	9910-620110	piston sleeve	2
9	9910-580470	retainer ring	2
10	9910-380300	connecting rod pin	2
11	9910-380080	retainer ring	4
12	9910-160230	piston ring	2
13	9910-580360	retaining bolt	2
14	9910-1040180	retaining washer	2
15	9910-550131	locknut	2
16	9910-180150	nut	2
17	9910-620030	o-ring	4
18	9910-1409050	check valve assembly	4
19	2406-0023	drain plug	1
20	9910-111120	retainer ring	1
21	9910-620020	oil sealing cap	1
22	9910-620210	o-ring	1
23	9910-620291	retaining ring	1
24	9910-620190	ball bearing	1
25	9910-850850	washer	2
26	9910-550331	M6 x 30 bolt	2
27	9910-550330	stud	2
28	9910-180101	o-ring	1
29	9910-550030	oil sight glass	1
30	9910-550040	o-ring	1
31	9910-550056	cap for sight glass	1
32	9910-620160	spacer washer	1
33	9910-550060	roller bearings	1
34	9910-620130	seal	1
35	9910-620330	retainer ring	1
36	9910-620170	crankshaft	1
37	9910-620150	manifold	1
38	9910-180101	o-ring	1
39	9910-650660	damper body OBSOLETE*	1
40	9910-650670	damper diaphragm	1
41	9910-650690	clamp	1
42	9910-622070	accumulator manifold	1
43	9910-550190	accumulator diaphragm	1
44	9910-629211	accumulator head - comes with #45 & #46	1
45	9910-650542	o-ring	1
46	9910-180020	air valve	1
47	9910-390060	o-ring	4
48	9910-621780	bolt	8
49	9910-390270	nut	2
50	9910-740290	o-ring	1
51	9910-46730	damper assembly	1

KITS AVAILABLE		
PART #	DESCRIPTION	INCLUDES:
9910-KIT1916	o-ring kit	ref# 17, 22, 28, 30, 45, 47, 50
9910-KIT2110	diaphragm kit	ref# 5, 17, 43 (buna)
9910-KIT1724	diaphragm kit	ref# 5, 17, 43
9910-KIT1917	valve repair kit	ref# 17, 18

\* #39 is obsolete. Replaced by #51, which includes #38-41

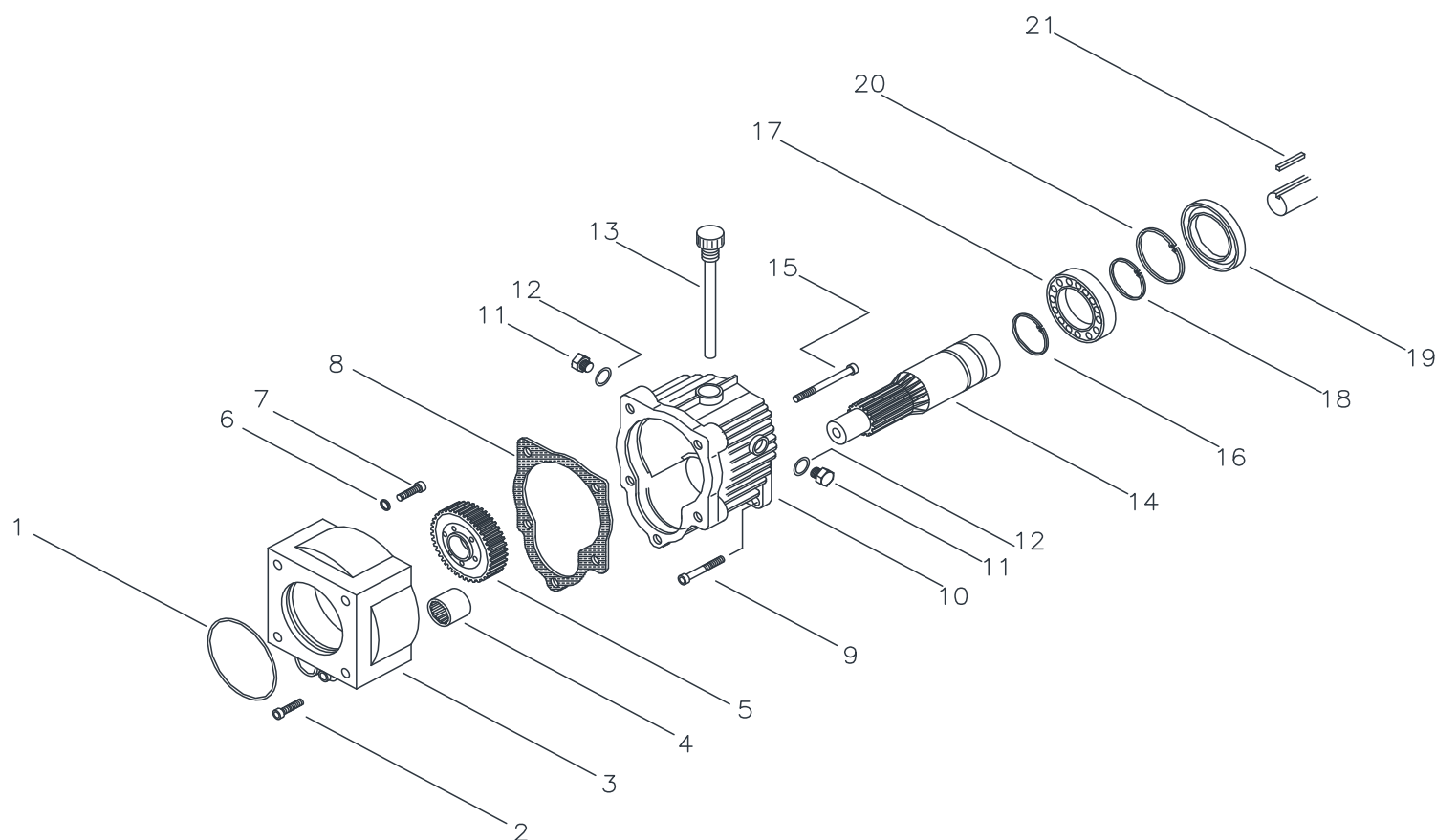
**HTP10-500 Component Assembly Parts**


REF #	PART #	DESCRIPTION	# REQD
1	4200-101	pump base	1
2	4200-102	pump protection frame	1
3	4200-104	Honda engine	1
4	9910-D30-GRGI	pump and gear box	1
5	4200-140A	complete control unit	1
6	4200-309	handles	2
7	4200-310	handle grips	2
8	4200-303	support foot	2
9	4200-302	axle	2
10	4200-912	test pump wheels	2
11	4200-304	axle spacer	2
12	4200-119	manifold bracket	1
13	4200-206	frame plug	4
15	901-299	u bolt 1/4 x 1/2	1
16	902-105	bolt 5/16 x 1-3/4 (110120228)	4

REF #	PART #	DESCRIPTION	# REQD
17	903-103	bolt 5/16 x 1-1/4 (110120326)	4
18	901-105	bolt 5/16 x 1-3/4 (110120228)	2
19	901-102	bolt 5/16 x 1 (110120325)	4
20	903-021	washer 1/4x2-/12 (1152025025020)	2
21	902-020	washer 5/16 (1133006)	4
22	902-020	washer 5/16 (1133006)	4
23	902-020	washer 5/16 (1133006)	4
24	901-001	5/16-18 nylock (1137021)	4
25	901-001	5/16-18 nylock (1137021)	4
26	901-001	5/16-18 nylock (1137021)	4
27	4200-306	cotter pin 1/8x1	2
28	9910-651000	bolt	4

Not Pictured	4200-125A	outlet hose w/female fitting	1
Not Pictured	4200-126A	suction hose w/ fitting	1

## HTP10-500 Gear Box Assembly Parts



9910-KIT1640 full gear box assembly

REF #	PART #	DESCRIPTION	# REQD
1	9910-620561	o-ring	1
2	9910-180030	bolt	1
3	9910-621000	pump adapter flange	1
4	9910-620990	bearing	1
5	9910-651620	gear	1
6	9910-200231	lock washer	6
7	9910-620470	bolt	3
8	9910-620950	gasket	1
9	9910-651000	bolt	4
10	9910-620960	gearbox body	1
11	2406-0023	drain plug	2
12	9910-740290	o-ring	2
13	9910-1140370	vent plug	1
14	9910-621660	pinion gear	1
15	9910-621010	bolt	4
16	9910-320240	retaining ring	2
17	9910-961780	bearing	1
18	9910-320240	retaining ring	2
19	9910-961800	seal	1
20	9910-961790	retaining ring	1
21	9910-881090	key	1

**Limited Warranty**

**When used in accordance with instructions, HURCO Technologies, Inc. will replace to the original purchasers, free of charge, any part or parts of the Old Faithful Test Pumps, excluding the engine and AR Pumps, found to be defective in material or workmanship or both; this is the exclusive remedy. All transportation charges on parts submitted for replacement under this Warranty must be borne by the purchaser. The engine and AR Pump is warranted as outlined by each manufacturer's separate, limited warranty only. This warranty does not cover damage or loss to the Old Faithfull Hydrostatic pumps due to operating negligence, or due to accident or other casualty. THERE IS NO OTHER EXPRESS WARRANTY OR IMPLIED WARRANTIES. THIS WARRANTY IS LIMITED TO A PERIOD OF ONE YEAR FROM THE DATE OF PURCHASE AND TO THE EXTENT PERMITTED BY APPLICABLE LAW, ANY AND ALL IMPLIED WARRANTIES, INCLUDING THOSE OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, ARE HEREBY EXCLUDED, TO THE EXTENT PERMITTED BY LAW. IN NO EVENT SHALL WARRANTOR BE LIABLE FOR DIRECT, INDIRECT, INCIDENTAL AND CONSEQUENTIAL DAMAGES RESULTING FROM ANY DEFECT IN THE GOODS, TO THE EXTENT SUCH AVOIDANCE IS PERMITTED BY APPLICABLE LAW.**

# NOTES





1-800-888-1436 • [www.hurcotech.com](http://www.hurcotech.com) • [info@hurcotech.com](mailto:info@hurcotech.com)

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