WIDDER®TOOLS

Industrial Manufacturing Solutions

HPIC-10000-D-HV Hydrostatic Test Pump

PRODUCT INFORMATION AND OPERATING INSTRUCTIONS

Description: The **WIDDER** Hydrostatic Test Systems® **C Series** is a portable, self-contained, air driven hydrostatic test system. The **C Series** comes standard with a stainless steel, 140 Mesh (100 Micron) input water filter, as well as full air filtration and lubrication. This meets all pump manufacturer warrantee requirements. All available digital gage options are certified Intrinsically Safe and at least .25% Full Scale Accurate. The optional Digital Logger unit also records up to 60,000 measurements with date stamp and temperature. The standard Isolation Lock out Valve on **WIDDER** Hydrostatic Systems® allows complete isolation from the pump input where higher system integrity is required.

This HV – High Volume system utilizes ¾" NPT fluid input and output to achieve up to 20 GPM fill flow-rate (requires a minimum 40 PSI x ¾" input hose). This allows for fast fill direct to testing without hose change over. This unit is supplied standard with a 10,000 PSI x ¾" x 15' output hose.

IMPORTANT: FOR YOUR SAFETY BEFORE OPERATING THIS UNIT, READ THIS OPERATOR'S MANUAL CAREFULLY AND COMPLETELY. LEARN THE OPERATION, APPLICATIONS, AND POTENTIAL HAZARDS PETICULIAR TO THIS TOOL.

SAFETY PRECAUTIONS:

1. Be sure all pressure on air and water fittings is relieved before dis-connecting any hoses or fittings
2. Wear eye protection
3. Pressurization of any materials is dangerous- follow OSHA procedures for stored energy and any pressurization cautions pertaining to the fluids used
4. This system can develop pressure up to the nameplate pressure- do not over pressure test vessels as damage can occur.
5. Do not run air pump without water input as you can damage the pump
6. Oil lubricator on air input must be filled with standard air tool oil before operating. Operating without oil voids tool warrantee

OPERATING INSTRUCTIONS:

A. <u>Leak Test Only</u>

1. Attach water (Front of Unit) and air input (Rear of Unit) with water and air supply turned off.
2. Attach water output to test vessel (pre-fill if necessary for faster fill).
3. Turn on input water supply at street pressure and check for any obvious hook-up leaks.
4. Bleed the system through the needle relief valve until no more water comes out.
5. Close needle valve firmly. **Do not over tighten.**
6. With Regulator opened all the way (counter clock-wise) turn on the air input valve.
7. Slowly close the regulator (clock-wise) causing the system pressure to build. The unit will stroke a few times quickly to build pressure and will slow as the system charges and fills.
8. Observe system output pressure gage carefully. **Do not over pressure test vessel.**
9. As desired pressure is approached, slow air input by backing off regulator. The system will hold this pressure within about 1% and will make-up any drop by recycling the pump.
10. Inspect pressurized system for leaks.
11. Once the leak test inspection is complete, refer to section C to shut down the system.

B. Isolated Pressure Leak Test

For tighter control of pressures, **WIDDER** Hydrostatic Pressure Test Systems® include a secondary high-pressure Isolation Valve. This valve is downstream from the pressurizing pump and allows the operator to isolate the pressurized test loop from the pump check valves. At high pressures, the pump check valves can leak some system pressure. Usually, this is well within test pressure drop parameters (API 6A on annex F.1.1.10 b. for example, states: "Pressure shall remain within 5% of the test pressure or 3,45 MPa (500 psi), whichever is less, during the test period.")

1. To isolate pressure, follow section A until system is pressured to desired pressure.
2. Close the Isolation Valve. **Closing the isolation valve may raise test pressure slightly as the isolation valve displaces fluid in the system.**
3. Once the isolation valve is closed, the test area is isolated from the pump and check valves.
4. Monitor pressure gage for drop in pressure over allotted time.
5. When test is complete, be sure to turn off input air, open regulator completely, crack bleed valve and re-open isolation valve. Do not store system under pressure- always be sure bleed valve is cracked and isolation vale is open.

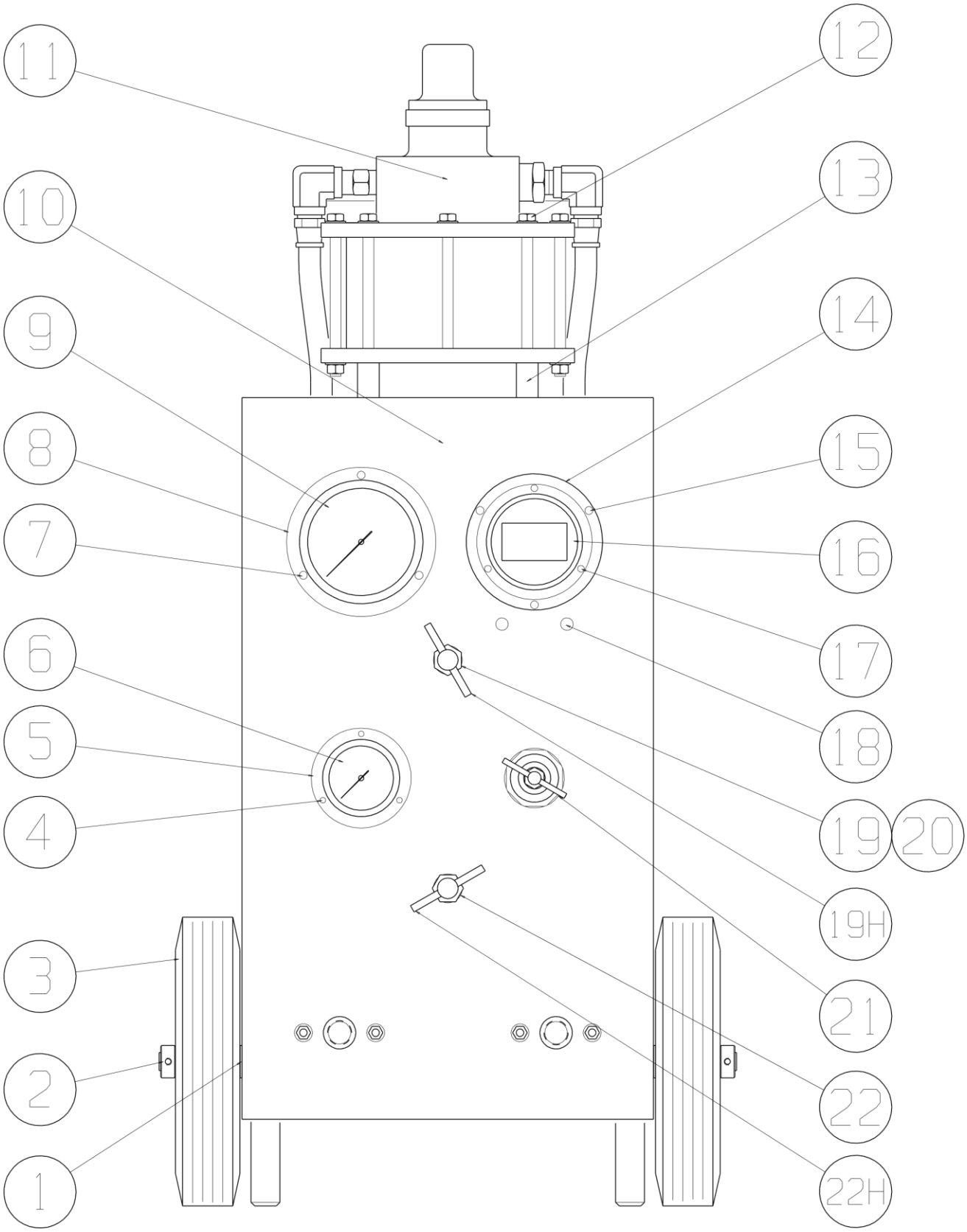
C. System Shut Down and Storage

1. Once tests and inspections are complete, shut down the system by first opening the regulator to relieve air pressure (counter clock-wise) until gage reads "0".
2. Turn off water and air input.
3. Gently crack the needle bleed valve until output pressure drops to "0".
4. Once all pressure gages read "0" and inputs are off, drain and disconnect test vessel.
5. To store unit, add a small amount of water displacing oil to the water input and hook-up an airline to the water input.
6. With all needle valves open, blow air through the water input. Water and air will come out the discharge side of the unit.
7. Blow off until mostly dry.

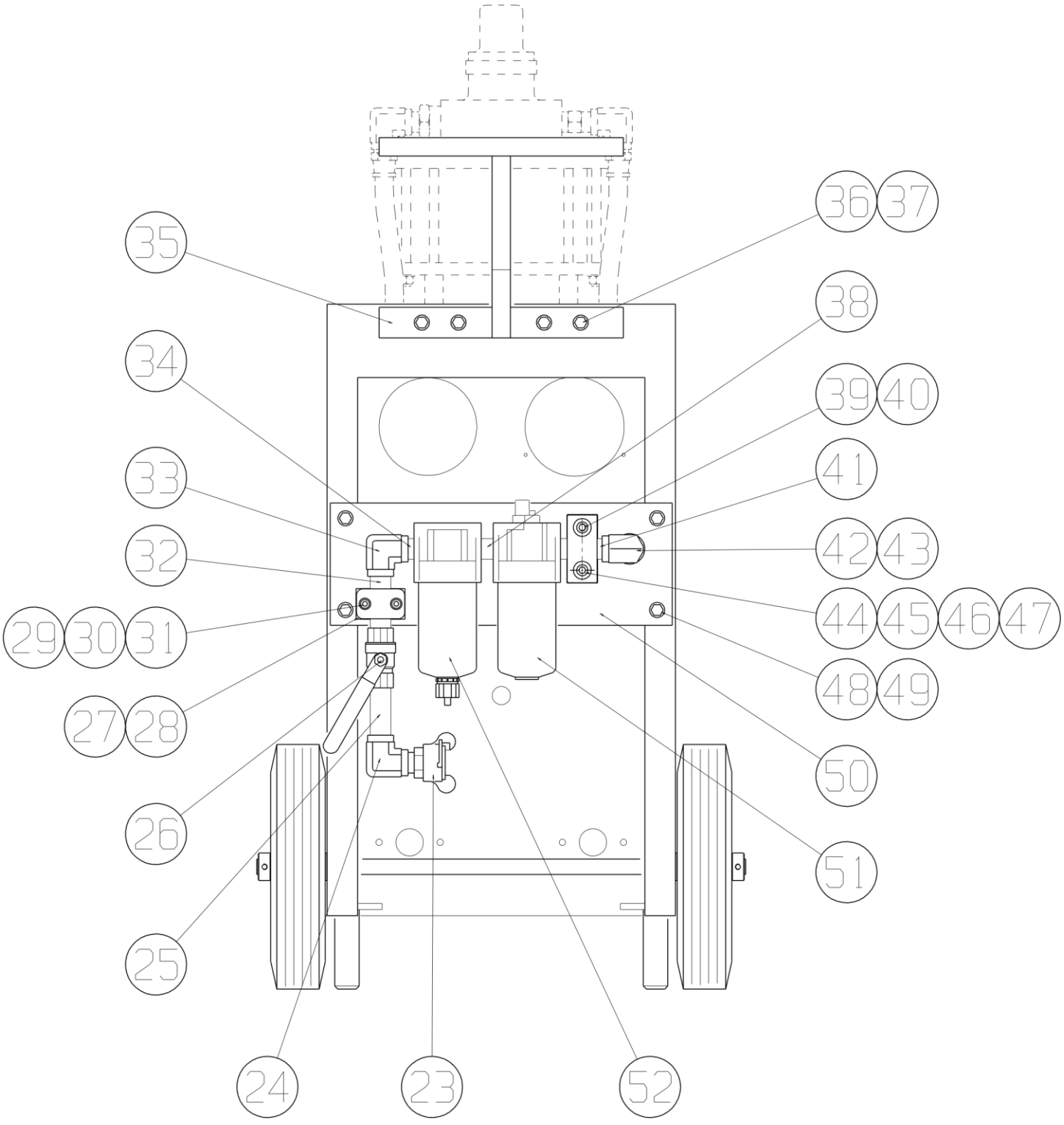
D. Digital Gage

The **WIDDER** Hydrostatic Test Systems® C Series are supplied with a digital gage. This gage is accurate to .025% full scale and detects even tiny changes in test conditions. See enclosed manual for gage use. Because **WIDDER** Hydrostatic Test Systems® are so accurate and can read down to a 1.0 PSI change in system pressure, the operator must be aware that minor pressure changes are caused by many factors including: temperature fluctuation, hose stretch, sealant settling, and material assembly movement. Vessel size is critical to this issue; a small test vessel will show dramatically more pressure change than a large one. (Note: For long term storage, remove batteries to extend life.)

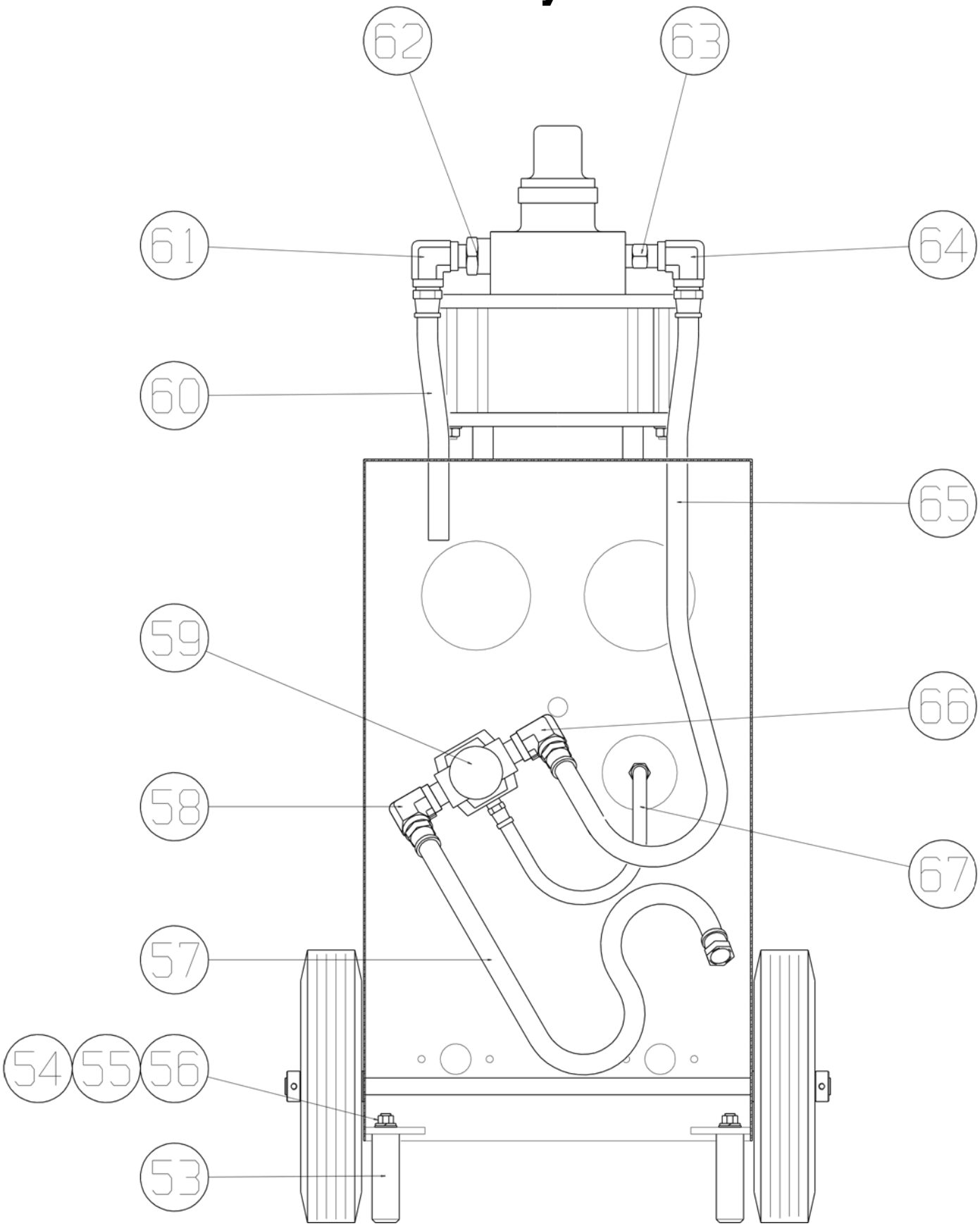
WIDDER® HPIC Hydrostatic Test Pump
Front View



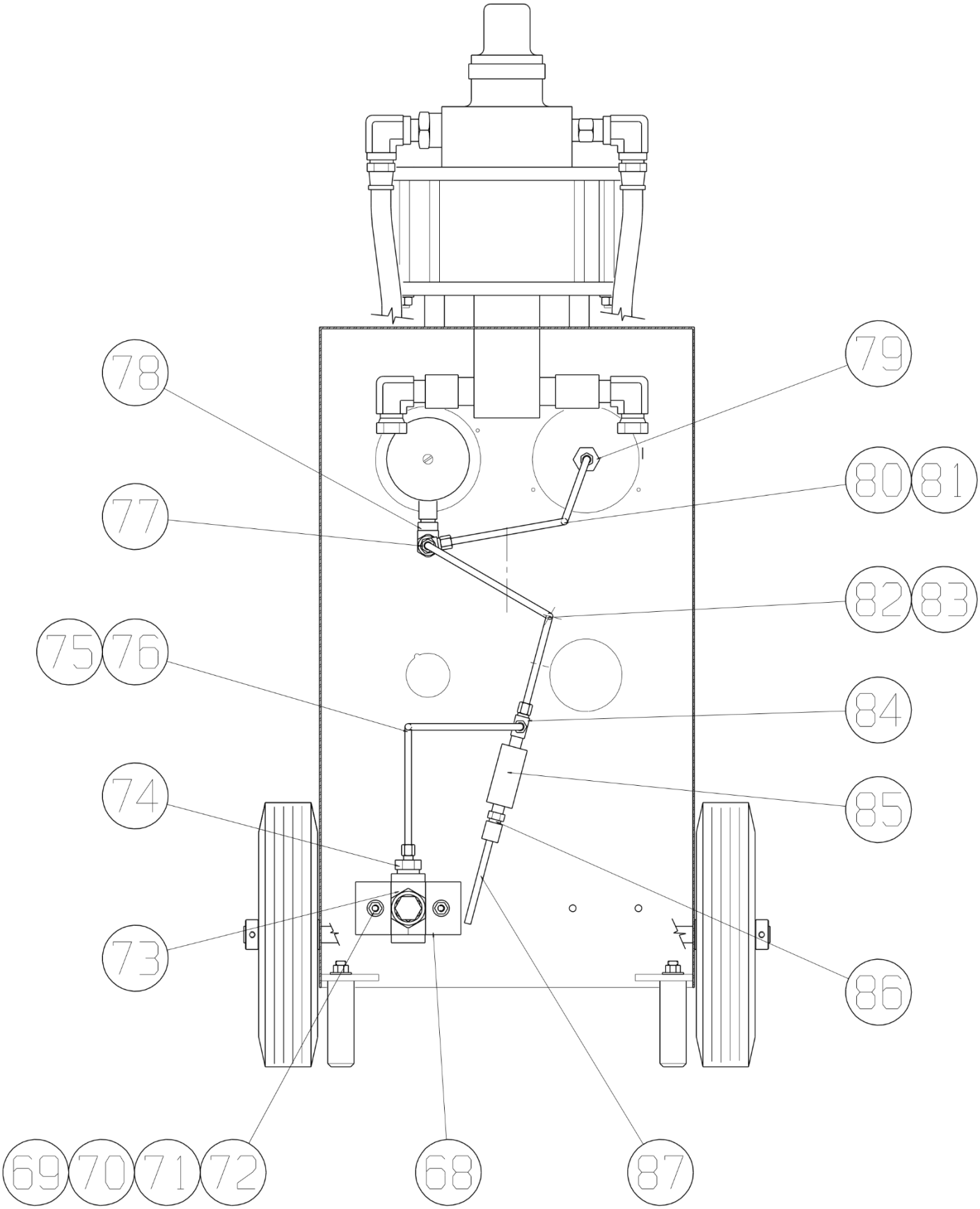
Back Panel View



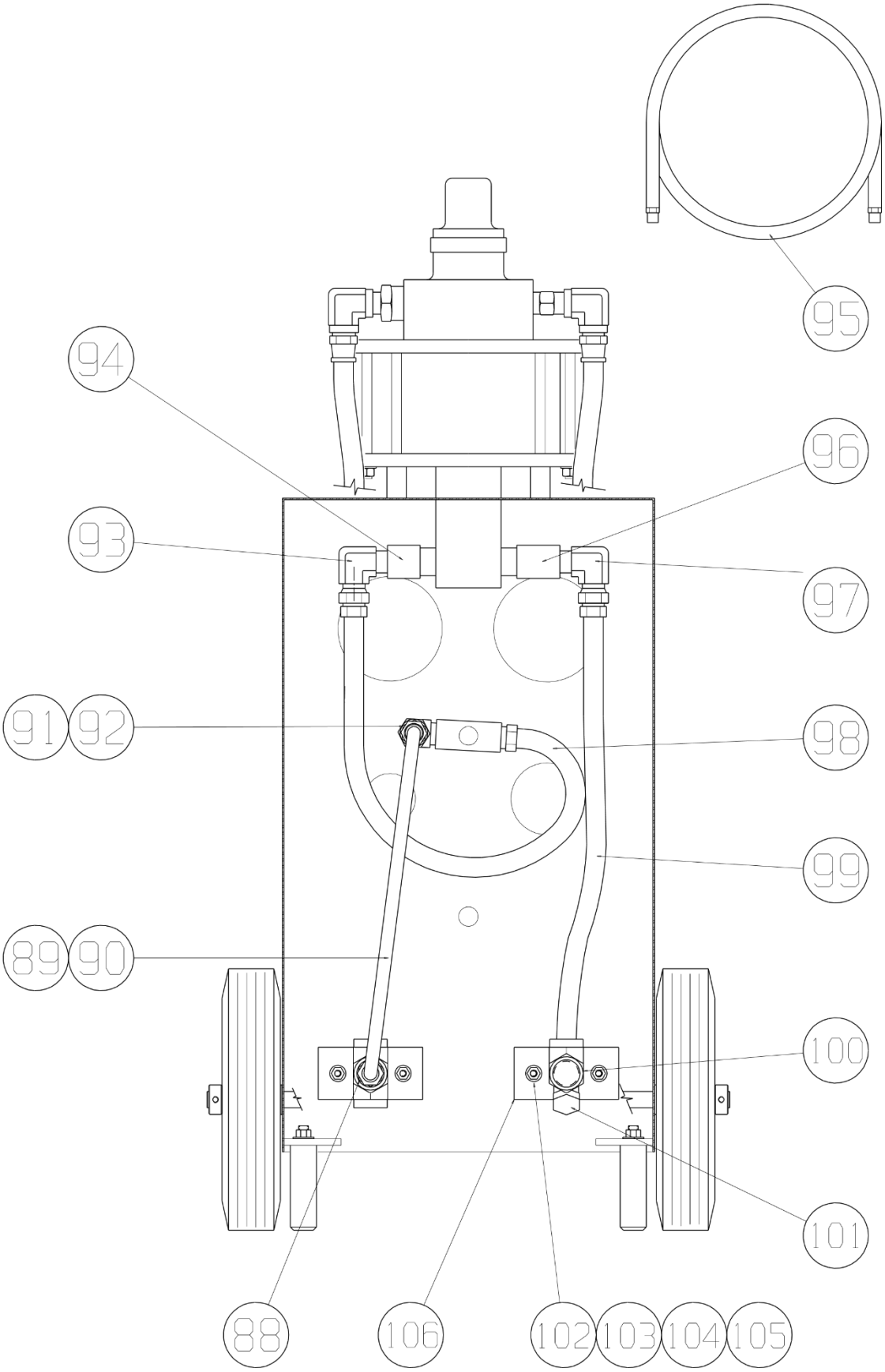
Inner Air System



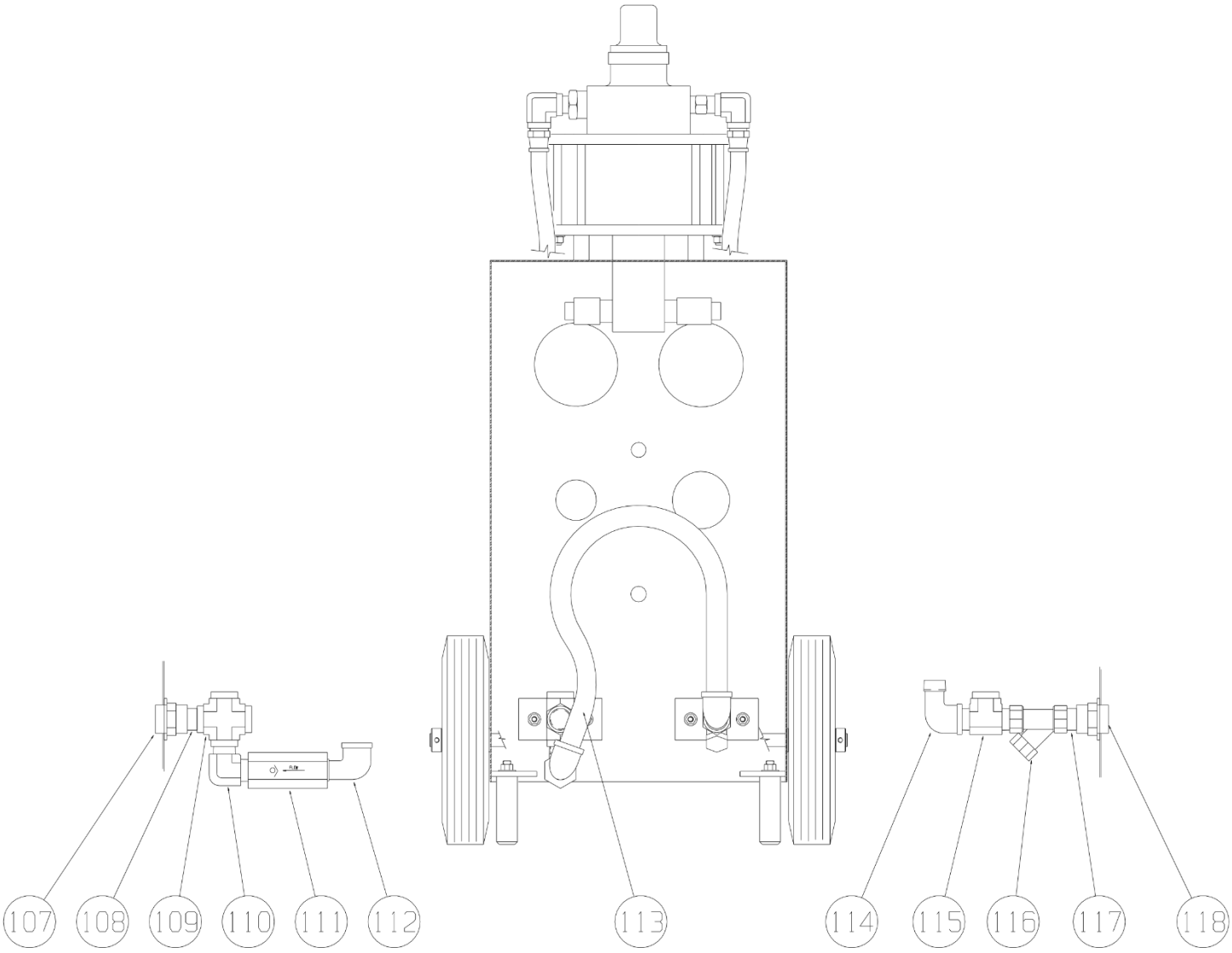
Small High Pressure System



Main Water In/Out System



High Flow Bypass System



WIDDER® HPIC HV Hydrostatic Test Pump

Item	Description	Part #	
Front View			
		HPIC-10000-D	HPIC-10000
1	Wheel Spacer	03-1014	03-1014
2	Wheel Collar	PI7000-29	PI7000-29
3	10” Wheel	PI7000-21	PI7000-21
4	Flange Screw, 2 ½” Gage	PI7000-20	PI7000-20
5	2 ½” Flange	PI7000-11A	PI7000-11A
6	2 ½”-160 psi Gage	PI7000-11	PI7000-11
7	Flange Screw, 4” Gage	PI7000-19	PI7000-19
8	4” Flange	PI7000-06A	PI7000-06A
9	4”-15k psi Gage	PI7000-06	PI7000-06
10	Cabinet	PI7000-38	PI7000-38
11	10k psi Pump	PI7000-01	PI7000-01
12	Pump Hex Bolt	PI7000-41	PI7000-41
13	Pump Standoff	PI7000-88	PI7000-88
14	3” Gage Adapter Ring	PI7000-206	
15	3” Adapter Ring Screw	PI7000-209	
16	3” 10k psi Digital Gage	PI7000-205	
17	3” Gage Screw	PI7000-207	
18	Finishing Plug	PI7000-208	
19	Isolation Needle Valve	PI7000-216	PI7000-216
19H	Handle, Isolator Valve	PI7000-216-RH	PI7000-216-RH
20	Valve Mount Washer	PI7000-217	PI7000-217
21	Regulator	PI7000-16	PI7000-16
22	Bleed Needle Valve	PI7000-36	PI7000-36
22H	Handle, Bleed Valve	PI7000-36-RH	PI7000-36-RH

Back Panel View			
Item	Description	Part #	
		HPIC-10000-D	HPIC-10000
23	Universal Coupling	36-1010	36-1010
24	90° Elbow	PI7000-96	PI7000-96
25	½ x 3” Brass Nipple	PMI014	PMI014
26	Ball Valve	PI7000-14	PI7000-14
27	Small Clamp	PI7000-59	PI7000-59
28	Small Clamp Spacer	PI7000-61	PI7000-61
29	Small Clamp Screw	PI7000-50	PI7000-50
30	Washer	PI7000-26	PI7000-26
31	Locknut	PI7000-27	PI7000-27
32	½ x 3” Brass Nipple	PMI014	PMI014
33	90° Elbow	PI7000-96	PI7000-96
34	½ x Close Brass Nipple	PMI035	PMI035
35	Handle	PI7000-31	PI7000-31
36	Handle Mounting Bolt	PI7000-23	PI7000-23
37	Washer	PI7000-24	PI7000-24
38	½ x Close Brass Nipple	PMI035	PMI035
39	Large Clamp	PI7000-60	PI7000-60
40	Large Clamp Spacer	PI7000-62	PI7000-62
41	½ x 2-1/2” Brass Nipple	PMI037	PMI037
42	90° Elbow	PI7000-96	PI7000-96
43	1/2 x 2” Brass Nipple	PMI023	PMI023
44	Large Clamp Screw	PI7000-51	PI7000-51
45	Washer (Outer)	PI7000-54	PI7000-54
46	Washer (Inner)	PI7000-53	PI7000-53
47	Locknut	PI7000-52	PI7000-52
48	Panel Mounting Bolt	PI7000-23	PI7000-23

Item	Description	Part #	
		HPIC-10000-D	HPIC-10000
49	Washer	PI7000-26	PI7000-26
50	Back Panel	PI7000-39	PI7000-39
51	Lubricator	PI7000-18	PI7000-18
52	Filter	PI7000-17	PI7000-17
Inner Air System			
53	Foot	PI7000-33	PI7000-33
54	Hex Jam Nut, Foot	PI7000-32	PI7000-32
55	Split Lock Washer, Foot	PI7000-34	PI7000-34
56	Washer, Foot	PI7000-30	PI7000-30
57	Air In To Regulator Hose	PI7000-84	PI7000-84
58	90° Elbow	PI7000-63	PI7000-63
59	Regulator	PI7000-16	PI7000-16
60	Pump Air Out Hose	PI7000-87	PI7000-87
61	90° Elbow	PI7000-63	PI7000-63
62	Hex Adapter	PI7000-45	PI7000-45
63	Hex Nipple	PI7000-73	PI7000-73
64	90° Elbow	PI7000-63	PI7000-63
65	Regulator To Pump Hose	PI7000-86	PI7000-86
66	90° Elbow	PI7000-63	PI7000-63
67	Regulator To Air Gage Hose	PI7000-83	PI7000-83
Small High Pressure System			
68	Bulkhead Plate Assy., Outlet	PI7000-328	PI7000-328
69	Hex Bolt	PI7000-23	PI7000-23
70	Washer (Outer)	PI7000-26	PI7000-26
71	Washer (Inner)	PI7000-24	PI7000-24
72	Locknut	PI7000-27	PI7000-27
73	Cross	PI7000-303	PI7000-303
74	Flare Adapter	PI7000-301	PI7000-301
75	Bulkhead To Bleed Flare Tube	PI7000-232	PI7000-232

Item	Description	Part #	
		HPIC-10000-D	HPIC-10000
76	¼” Flare Seal (2 per Tube)	PI7000-221	PI7000-221
77	Tee	PI7000-94	PI7000-94
78	90° Elbow	PI7000-215	PI7000-215
79	Flare Adapter	PI7000-95	PI7000-95
80	Gage To Gage Flare Tube	PI7000-230	PI7000-230
81	¼” Flare Seal (2 Per Tube)	PI7000-221	PI7000-221
82	Gage To Bleed Flare Tube	PI7000-231	PI7000-231
83	¼” Flare Seal (2 per Tube)	PI7000-221	PI7000-221
84	Tee	PI7000-94	PI7000-94
85	Bleed Needle Valve	PI7000-36	PI7000-36
86	Flareless Adapter	PI7000-78	PI7000-78
87	Bleed Tube	PI7000-82	PI7000-82
Main Water In/Out System			
88	Flare Adapter	PI7000-302	PI7000-302
89	Bulkhead to Iso. Valve Tube	PI7000-233	PI7000-233
90	½” Flare Seal (2 per Tube)	PI7000-220	PI7000-220
91	90° Elbow	PI7000-63	PI7000-63
92	Flare Adapter	PI7000-71	PI7000-71
93	90° Elbow	PI7000-74	PI7000-74
94	Check Valve, Outlet	PI7000-223	PI7000-223
95	½” x 15 Foot HP Hose	PI7000-89	PI7000-89
96	Check Valve, Inlet	PI7000-222	PI7000-222
97	1/2M x 1/2F SW 90	PI7000-74	PI7000-74
98	Pump Outlet Hose	PI7000-218	PI7000-218
99	Strainer To Pump In Hose	PI7000-321	PI7000-321
100	¾” x Close Brass Nipple	PI7000-310	PI7000-310
101	¾” Strainer – 100m	PI7000-308	PI7000-308
102	Hex Bolt	PI7000-23	PI7000-23
103	Washer (Outer)	PI7000-26	PI7000-26

Item	Description	Part #	
		HPIC-10000-D	HPIC-10000
104	Washer (Inner)	PI7000-24	PI7000-24
105	Locknut	PI7000-27	PI7000-27
106	Bulkhead Plate Assy., Inlet	PI7000-328	PI7000-328
High Flow Bypass System			
107	Bulkhead Plate Assy., Outlet	PI7000-328	PI7000-328
108	¾" x Close SS Nipple	PI7000-305	PI7000-305
109	Cross	PI7000-303	PI7000-303
110	90° Elbow	PI7000-304	PI7000-304
111	High Flow Check Valve	PI7000-300	PI7000-300
112	90° Street Elbow	PI7000-311	PI7000-311
113	High Flow Hose Assy.	PI7000-320	PI7000-320
114	90° Street Elbow	PI7000-311	PI7000-311
115	Tee	PI7000-307	PI7000-307
116	¾" Strainer – 100m	PI7000-308	PI7000-308
117	¾" x Close Brass Nipple	PI7000-310	PI7000-310
118	Bulkhead Plate Assy., Inlet	PI7000-328	PI7000-328