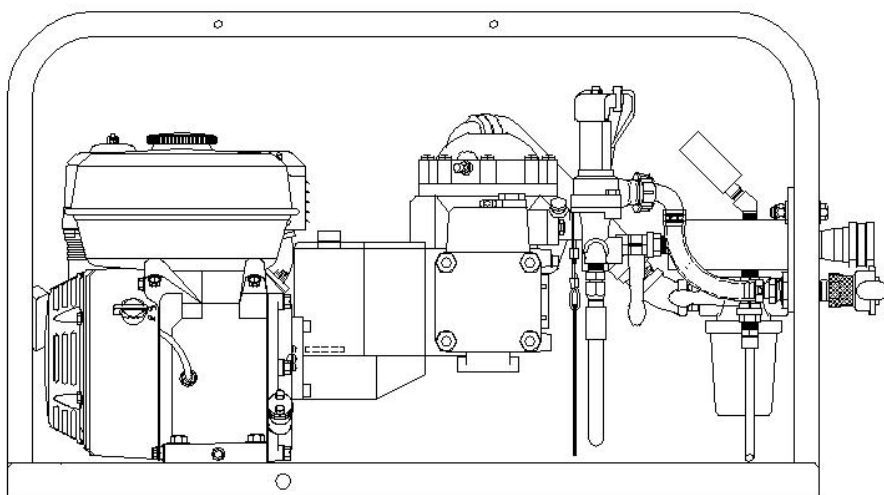
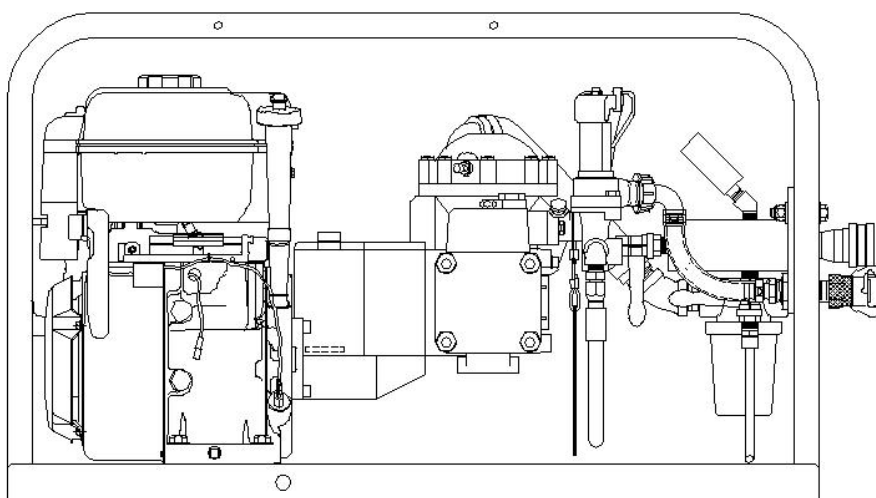


AQUA-LOC HYDROSTATIC TEST PUMP

OPERATION AND MAINTENANCE MANUAL

**PART NUMBERS 278-058 (Briggs)
278-068 (Honda)**



CHERNE INDUSTRIES INCORPORATED
5700 Lincoln Drive
Minneapolis, MN 55436-1695

1-800-THE-PLUG
(1-800-843-7584)
Fax: 1-800-843-7585
www.cherneind.com

TABLE OF CONTENTS

Caution	3
Features	4
Component Parts	4
Parts List (Briggs engine)	5-6
Parts List (Honda engine)	9-10
Pump Set-up and Operation	13
Testing Procedure	15
Troubleshooting & Maintenance	16
Warranty	17

!!CAUTION!!

ENGINE IS SHIPPED WITHOUT OIL!

**FILL ENGINE WITH OIL TO LEVEL INDICATED ON
DIPSTICK BEFORE ATTEMPTING TO START ENGINE!**

**FAILURE TO FILL ENGINE WITH OIL BEFORE STARTING
ENGINE WILL RESULT IN ENGINE FAILURE AND VOID THE
WARRANTY!!**

!!CAUTION!!

**TURN FUEL SUPPLY VALVE TO "OFF" POSITION BEFORE
TRANSPORTING UNIT.**

**VIBRATION DURING TRANSPORT MAY CAUSE FUEL TO
DRAIN INTO ENGINE CYLINDER & CRANKCASE. THIS
MAY DAMAGE ENGINE DUE TO IMPROPER LUBRICATION
OR CAUSE DAMAGE TO ENGINE COMPONENTS DUE TO
AN OVERFILLED CRANKCASE OR ENGINE CYLINDER.**

AQUA-LOC FEATURES

- * **5.5 HORSE POWER GASOLINE ENGINE** (Optional Honda or Briggs)
- * **SELF-PRIMING TWIN DIAPHRAGM PUMP** with an output capacity of 9.5 gpm/550 PSI. Additional pump features include a lightweight gear reduction unit, pulsation dampener and integral control unit that has four output pressure settings.
- * **GLYCERIN FILLED GAUGE** with a stainless steel case and cover.
- * **INLINE STRAINER** with a clear bowl and a viton seal for use with chlorine solutions.
- * **12' LONG 3/4" ID HIGH PRESSURE OUTPUT HOSE** with hydraulic quick-disconnect and 3/4 NPT swivel adapter fittings.
- * **10' LONG SUCTION HOSE ASSEMBLY** with two 1" ID hoses (one intake hose and one return hose). Each hose is color coded and has crow's foot style fittings to make hook-up easy.
- * **CLEAR PUMP INTAKE AND OUTPUT HOSES** make it possible to visually verify proper flow.
- * **A WHEEL ASSEMBLY (Optional)** with semi-pneumatic tires makes transporting the unit convenient and simple.

UNPACKING THE AQUA-LOC

Included with the unit are O&M manuals from the pump and engine manufacturers as well as a quart of 30 WT oil.

Please identify and account for each component of your Aqua-Loc after unpacking to make sure nothing has been damaged or is missing.

PARTS LIST (BRIGGS ENGINE)

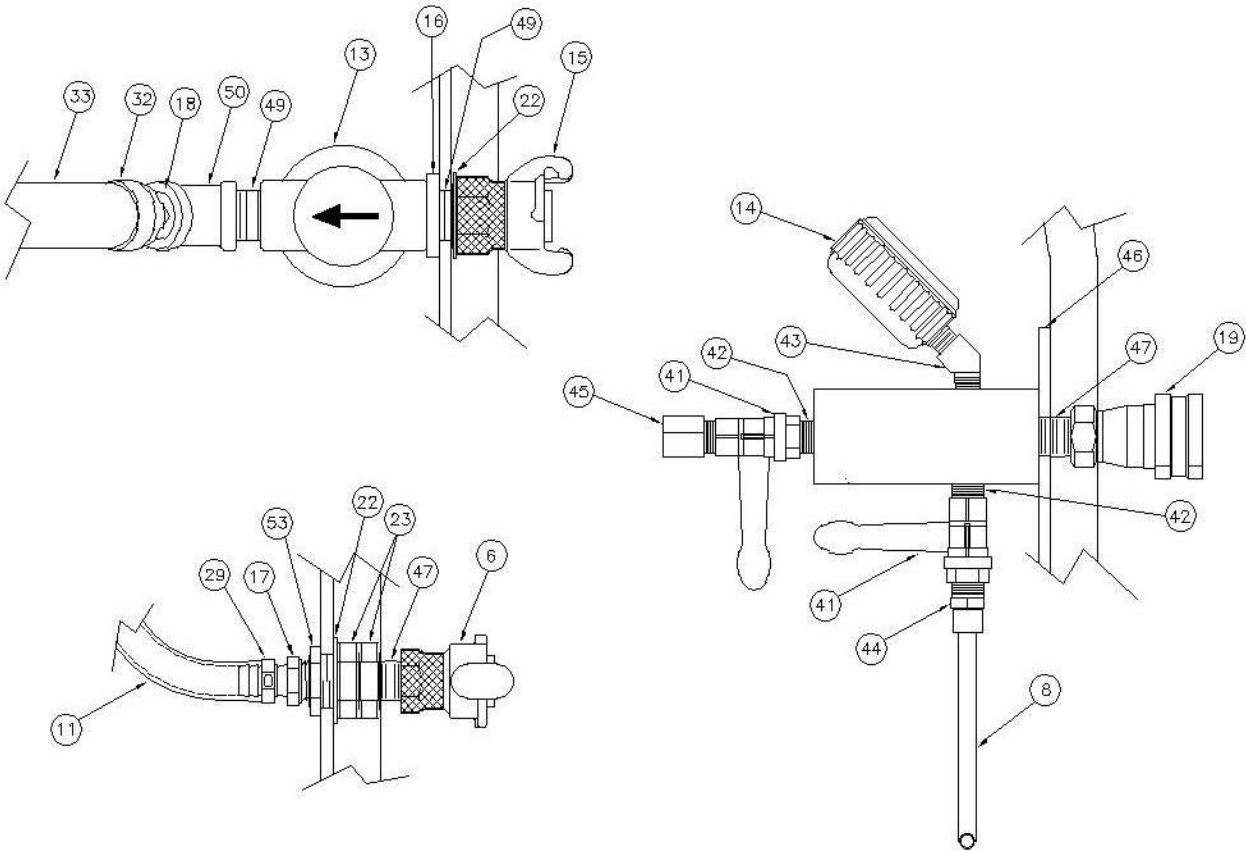
Refer to Drawings on pages 6 and 7

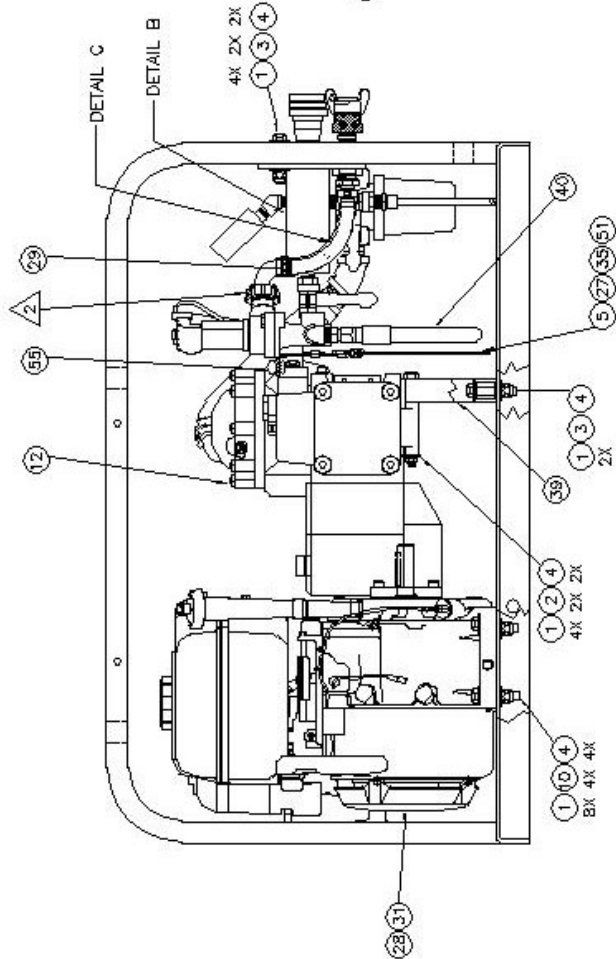
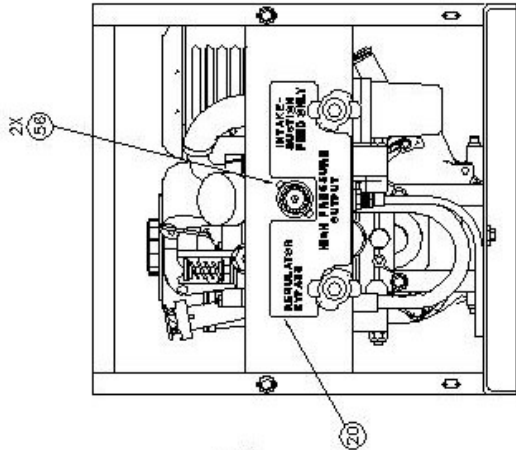
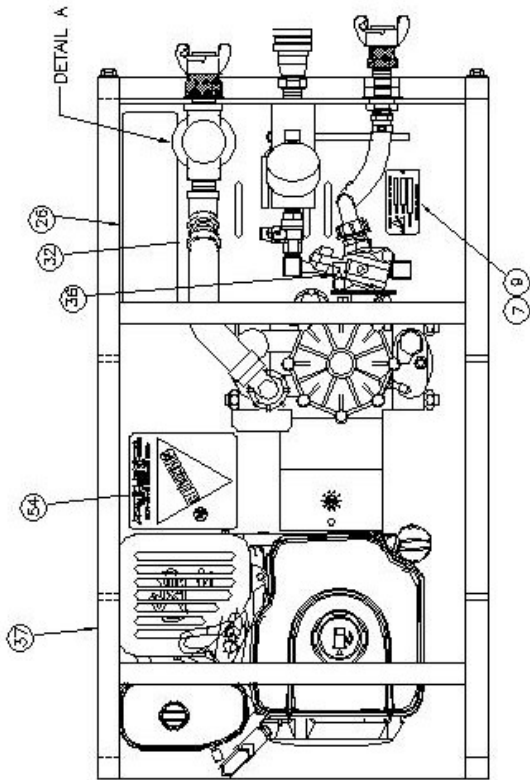
1	000-043	18	Washer-Flat, Steel, 5/16
2	040-738	2	Bolt-MHH, 5/16-18 X 4"
3	000-469	3	Bolt-MHH, 5/16-18 X 2"
4	000-930	7	Nut-Hex, Self Locking, 5/16-18
5	002-232	2	Crimp-Cable, 3/32
6	003-433	1	Coupling-Galv. STL, 1/2 FNPT x 2 LUG
7	005-789	1	Label-Metal, Model-Serial #
8	014-796	.75 ft	Tubing, 3/8" Polyethylene
9	019-887	2	Tack-Metal, .072 x .187 L
10	000-450	4	Bolt-MHH, 5/16-18 X 1 1/2"
11	021-868	.58 ft	Hose-PVC, Clear, 5/8
12	022-478	1	Pump-Hydrostatic Test
13	022-768	1	Strainer-Canister Style, 3/4 NPT Ports
14	064-348	1	Gauge, 0-600 PSI, Retard, liquid filled
15	022-788	1	Coupling-3/4 FNPT x 2 LUG
16	022-798	1	Washer-Flat, 1 ID, STL
17	022-808	1	Adapter-1/2 NPT x 5/8 NB.
18	022-818	1	Adapter - 3/4 NPT x 1 NB
19	022-828	1	Coupling, Quick Disconnect, Hydraulic, 1/2
20	040-098	1	Decal, Panel, Diaphragm HSTP
21			
22	022-928	2	Washer-Lock, Internal Tooth, 1 ID x 1.812 OD
23	022-938	2	Nut-Hex, Brass, 1-14 UNEF x 1.375 Flats x .44 Thk
24	031-198	1	Hose, Discharge, 12 FT
25			
26	023-168	1	Decal-Warning & Info (2.5 x 9.5)
27	023-178	1	Tag-Instructions, HTP
28	023-198	1	Pad-Motor Mounting, HTP
29	023-218	2	Clamp-Hose, Ear Type, 1
30	023-268	.125	Loctite-Thread Sealer, #545, 50 ML
31	040-868	1	Motor – 5.5HP Gas, Horizontal Shaft, Briggs
32	030-178	2	Clamp, Hose Worm Drive 1 1/2"
33	030-188	.83 ft	Hose-Suction Type, PVC, 1 (9-1/2 Inch Long
34	030-938	1	Hose Assy, Bypass and Intake
35	031-518	1	Tag-Instructions, HTP, Spanish
36	037-583	2	Plug-Pipe, Allen Dr., Brass 3/8 NPT
37	056-348	1	Base and Cage, Piston, Diaphragm or Vacuum Pump
38	039-028	1	Manifold, Diaphragm Pump
39	039-038	1	Mounting Brace, Diaphragm Pump

AQUA-LOC HYDROSTATIC TEST PUMP

6

40	039-068	1	Hose, 3/8 ID, Hydraulic
41	039-078	2	Ball Valve, 3/8 FPT X 3/8 FPT, Brass
42	039-088	2	Nipple, Close, 3/8 NPT, Brass
43	039-098	1	Elbow, 45 Degree Street, 1/4 NPT Brass
44	039-108	1	Compression fitting, 3/8 NPT x 3/8 tube, Brass
45	039-138	2	Elbow, 90 Degree Street, 3/8 NPT Brass
46	039-158	1	Panel, Hydrostatic Test Pump
47	039-178	2	Nipple, Close, 1/2 NPT, Brass
48			
49	052-272	2	Nipple-Close, 3/4 NPT
50	054-259	1	Elbow-45" x 3/4 NPT
51	058-831	1ft	Cable-Steel, 3/32
52	091-510	1	Oil-30 WT. 1 QT. Bottle W/C
53	098-477	1	Bulkhead-Brass, 1/2 NPT
54	115-363	1	Decal-Cherne Address and Logo
55	251-607	1	Plug - Pipe, 1/4, Brass, Hex Dr.
56	039-188	2	Screw - FHM 1/4-20 x .75
57	039-418	1	Carton, Diaphragm Pump





**PARTS LIST
(HONDA ENGINE)**

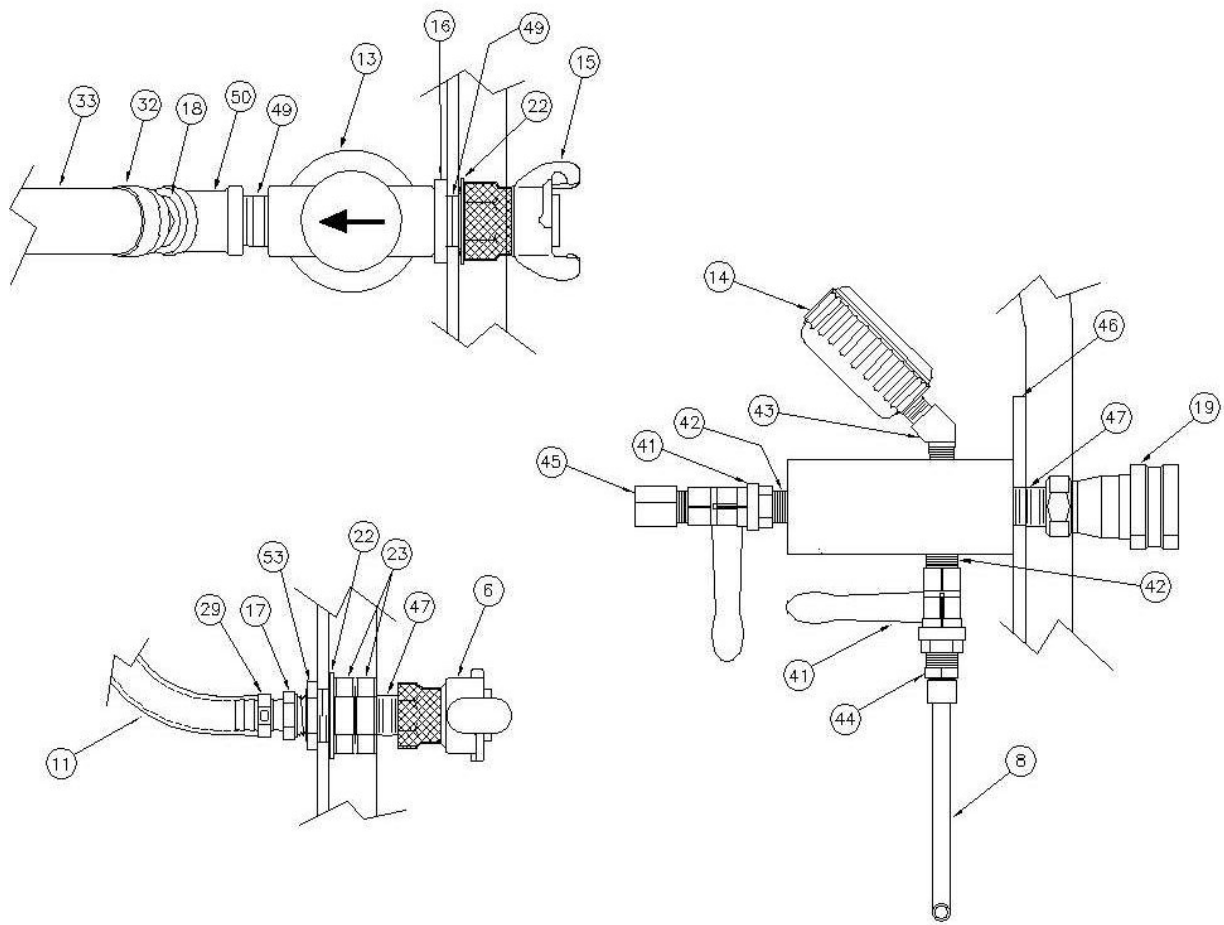
Refer to Drawings on Pages 9 and 10

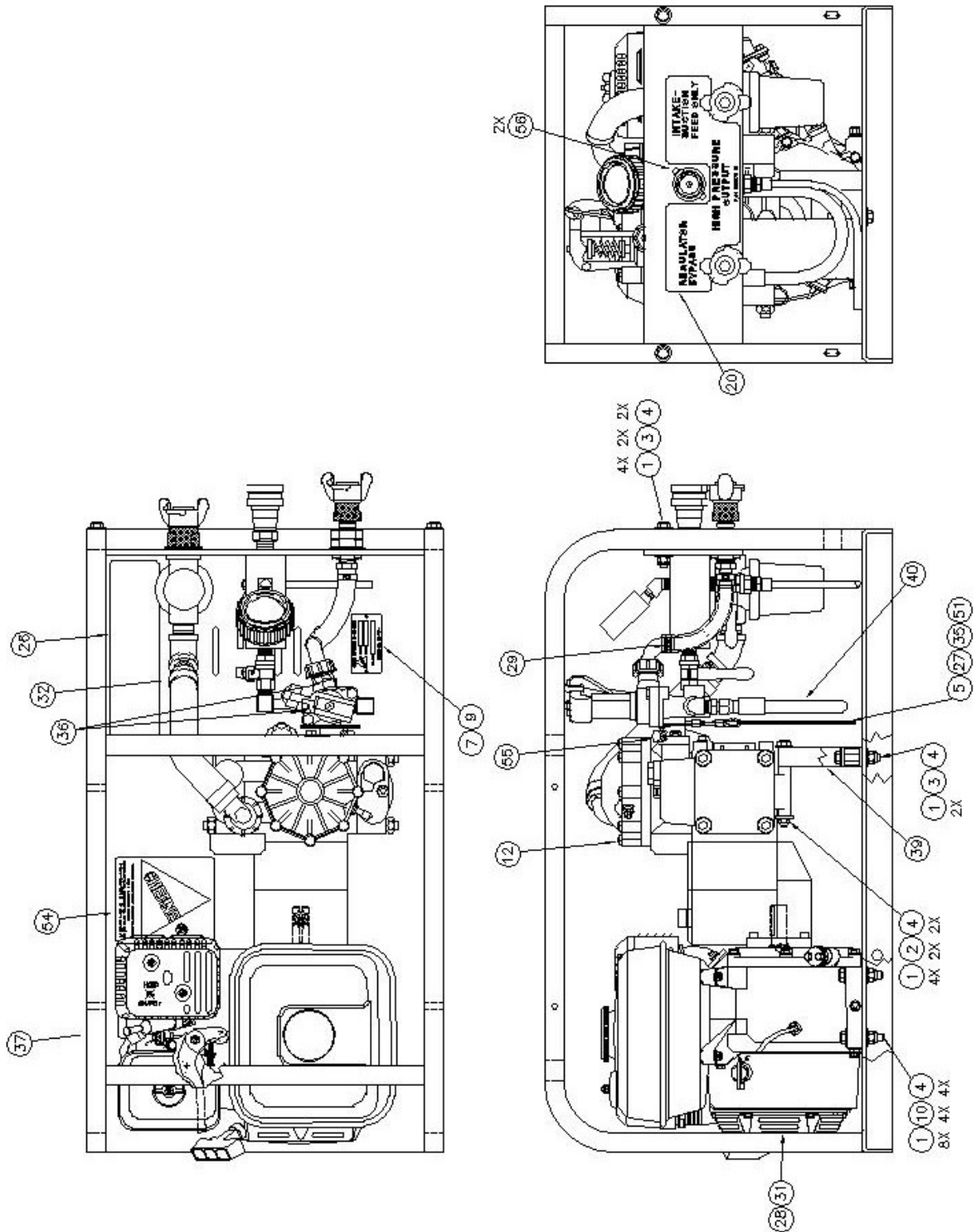
1	000-043	18	Washer-Flat, Steel, 5/16
2	040-738	2	Bolt-MHH, 5/16-18 X 4"
3	000-469	3	Bolt-MHH, 5/16-18 X 2"
4	000-930	7	Nut-Hex, Self Locking, 5/16-18
5	002-232	2	Crimp-Cable, 3/32
6	003-433	1	Coupling-Galv. STL, 1/2 FNPT x 2 LUG
7	005-789	1	Label-Metal, Model-Serial #
8	014-796	.75 ft	Tubing, 3/8" Polyethylene
9	019-887	2	Tack-Metal, .072 x .187 L
10	000-450	4	Bolt-MHH, 5/16-18 X 1 1/2"
11	021-868	.58 ft	Hose-PVC, Clear, 5/8
12	022-478	1	Pump-Hydrostatic Test
13	022-768	1	Strainer-Canister Style, 3/4 NPT Ports
14	022-778	1	Gauge-Liquid Filled, 2-1/2, 0/600 PSI
15	022-788	1	Coupling-3/4 FNPT x 2 LUG
16	022-798	1	Washer-Flat, 1 ID, STL
17	022-808	1	Adapter-1/2 NPT x 5/8 NB.
18	022-818	1	Adapter - 3/4 NPT x 1 NB
19	022-828	1	Coupling, Quick Disconnect, Hydraulic, 1/2
20	040-098	1	Decal, Panel, Diaphragm HSTP
21			
22	022-928	2	Washer-Lock, Internal Tooth, 1 ID x 1.812 OD
23	022-938	2	Nut-Hex, Brass, 1-14 UNEF x 1.375 Flats x .44 Thk
24	031-198	1	Hose, Discharge, 12 FT
25			
26	023-168	1	Decal-Warning & Info (2.5 x 9.5)
27	023-178	1	Tag-Instructions, HTP
28	023-198	1	Pad-Motor Mounting, HTP
29	023-218	2	Clamp-Hose, Ear Type, 1
30	023-268	.125	Loctite-Thread Sealer, #545, 50 ML
31	021-408	1	Motor – 5.5HP Gas, Horizontal Shaft, Honda
32	030-178	2	Clamp, Hose Worm Drive 1 1/2"
33	030-188	.83 ft	Hose-Suction Type, PVC, 1 (9-1/2 Inch Long
34	030-938	1	Hose Assy, Bypass and Intake
35	031-518	1	Tag-Instructions, HTP, Spanish
36	037-583	2	Plug-Pipe, Allen Dr., Brass 3/8 NPT
37	056-348	1	Base and Cage, Piston, Diaphragm or Vacuum Pump
38	039-028	1	Manifold, Diaphragm Pump
39	039-038	1	Mounting Brace, Diaphragm Pump
40	039-068	1	Hose, 3/8 ID, Hydraulic
41	039-078	2	Ball Valve, 3/8 FPT X 3/8 FPT, Brass
42	039-088	2	Nipple, Close, 3/8 NPT, Brass
43	039-098	1	Elbow, 45 Degree Street, 1/4 NPT Brass
44	039-108	1	Compression fitting, 3/8 NPT x 3/8 tube, Brass
45	039-138	2	Elbow, 90 Degree Street, 3/8 NPT Brass
46	039-158	1	Panel, Hydrostatic Test Pump
47	039-178	2	Nipple, Close, 1/2 NPT, Brass
48			
49	052-272	2	Nipple-Close, 3/4 NPT

AQUA-LOC HYDROSTATIC TEST PUMP

10

50	054-259	1	Elbow-45" x 3/4 NPT
51	058-831	1ft	Cable-Steel, 3/32
52	091-510	1	Oil-30 WT. 1 QT. Bottle W/C
53	098-477	1	Bulkhead-Brass, 1/2 NPT
54	115-363	1	Decal-Cherne Address and Logo
55	251-607	1	Plug - Pipe, 1/4, Brass, Hex Dr.
56	039-188	2	Screw - FHM 1/4-20 x .75
57	039-418	1	Carton, Diaphragm Pump





PUMP SET-UP AND OPERATION

Before you begin, make sure the installed line has been adequately flushed and sufficient backfilling has taken place to prevent pipe movement. Refer to AWWA standard for specific guidelines on flushing and backfilling.

NOTE: The instructions in this section are also on the yellow tag attached to the pump. Refer to the appropriate parts lists and drawings on the previous pages for parts identification.

1. Check oil levels in engine, pump sight tube and pump gear reduction unit. See pump manufacturer's operation and maintenance manual for proper fluid levels.
2. Check charge pressure on the pulsation dampener. The pressure should be approximately 20% of the maximum test pressure. i.e. 100 PSI should be 20 PSI; 150 PSI-30 PSI; 200 PSI-40 PSI etc.
3. Connect intake and bypass hose assembly to unit and submerge the other ends in clean water reservoir.
4. Pressure adjustment lever must be in the UP position; start engine.
5. Allow engine to run for one minute; observe water flow. If air bubbles are in clear intake hose, check connections and for fully submerged reservoir hose.
6. Set output pressure as follows (see FIGURE A on next page):
 1. Open output valve.
 2. Set the bale hook in one of four notches with the hook in position number -
 - 1...pressure is about 100 PSI
 - 2...pressure is about 250 PSI
 - 3...pressure is about 450 PSI
 - 4...pressure is about 550 PSI
 3. Clamp the adjustment lever down.
4. Observe gauge. If not at desired pressure, perform fine adjustment as follows:
 - A. Close output valve; open bleeder valve to relieve pressure; close bleeder valve. Repeat several times if necessary.
 - B. Move adjustment lever to the up position.
 - C. Adjust the fine adjustment knob located on top of the relief valve spring; (CW) decreases the pressure, (CCW) increases the pressure.
 - D. Open the output valve and clamp the adjustment lever in the down position.
 - E. Observe the gauge. If necessary, repeat adjustment procedure.

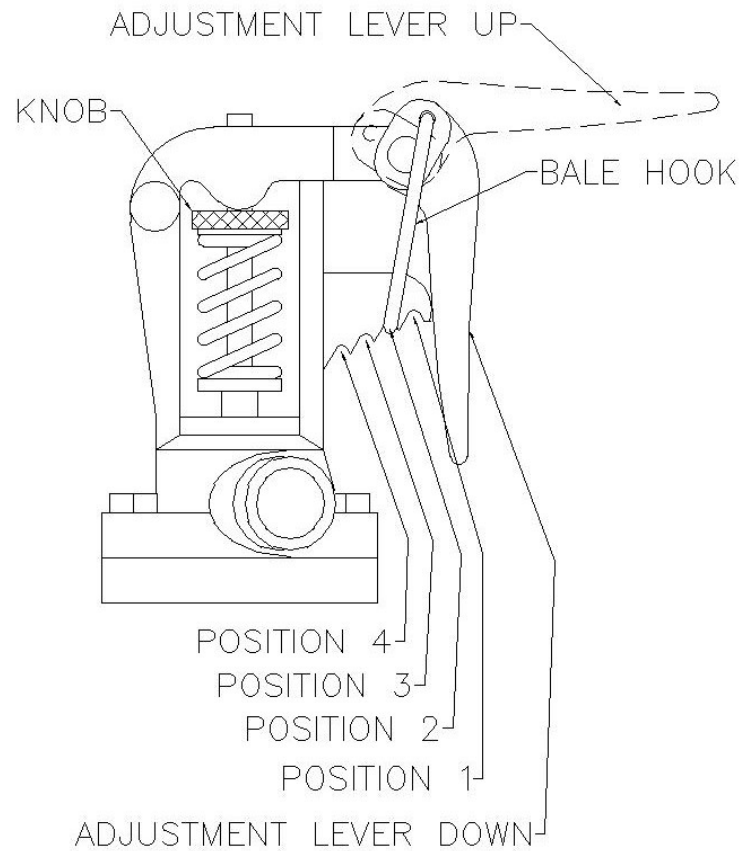


FIGURE A

7. Purge the high-pressure output line and hose as follows:
 - A. Close pump output valve and open bleeder valve (located under the pressure gauge) to relieve the pressure; close valve.
 - B. Connect the high pressure output hose from the quick disconnect coupling on the pump to the pipeline. Open the pipeline valve.
 - C. Open bleeder valve to purge the air from the output hose; close bleeder valve.
 - D. Open output valve to begin hydrostatic test.

TESTING PROCEDURE

NOTE: Make sure pipeline has been properly flushed, filled, and purged of all air before continuing.

1. Allow pump to build required pipeline pressure. Refer to appropriate AWWA standard pressure requirements for the type of pipe being tested.
2. When required line pressure is reached, shut-off output valve to perform simultaneous pressure and leakage tests. Duration of simultaneous tests is at least two (2) hours, unless otherwise specified.
3. If necessary, operate pump to maintain test pressure for the specified time period (2 hours minimum) while carefully examining all exposed pipe, fittings, valves and hydrants for leakage.
4. Refer to the appropriate AWWA standard for allowable leakage specifications on the type of pipe being tested.

TROUBLE SHOOTING GUIDE

PROBLEM	POSSIBLE CAUSES	SOLUTION
Air bubbles visible in clear intake hose.	<ol style="list-style-type: none"> 1. Loose crow's foot fitting connection 2. Intake hose not fully submerged in water reservoir 	<ol style="list-style-type: none"> 1. Connect crow's foot fitting; use safety clip to ensure proper fit 2. Check for adequate water level in reservoir; fully submerge hose.
Unable to achieve pre-set output pressure	Air trapped in output plumbing	<ol style="list-style-type: none"> 1. Run unit for 3 seconds with bleeder valve open 2. Open and close bleeder valve several times
Engine surges or runs erratic	Choke or throttle linkage spring is disconnected	Connect spring
Engine won't run	Engine's out of gasoline	Fill engine with unleaded gasoline

MAINTENANCE

- Flush pump with a 50:50 mixture of water and non-toxic anti-freeze for winter storage or use in freezing conditions.
- Purge water from pump after each use. This step highlights a key feature of the Aqua-Loc in that the pump is capable of running dry.
- Refer to engine and pump Manufacturer's Operations manuals for specific information on maintaining and troubleshooting their units.

PUMP LUBRICATION MAINTENANCE	
OIL TYPE	CAPACITY/FILL LEVEL
Nondetergent, SAE 30 weight	Halfway up to the clear oil sight tube
Gear reduction: 90 wt. gear lube	No higher than the mark on the dip stick

LIMITED WARRANTY

Manufacturer warrants all products manufactured by it will be free from defects in material and workmanship for one (1) year following the date of manufacture. If any of the goods are found to be defective, such goods will, at manufacturer's option be replaced or repaired at manufacturer's cost. The parties hereto expressly agree that buyer's sole and exclusive remedy against the manufacturer shall be for the repair or replacement of defective goods as provided herein. (The sole purpose of the stipulated exclusive remedy shall be to provide the buyer with free repair and replacement of defective goods in the manner provided herein. The exclusive remedy shall not be deemed to have failed of its essential purpose so long as the manufacturer is willing and able to repair or replace defective goods in the prescribed manner.) Goods which may be sold by manufacturer but are not manufactured by it are not warranted by manufacturer, but are sold only with the warranties, if any, of the original manufacturers thereof. (This warranty does not cover labor or other costs or expenses to remove or install any defective, repaired or replaced goods.) Manufacturer's warranty does not apply to any goods which have been subjected to misuse, mishandling, misapplication, neglect (including but not limited to use of unauthorized parts or attachments), or adjustment or repair performed by anyone other than manufacturer or one of manufacturer's authorized agents.

Any claim by buyer with reference to the goods sold hereunder shall be deemed waived by the buyer unless submitted in writing to manufacturer within the earlier of (1) thirty (30) days following the date buyer discovered or by reasonable inspection should have discovered, any claimed breach of the foregoing warranty, or (2) thirteen (13) months following the date of manufacture. Any cause of action for breach of the foregoing warranty shall be brought within one year from the date the alleged breach was discovered or should have been discovered, whichever comes first.

LIMITATION OF LIABILITY. Manufacturer's liability (whether under the theories of breach of contract or warranty, negligence, or strict liability) for its goods shall be limited to repairing or replacing parts found by the manufacturer to be defective, or at manufacturer's option, to refunding the purchase price of such goods or parts thereof.

DISCLAIMER OF CONSEQUENTIAL DAMAGES. In no event shall manufacturer be liable for consequential damages arising out of or in connection with this agreement, including without limitation breach of any obligation imposed on manufacturer hereunder or in connection herewith. Consequential damages for purposes hereof shall include, without limitation (including death) to any person, or loss of or damage to property (including without limitation property handled or processed by the use of goods). Buyer shall indemnify manufacturer against all liability, cost or expense which may be sustained by manufacturer on account of any such loss, damage or injury.

DEFECTIVE PRODUCTS POLICY. To obtain performance under this warranty, any product suspected of having a manufacturing defect in materials or workmanship at manufacturers request must be returned to CHERNE INDUSTRIES INCORPORATED, freight prepaid, for inspection. A returned goods authorization must be obtained before shipping any product back to CHERNE. Call 1-800-843-7584 and ask for customer service.

CUSTOMER TRANSPORTATION REIMBURSEMENT. Whenever CHERNE repairs or replaces a product at CHERNE'S expense CHERNE will reimburse the distributor by credit memo, the same surface freight amount it cost CHERNE to return the warranty items.

The foregoing warranty is in lieu of all other warranties express or implied, including those of merchantability or fitness for any purpose not expressly set forth herein. No affirmation of manufacturer, by words or action, other than as set forth in this language shall constitute a warranty.