Pressure Testing of Swimming Pool and Spa Plumbing Systems Instructions

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Your Partner in Swimming Pool Water Conservation

Complete pressure testing of plumbing systems involves a two-step process. The first step; a water test is performed in order to isolate the section of plumbing that is leaking. The second step; an air test, is performed in order to pinpoint the exact location of the leak. For each test, well-maintained quality equipment and careful deliberate set-up will increase the safety and accuracy of your test.

Equipment Needed:

For isolating a leaking section of plumbing:

- Anderson Pressure Tester w/ assorted Open Stem Plugs
- Assorted Anderson Closed Test Plugs
- Water Hose

For pinpointing leak location add:

- Regulated air source (1/2 H.P. or larger compressor or air or nitrogen tank)
- Electronic Listening Device or Geophone

Initial Set Up:

Turn off pump and heater before performing any pressure test. Identify all openings of the section of plumbing you will be testing.

An Open Stem Plug with a quick connect attachment (to allow hook-up to your Pressure Tester) should be inserted into the highest opening of the system you will be testing. This will usually be an opening at the equipment such as the inlet of the pump or at the coupling after the heater). Attach the Pressure Tester to this open plug (with male quick connect fitting screwed to the top), using the female quick connect fitting on the end of the 5 foot length of hose. Now attach a garden hose and airline to the appropriate connections on the Pressure Tester

The remaining openings of the plumbing system must be plugged with the appropriate sized plug. Avoid over expanding a plug to make it fit in an opening that is too big. A plug should be no smaller than 1/8" less than the diameter of the opening being plugged. Plugs are available in 1/16" to 1/8" increments to provide complete coverage of all fittings and pipe sizes.

Different types of plugs will allow making a good seal in virtually any type of fitting.

- Skimmers, T's, Therapy Heads and Cleaner Fittings —> Extender Plugs
- Return Fittings (past female threads) —> Hook Plugs
- Cut Pipe, Return Fitting (on threads) —> Standard Plugs
- Out of Round Openings, hard to reach spots —> Inflatable Plugs

Water Test:

The initial test of the line should be done with water. Since water does not compress under pressure any loss in volume from the line will be easily noted on the pressure gauge of the Pressure Tester.

Assure that the valve handle on the Pressure Tester is in the straight up, or straight down “closed” position then turn on the water at the spigot. To introduce water into the plugged plumbing system, slowly turn valve handle on the Pressure Tester toward the water connection. You will be able to control the amount of water entering the system by moving the handle. Since the pressure gauge will show an inaccurate reading as water is flowing, occasionally turn the valve handle to the closed position to check system pressure. Bring the pressure to no higher than 20 psi**.** If the pressure gets higher than this release it by turning the black bleeder valve behind the pressure gauge. Once you have reached 20 psi turn the valve handle to the off position and watch the pressure gauge. Assuming most of the air has been purged from the line *a leak will be indicated by an easily detectable drop in pressure within minutes*. Most problem leaks will drop all the way to 0 psi. If the line initially shows a drop in pressure that stabilizes above 0 there may not be a leak in the line but instead the line pressure is equalizing as air and water move within it. Add more water to see if you can increase this stabilized pressure. If you can, and if this stabilized pressure holds, a leak is unlikely.

If the line holds pressure there is not a leak. Release any pressure from the line by opening the bleeder valve after this test is complete.

Air Test:

An air test is used to pinpoint underground plumbing leaks because the air escaping from a leak into water saturated soil creates a “bubbling and gurgling” sound that is easy to hear especially with a listening device.

You will need either a regulated air compressor or a high-pressure gas cylinder (nitrogen or SCUBA tank) with a single stage pressure regulator to perform this test. Each of these options offers distinct advantages and disadvantages. The compressor never needs filling but may make listening for the leak difficult because of the noise it creates. The tank will be quiet but will need to be re-filled occasionally and as a result this option usually requires keeping a full spare on the vehicle at all times.

Adjust the regulator on your air source to maintain a constant pressure of 10 -15 psi. Now allow air into the plumbing system by turning the valve handle on your pressure tester toward the airline and leave it open. You must maintain a constant flow of air into the line and out of the leak.

By systematically listening at apx. 2-foot intervals along the path of the buried lines you should be able to hear sounds caused by the air escaping from the leak into the water saturated soil. Once you hear a bubbling/gurgling noise shorten the distance between readings. The leak will usually be directly beneath the point where the noise is the loudest and most distinct. To confirm a leak, turn off the pressure and listen at the same spot to make sure that the noise goes away. You may also find it beneficial to drill a small hole in the deck where you think the leak is so you can push a rod down into the soil to see if it comes out wet.

If pressure cannot be maintained with just air, or if the soil does not stay saturated, add a constant stream of water from the low end of the plumbing while adding air from the high end. By carefully monitoring the pressure of each of these you should be able to maintain a situation where both air and water are escaping from the leak at the same time. By inducing the water from the low end you are avoiding creating noises as water runs through the pipe. By inducing air from the high end you are avoiding the sound of air bubbling through standing water in the pipe. The only noise should be at the leak.

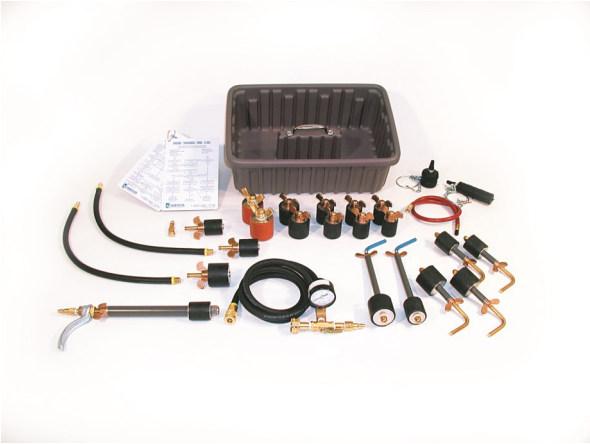
Safety Rules:

- Never exceed 20 psi of pressure.
- Always release pressure after test is done.
- Stand clear of plugged openings when system is under pressure.
- Never use an unregulated air source.
- Always use well maintained equipment - especially plugs, gauges, and regulators.

Pressure Testing Kits:

“The Professional” - #246

48-Piece kit is designed for testing pools with 1”to 2” lines.



“The Route Mate” - #226

32-Piece kit is designed for testing pools with 1-1/2” to 2” lines.