

Plan “Pit Stops” for Your Test Kit

By Michael A. Lueck, Mid-West Instrument

Backflow prevention test kits are designed to provide many years of trouble free service. Maintenance and care are required in order for the test kits to achieve this longevity.

Let’s change gears in our thinking process for a moment. A backflow prevention test kit can be compared to a racecar that is running in a 500-mile race. The racecar can not reach the finish line without some pit stops along the way. The tester can be compared to the driver and the calibration/service center can be compared to the pit crew.

Start with a Plan

During a 500-mile race pit stops are planned. Stop for fuel at predetermined mileage ranges, stop for tires at predetermined mileage ranges, and, if you can, fit as many pit stops as possible during yellow caution periods when no racing is allowed. Plan for your test kit service. Have your test kit scheduled for service during your slow season not your busy season. Schedule your test kit service during a vacation when you won’t be testing.

Focus on the Goal

The goal for a 500-mile race is to reach the finish line in first place at mile 500. The goal is not to have the racecar capable of winning a 24-hour race nor is it

to reach the 250-mile mark first & stop running on mile 251. A backflow test kit is designed to test if backflow prevention assemblies are preventing backflow. Backflow prevention assemblies are rated for 175 PSI working pressure. Critical pass/fail pressures are 1.0 PSID & 2.0 PSID. All test readings are taken with the reading descending from a higher pressure. Requiring a test kit to perform other requirements will not improve the results of testing backflow preventers, which is the goal.

Different Service may be Required During Pit Stops

Racecars are complicated machines. A full fuel tank, fresh tires and a good running engine will be wasted if the car is not handling properly. A backflow prevention test kit is more than just a differential pressure instrument that must be accurate. Test kits consists of valves, plumbing, hoses and filters which must be pressure tight in order for the test kit to properly function. Pressure testing and valves being tested for pressure tight closure should not be overlooked during your test kit’s pit stops.

A Delicate Balance is Required

To remain competitive in a race properly planned efficient pit stops are required. Every pit stop does not involve gas, tires, suspension adjustments and a complete tune-up. This would obviously take too much time. Your backflow test kit should not need to be torn apart and rebuilt at each pit stop. Excessive testing that has no bearing on testing backflow preventers will not improve the performance of your test kit.

Select a Properly Trained and Skilled Pit Crew

Pit crews are highly skilled & trained professionals. They are not 12 people selected at random from the crowd that showed up on race day. Sometimes the difference between finishing & not finishing or winning & losing comes down to the skill & knowledge of the pit crew. This holds true for backflow test kits. The differential pressure instruments used in test kits were not designed for field adjustment & service. Only





calibrated test kit with accuracy traceable to N.I.S.T. (National Institute of Standards and Technology). Some will argue that a water column is a fundamental reference, which is the most accurate. The question is how accurately are we measuring the water column? Is a clear tube clamped to a board with paint marks every 27 3/4" traceable to N.I.S.T.? When this method is used is the test kit being positioned at the proper level so that errors in the readings are not induced. (A test kit mis-located by as little as 2.7 inches will induce a 0.1 PSID error.) Can your "pit crew" give you an accuracy certificate that is traceable to N.I.S.T.?

The Driver Bears the Brunt of the Responsibility

properly trained people should perform adjustments & repairs on the differential pressure instruments. As with backflow preventers, proper replacement parts should be used when servicing test kits. Contact the test kit manufacturer for their referrals to properly trained & skilled "pit crews". Would a Ford driver pull into the Chevy pit during a race?

Communicate with Your Pit Crew


In today's high-tech world the driver is in constant radio communication with the pit crew. They are reporting in great detail how their racecar is performing. The set up may be perfect or the car may need adjustments, either way the pit crew is ready to just add gas or to make whatever adjustments will cure the problem. As a tester you should communicate in great detail with your service center as to how your test kit is performing. It hopefully will be as simple as "my test kit is working great, please give me an accuracy test and certificate of accuracy." If you are experiencing potential problems share your concerns with the service center. For example, "my test kit jumps at 6.5 PSID", "my bleed low valve is dripping", "the test kit is not bleeding properly", or "I have been failing a higher percentage of valves lately". This will expedite the service call and minimize the chance of a problem being missed because it is not tested for during a normal "pit stop."

How Good is Your Fuel?

Racecars do not run on any old economy grade unleaded gasoline, they run on specially formulated high octane racing fuel. The bottom line for a backflow test kit is the accuracy of the test results it provides. This is achieved by having an accurately

The best built best pit crewed racecars will not finish the race without skilled drivers. If the drivers push the cars too hard they will break. If drivers do not communicate with the pit crews, pit stops may not provide the proper service. If drivers do not utilize pit stops they will run out of gas & stall. Testers are responsible for having their test kits serviced. If they are not cared for during use they will break. Blow out test cocks before attaching test kits, drain the test kit after use, apply pressure to the test kits slowly, transport them in the case & with care, store them with the valves open, do not over-tighten the valves, store them inside during freezing weather & protect the test kits with filters. Communicate with your service center so they can test for potential problems. As a minimum, have the accuracy of your test kit checked annually. A test kit that has never been checked is the same as a backflow prevention assembly that has never been tested.

The Finish Line

When properly cared for and maintained, a backflow test kit can have a useful service life of 20 years or more. This requires a team effort between the tester and properly trained service centers. When this occurs, we are all winners and the spoils of victory is clean, safe and protected drinking water. The winner of the Indianapolis 500 gets a drink of milk; I'll take a long cool glass of tap water any day! 

A PLAN TO CONSIDER

Annual Testing as a Minimum

- Accuracy test with a Certificate of Accuracy traceable to N.I.S.T.

Recommended Annual Testing in Addition to Accuracy Testing

- Pressure tight to 100 PSIG minimum with no leaks permitted & valves closing pressure tight.
- Filter cleaning or replacement.

Every Five Years or When Test Kit Performance Warrants