

RELIABLE FIRE PRODUCTS

**Fire Hose Tester
MANUAL**

Safety First!

Read This Section *Before* Using Your New Hose Tester

Even though firefighters have one of the world's most dangerous jobs, they always practice safety first. When testing fire hose, you should too.

Safety cannot be stressed enough when testing fire hose. **Do Not Skip This Section!** There may be some safety issues you have not thought of.

Safety First, Foremost, and Always!

Any time you are using this equipment you will be bringing water and electricity together which always presents potential danger. Additionally, the ultimate purpose of testing fire hose is to find out if a hose is defective to the point where it will begin to fail, and/or burst at high pressure (catastrophic failure). In other words, testing fire hose is a dangerous activity.

Many safety features have been built into the testing apparatus and the instructions on its use. However, history shows that as humans, we can always find ways to overcome safety features and procedures. Therefore, the ultimate safety device on any piece of equipment is the operator. An informed operator who is constantly aware of the situation at hand can prevent more accidents than any manual, device, or warning label.

Because of this the ultimate responsibility for safe operation rests solely with the operator. In order to operate the equipment in the safest manner possible the test operator should:

- Read all instructions carefully,
- Never rush the procedure,
- Memorize all safety precautions,
- Read and obey all safety labels,
- Stay constantly aware of the entire testing area,
- Continuously monitor the hose being tested,
- Never leave the test equipment un-monitored.

Use common sense.

By following this advice hose testing can be done efficiently and safely for many years with your new hose testing equipment.

ADDITIONAL PRECAUTIONS - MUST READ!

Warning – Do not use the pump with anything other than water!

Warning – Do not use this unit in an explosive atmosphere!

Warning – Do not use this unit to pump water that is at or above 140 degrees Fahrenheit!

Warning – Risk of shock! All cords, outlets, or any form of power supply must be wired to meet the most recent National Electric Code requirements. Extension cords must be carefully inspected. If there is any doubt about the source, do not use it! Further, do not handle the hose testing unit in any manner when your hands are wet or when any part of your body is in contact with standing water.

Warning – Be sure that all fittings used when performing a test are rated for 500 PSI. Failure to do so may result in personal injury.

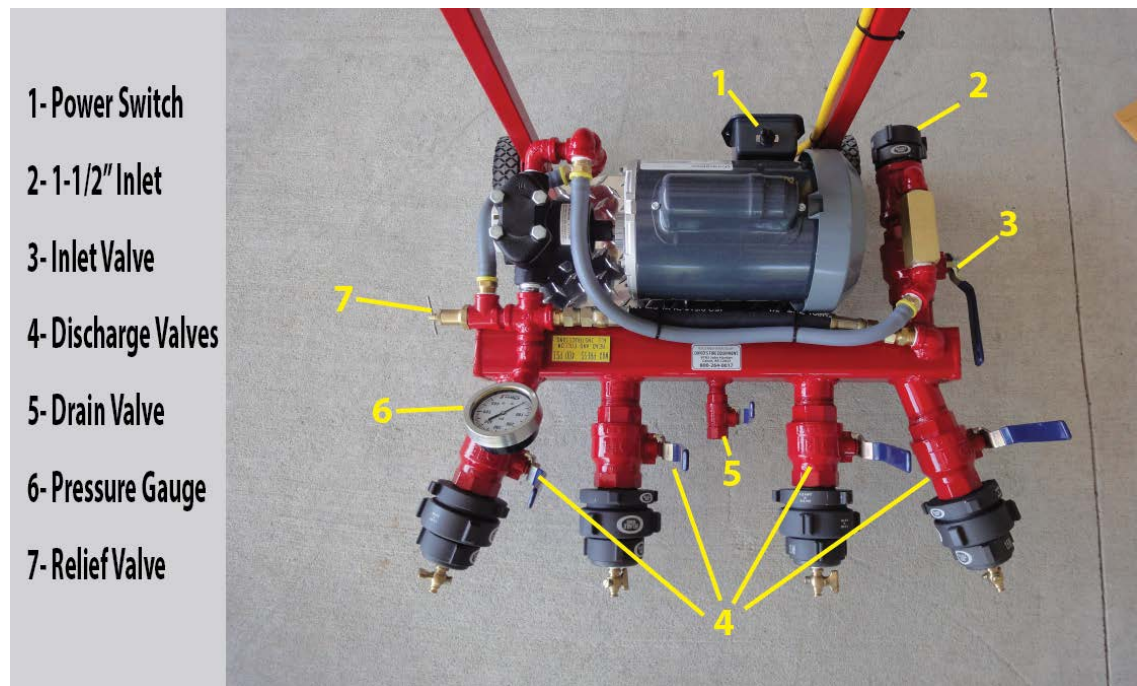
Warning – Do not alter the plumbing or wiring on the hose tester. Doing so may result in serious injury.

Danger – High voltage and moving parts around motors and motor driven equipment can cause serious or fatal injuries. Always disconnect power source before working on a motor or its connected load. Installation must conform to all OSHA requirements, and the National Electrical Code (NEC) in the United States, and all local codes.

Get to Know Your Hose Tester

Being familiar with the individual parts of your hose tester will make this document easier to understand.

Please take the time to study the picture below and memorize the names of the individual controls and parts. They will be referred to in the following text.



The additional parts that are not mentioned (motor, pump, check valve, manifold, etc.) are all important in the function of the hose tester but not pertinent to the operation of it. Just having a real good familiarity of the terms in the graphic will help a lot in the following pages.

Preparing to Test

A testing area that is properly chosen and well laid out will make the entire operation run faster and smoother.

The information provided in this section is intended to make testing fire hose easier and more efficient. These tips have been gathered from years of hose testing experience as well as from publications on the subject. Please take the time to read these helpful hints.

Location, Location, Location!

The most important aspect of testing hose with a portable tester is to pick a location that works to your advantage. The area must be large enough to lay out all of the hose that is being prepared for test, hose that has been tested, and the hose which is connected to the machine.

The test machine should be located near a water source and on reasonably level ground. Avoid placing the tester in an area where water might pool.

Attention should also be given to how well the entire area will drain since a lot of water is used in testing.

Hose Stretches

Fire hose is made from very flexible material and stretches easily. When choosing a location this must be taken into consideration. The pressures used in testing can increase a length of hose as much as 8%. So, if you are testing at full capacity (300 feet of hose on each discharge outlet) with this type of hose, as you reach pressure each hose will be fighting for additional space because the original 1200' of hose is now 1296' long.

This effect will impact your situation in two ways.

First, the hose will take up more room during the test than during setup. To offset this the operator has to plan in advance for the additional length.

Secondly, the additional length will require a larger volume of water to fill it. In the case above, if it is 5" hose the additional water required would be 97 gallons after the hose appears to be full. A good deal of this additional water will be supplied by the pressurized water source that is connected to the testing equipment. However, the 3 gallon per minute pump on the tester will have to make up the rest. This will take time so be patient. Take this time to make your initial visual inspection of the couplings to check for slippage and leaks. Do not, however, leave the testing area for any reason. If you must leave, turn the unit off first.

Air Compresses, Water Does Not

When draining air from the system, take your time to make sure you have as much of it out as possible. Since air will compress, any remaining air pockets will drastically increase the time

needed to reach testing pressures. But, even worse, the stored air will expand rapidly should a hose fail and increase the amount of energy released thus increasing the chances of injury. So, take your time and get all of the air out of the system prior to starting each test sequence.

The More the Merrier

When testing hose, it is wise to test several sections at a time. The more hose that is connected to the machine, the safer it will be should a hose experience catastrophic failure. If only one or two sections are being tested the resulting force from a failure could possibly “whip” the machine. It is advisable to test at least 200 or more feet of hose at a time.

The main exception to this is when you are testing hose that has been repaired. It is recommended that only one repaired hose be tested at a time.

End Caps

To cap the ends of the hoses being tested, the operator must assure that whatever is used is able to handle the pressures. Some older caps used to cover the discharges on fire pumps are not designed to handle the pressures that can be developed by the test equipment. Therefore we strongly recommend using the caps and adapters supplied with the hose tester whenever possible.

Use of fire fighting nozzles is acceptable as long as they are fabricated from either brass or aluminum. Under no circumstances should the common Lexan (plastic) nozzles found on rack type hose be used.

Look Before You Test

A good visual inspection of hose to be tested can prevent a dangerous situation. It is not safe to test hose that the operator is certain will fail. A section of hose does not have to fail the pressure test in order to be removed from service. Visual imperfections are valid criteria for failure. Testing hose that is known to be defective creates a dangerous situation and should be avoided.

If it is obvious to the naked eye that a section of hose will fail, testing that hose will also waste the operator’s time. The failed hose will have to be removed from the setup and the test started from the beginning on all remaining hose. Such hose should be repaired first, if practical, and then tested to confirm the repairs were done in an acceptable manner thus saving time. (According to NFPA, sections of fire hose that are repaired should be tested individually rather than with other hoses.)

The operator should take the necessary time to do a thorough visual inspection of all hose to be tested and reject the obvious bad lengths.

Testing fire hose is dangerous enough without intentionally adding to the risk.

Hose Testing Procedure

Using the proper procedure will result in reliable and consistent results.

Following is a general guideline for testing fire hose. This guideline is not intended to replace your department or company standard operating procedures or NFPA guidelines.

What Should be Tested and How.

Fire hose should be tested as set forth in NFPA Pamphlet 1962, *Standard for the Care, Use, and Service Testing of Fire Hose Including Couplings and Nozzles*, latest edition. Copies of this document can be obtained from NFPA by calling (617)770-3000 or by visiting their website at www.nfpa.org. It is strongly suggested that anyone testing fire hose obtain a copy and read it thoroughly. The standards have been produced and honed for years by manufacturers, firefighters, insuring agencies and other experts on the subject.

NFPA recommends that hose manufactured prior to July 1987 be removed from service.

All new hose should be tested to the service test pressure indicated in its marking before being put into service. Attack hose, supply hose, and booster hose should be tested annually after being put into service.

Hose that has been repaired should be tested prior to returning it to service.

Hose that has been frozen should be thawed out and tested prior to returning it to service.

Booster hose should be tested to 110 percent of its maximum working pressure. If no maximum working pressure is indicated on the hose then it should be tested to 110 percent of the highest pressure it will ever get used at.

Supply hose should be tested to a minimum of 200 psi.

Attack hose should be tested to a minimum of 300 psi.

Occupant-use hose should be tested to the service test pressure as marked within 5 years of the date of manufacture and every three years thereafter. Additionally, it should be service tested after each use.

Under no circumstances should this machine be used to subject any hose to its rated proof test pressure.

Test Machine for Leaks

Prior to testing fire hose you should test the hose tester for leaks as follows:

1. Connect water supply to the 1-1/2" Inlet (2),
2. Open the Inlet Valve (3),
3. Close the Drain (5),
4. Close all Discharge Valves (4),
5. Turn on your water supply so water can enter the system,
6. When the pressure gauge has stabilized, close the 1-1/2" Inlet (3),
7. Turn on the Power Switch (1),
8. Adjust the Relief Valve (7) until the Pressure Gauge (6) reads 400 psi,
9. Maintain 400 psi for one minute,
10. Turn off the Power Switch (1),
11. Let the unit sit for a minute while checking for leaks.
12. Slowly open the Drain Valve (5) to relieve pressure.

If the unit is not leaking you may proceed to test fire hose. If there are leaks they should be repaired before attempting to test hose.

Hose Layout

All hose being tested at the same time must be rated for the same pressure.

Attach no more than 300' of hose to any discharge.

Lay your hose out as straight as possible, making sure there are no twists lengthwise.

Secure the loose ends together in some manner about 1 foot from the very end.

Do not move or drag any hose once it has reached test pressure.

Replace gaskets prior to testing your hose. Failure to do so will only result in a prolonged testing procedure.

During pressurization and when the attained pressure is being held, all visual inspections should be performed from a distance of about 15 feet from the left side of the hose layout.

Never straddle hose that is being tested.

The Procedure

1. Attach fire hose to be tested to the Discharge Valves (4.) (ensure all connected hose requires the same test pressure),
2. Attach bleeder caps at free ends of hose,
3. Tighten all fittings leaving bleeders open,
4. Connect water source to the 1-1/2" Inlet (2) of tester,
5. Slowly open the Inlet Valve (3) on tester,
6. Slowly open the individual Discharge Valve or Valves (4) to fill hose with water,
7. As each bleeder begins to pass air-free water, close it firmly,
8. Once all bleeders are closed, allow the unit to sit for one minute,
9. Crack each bleeder slightly to remove remaining air,
10. Close all bleeders,
11. Close the main Inlet Valve (3) on the tester, leaving the individual Discharge Valves (4) open,
12. Attach hose tester line cord to 110 volt AC outlet,
13. Turn Power Switch (1) on,
14. Be patient,
15. When the Pressure Gauge (6) reads 50psi, adjust the Relief Valve (7) to maintain that setting,
16. Check for leaks and tighten where necessary,
17. Mark the hose at the base of each coupling,
18. Clear the area of all non-essential personnel,
19. Slowly raise the pressure to the test target point,
20. Maintain the test pressure with the pump for a minimum of one full minute,
21. Close all Discharge Valves (4),

22. Turn pump off using the power switch (1),
23. The hose must maintain the test pressure for three minutes,
24. At the end of test time slowly open the Drain Valve (5) on the manifold,
25. Open individual Discharge Valves (4) and the bleeders on hose ends,
26. Remove caps,
27. Disconnect all hose,
28. Inspect previous marks,
29. Record results.

Remember to thoroughly drain the hose tester before storing.

Maintenance

Even the best equipment will fail if not cared for properly.

Often neglected, maintenance should be a priority on all equipment used in testing fire hose. This section will explain how to properly care for your new hose tester. If you follow these suggestions, you will get many years of trouble free service from the unit.

Lubrication

There is only one lubrication point on the hose testing unit. Beneath the white protective cap on the high pressure pump you will find a grease zerk. The manufacturer recommends that the pump be greased once a month or every 50 hours, whichever comes first. Follow this advice if you are using the tester on a regular basis. However, if you only roll it out once a year you can get by with greasing it once a year as well. Use good quality, light grease.

Visual Inspection

Before and after each use, do a close visual inspection of the unit. Check for loose nuts and bolts, loose fittings, cracked fittings, impact damage, etc. Pay especially close attention to the electrical cord. If any problems are found, they should be corrected prior to using the tester. Never use a tester that has known problems.

Draining

After each use it is important that the hose tester be drained as thoroughly as possible to prevent sediment and rust deposits. Open all valves and tip the unit from side to side and front to back until no more water comes out. Leave all valves open when the unit is in storage to allow for free evaporation of any remaining dampness.