



Scarborough Fire Department Scarborough, Maine



Standard Operating Guidelines

Book:	Routine Operations
Chapter:	Equipment Operations
Subject:	2220 - Hose Testing Procedure
Revision Date:	01/12/2009 revised 8/30/16; 5/9/19
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PURPOSE

To establish a safe and effective procedure for the service testing of fire hose.

POLICY

All fire hose shall be tested annually in accordance with NFPA 1962 and the manufacturer's recommendations. Accurate hose testing records shall be maintained in the central Fire Department office for each length of hose throughout its service life. The AHJ shall establish a replacement schedule for fire hose considering use, age and testing results of the hose.

PREREQUISITES / REQUIRED EQUIPMENT

- A. Hose test gate
- B. Hose testing machine
- C. Securing rope or strap
- D. Adequate staffing (at least a crew of three recommended)
- E. A helmet must be worn during the hose test procedure.
- F. Proper forms and supplies for recording the testing of each hose
- G. Large black permanent marker
- H. Hose test cap with bleeder or nozzle
- I. Fire apparatus with adequate pump and outlets for testing hose.
- J. A safe site that has been inspected for sufficient room, adequate water supply where water runoff won't cause damage, and that has been cleared of any debris that might damage the hose during the testing procedure
- K. Calibrated flow and pressure gauge
- L. Plastic transparent cover for suction hose.

PROCEDURE

- A. During any hose testing activities, one person, preferably an officer, shall be designated as the Incident Commander (IC).
 - a. The designated IC shall ensure that the procedures listed are followed and all necessary safety precautions are communicated and adhered to.
 - b. The designated IC shall appoint one other capable member to serve as a Safety Officer for the duration of hose testing.
- B. Visual Hose Inspection – at annual testing and after each use
 - a. Visually inspect hose for physical damage and divide into three categories, hose to be tested, hose to be repaired and hose that has been condemned.
 - b. Inspect liner near each end of the hose for damage.
 - c. Inspect couplings.
 - d. Separate hose to be tested based on required test pressure. Each length of hose being tested simultaneously shall be of the same service test pressure.
 - e. Hose that has previously been repaired or re-coupled shall be tested one length at a time.
 - f. Condemned hose should be destroyed.
 - g. All non-threaded hose connections shall be provided with locks to ensure against unintentional disconnection.
- C. Hydrostatic Hose Test – required annually
 - a. With the exception of Large Diameter Supply Line (LDH), all hose testing will be done utilizing the hose testing machine. **A fire department pumper is not to be utilized for testing hose at 300 psi.**
 - b. Carefully examine and test the hose testing machine for damaged components before use. (test procedure: cap or close hose outlet connections, use integral pump to raise pressure to a level 10% higher than the highest pressure to be used for testing for 3 minutes and check for leaks)
 - c. All attack or interior fire hose shall be tested to a minimum of 300 psi. for 3 minutes (unless hose is stamped for less pressure).
 - d. Forestry hose shall be tested to a minimum of 300 psi. for 3 minutes (unless hose is stamped for less pressure).
 - e. Booster hose shall be tested at 110% of working pressure.
 - f. Do not test different diameter hose lines at the same time.
 - g. When testing attack line at 300 psi, all couplings must be securely tightened using spanner wrenches.
 - h. When testing 2½” or 3” hose, do not utilize more than two (2) discharges from the hose test machine (2-300’ lines).
 - i. Proof pressure tests for fire hose shall only be conducted at the point of manufacture or at a facility properly equipped to perform these tests. Tests in the field shall not subject hose to its proof test pressure.
 - j. Pre-connected hose lines will be tested as a system with nozzle or hose connected appliance at 300 psi. (unless any portion of the system is stamped for less pressure) for 3 minutes.

- k. LDH 4” – 6” multiple jacket hose should be tested at 200 psi. for 3 minutes. This is the only hose that is not tested using the hose test machine.
 - i. This test procedure requires the use of the 2½” gated wye specially made for this purpose.
 - ii. The same general procedures and precautions as using the hose test machine apply.
 - iii. During testing, the gated valves are to be in the closed position.
- l. Attach the hose test machine to the apparatus at the appropriate discharge point. Secure the hose closest to the hose test machine to the discharge with the strap or rope.
- m. Attach the hose section(s) to the gate valve and attach the nozzle or cap to the end of the hose.
- n. Mark behind each coupling with the permanent marker completely around the hose as close as possible to the coupling to help determine slippage once the test is completed.
- o. Lay out lines in 300 foot lengths, except when testing pre-connects as a system, straight and without kinks. Do not stand on any hose while the hose is being deployed from a moving truck.
- p. Open the test gate valve.
- q. Close the nozzle or bleeder cap on the end of the hose.
- r. Raise the pump pressure on the discharge to 45 psi.
- s. Raise the end of the hose above the level of the test gate valve and slowly open the nozzle or bleeder cap to allow all air to leave the line. Once all of the air is evacuated from the hose line, close the nozzle or bleeder valve, and then close the test gate valve at the pump discharge.
- t. Secure the nozzle end of the hose to prevent the hose from whipping should a rupture occur.
- u. Check all couplings for leakage and tighten as necessary.
- v. All personnel should be cleared from the area. Keep the test gate valve closed. The pressure should be brought up slowly (100 psi per minute) on the sections of hose to be tested to the appropriate test pressure and held for 3 minutes. If there is a severe leak or hose rupture, stop the test, replace the defective hose and start over.
- w. The hose should be inspected by walking down the left side of the hose (the side which is to the left when facing the free end from the pressure source) approximately 15 feet away from hose while it is under test pressure. (The hose will roll to the right should a rupture occur). This will provide for additional safety. Never straddle the hose or move the hose once it is under test pressure.
- x. Once the time is completed, slowly shut down the pump, close the pump discharge gates and open the nozzle or bleeder test cap. Allow the water to drain and inspect the hose couplings for any slippage. Any slippage (more than 1/2 inch) found should be identified and the hose taken out of service for repair.
- y. Suction hose shall be tested in the following manner:
 - i. Attach hose to source
 - ii. Attach a transparent disc on other end
 - iii. Pull to 22” mercury and hold for 10 minutes
 - iv. Inspect hose through disc for collapse or other problems

- z. Personnel responsible for hose repair shall see that a hose work report for each repaired length is prepared and forwarded for recording on the permanent hose record.
 - aa. Update the hose records. Records shall be stored at the central office of the fire department.
 - bb. Out of service hose shall be properly tagged with the reason it has been removed from service.
- D. Corrective Actions
- a. Remove any hose from service which fails any part of the test. Repair and replace as necessary.
 - b. Retest to the standard after corrective action.
- E. Hose Records
- a. Permanent ID #
 - i. If the coupling is stamped, do not damage and use the female end
 - ii. If stenciled, use a type that will not damage the jacket
 - b. Manufacturer
 - c. Model
 - d. Type / construction
 - e. Vendor
 - f. Warranty limit
 - g. Length
 - h. Coupling size
 - i. Test pressure
 - j. Date received / in service
 - k. Date of svc. test / results
 - l. Damage / Repairs / Exposure
 - m. Reason removed from service

RESPONSIBILITY

- A. It is the responsibility of all Scarborough Fire Department members to adhere to this policy.
- B. It is the responsibility of the designated IC to ensure that hazards are communicated to operating personnel and that safe practices are adhered to.

REFERENCE

- A. NFPA 1962, 2013 Edition - Standard for the Care, Use, Inspection, Service Testing, and Replacement of Fire Hose, Couplings, Nozzles and Fire Hose Appliances