

## Chapter 5 Service Testing

### **5-1 Service Test Pressure.**

#### **5-1.1 HOSE MANUFACTURED PRIOR TO JULY, 1987.**

##### **5-1.1.1**

The service test pressure for hose manufactured prior to July, 1987 to meet the requirements of the 1979 edition and previous editions of NFPA 1961, Standard for Fire Hose, shall be determined by noting the ACCEPTANCE OR PROOF TEST PRESSURE stenciled on each length of hose and shown as "Tested to --- PSI," and then finding the ACCEPTANCE OR PROOF TEST PRESSURE by type of hose and the corresponding service test pressure specified in Table 5-1.1.

##### **5-1.1.2**

The new hose rated ACCEPTANCE OR PROOF TEST PRESSURE that is stenciled on hose manufactured prior to July, 1987 SHALL NOT BE USED FOR THE SERVICE TEST PRESSURE.

##### **5-1.1.3**

The new hose rated ACCEPTANCE OR PROOF TEST PRESSURE tests shall only be conducted at the point of manufacture or at a facility properly equipped and staffed for these tests, and SHALL NOT BE CONDUCTED IN THE FIELD.

#### **5-1.2 Hose Manufactured July, 1987 and After.**

##### **5-1.2.1**

The Service Test Pressure for hose manufactured in July, 1987 and after to meet the requirements of the 1987 edition of NFPA 1961, Standard for Fire Hose, shall be determined by the service test pressure stenciled on each length of hose and shown as "Service Test to --- PSI per NFPA 1962."

##### **5-1.3\***

After determining the correct service test pressure for each length of hose to be tested, the service test shall be conducted as specified in Section 5-2 of this chapter.

### **5-2 Service Test Procedure.**

##### **5-2.1\***

Warning: When conducting the service pressure test, care shall be taken to remove all air from the hose before the nozzle or test cap valve is closed and the pressure allowed to rise. It shall be recognized that development of test pressures introduces a serious accident potential and this specified test procedure must be followed.

##### **5-2.2**

The following test procedure shall be followed:

##### **5-2.2.1**

Each length of hose to be service tested shall be inspected as specified in Section 2-5 of this standard. Any length of hose that fails the inspection shall be removed

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from the service test area and repaired as necessary or condemned.

## 5-2.2.2

A hose testing machine, a stationary pump, or a fire department pumper equipped with a hose test gate valve shall be used. The gage used to read the test pressure shall be certified at least annually.

### 5-2.2.2.1\*

The hose test gate valve shall be a fire department gate valve with a 1/4-in. opening drilled through the gate that permits the pressure to be raised to the test pressure after the hose has been filled, the air completely removed, and the hose gate valve closed.

### 5-2.2.2.2

All 3-1/2" and larger hose shall be service tested while lying flat. A short length of smaller diameter hose with the same or higher proof pressure shall be used to connect the test valve to the hose being tested.

### 5-2.2.3

A location shall be selected that will allow connection of the hydrostatic equipment to an adequate water source.

### 5-2.2.4\*

Each length of hose to be tested simultaneously shall be of the same service test pressure, and collectively shall be considered the hose test layout. The total length of any hose

line in the hose test layout to be service tested shall not exceed 300'. The hose test layout shall be straight without kinks or twists.

**EXCEPTION: HOSE THAT HAS BEEN REPAIRED OR RECOUPLED SHALL BE TESTED ONE LENGTH AT A TIME.**

### 5-2.2.5

The test layout shall be connected to the hose test gate valve of the pump. The hose test gate valve shall be used to prevent the reaction of discharging a large volume of water in the event of a hose bursting during the test. If a fire department pumper is used, the hose test gate valve shall not be attached to any discharge outlet at or adjacent to the pump operator's position. The hose test gate valve end of the hose line shall be secured with a belt tie-in or rope hose tool at a point 10-15" from the coupling. Shut-off nozzles or test caps shall be attached to the far end of the line.

### 5-2.2.6

With the hose test gate valve open and the nozzle or test cap valve open, the pressure shall be gradually raised to 45 + 5 psi. After the hose test layout is full of water, all air in each hose line shall be exhausted by raising the discharge end of each hose line above the highest point in the system.

The nozzle or test cap valve shall be closed slowly, then the hose test gate valve shall be closed.

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## **5-2.2.7\***

The shutoff device or the hose directly in back of the shutoff device shall be secured to avoid possible whipping or other uncontrolled reaction in the event of a hose burst.

## **5-2.2.8\***

After filling to 45 + 5 psi, the hose shall be checked for leakage at the coupling and tightened with a spanner wrench where necessary. Each hose shall then be marked at the end or back of each coupling to determine, after the hose has been drained, if the coupling has slipped during the test.

## **5-2.2.9**

All personnel shall clear the area other than those persons required to perform the remainder of the procedure.

## **5-2.2.10**

The pressure shall be raised slowly at a rate not greater than 100 psi per 6 seconds to the service test pressure, and held for five minutes.

## **5-2.2.11**

While the test layout is at the service test pressure, the hose shall be inspected for leaks. If the inspecting personnel walk the test layout to inspect for leaks, they shall be at least 15' to the left side of the nearest hose line in the test layout. The left side of the hose line shall be defined as that side which is to the left when facing the free end from the pressure source. Personnel shall never stand in front of the free end of the hose, on the right side of the hose,

closer than 15' on the left side of the hose, or straddle a hose in the test layout during the test.

## **5-2.2.12**

If during the test a section of hose is leaking or a section bursts, the service test shall be terminated and that length of hose shall have failed the test. The test layout shall be drained, and the defective hose removed from the test layout. The service test shall be restarted beginning with section 5-2 of this chapter.

## **5-2.2.13**

After five minutes at the service test pressure, the pump shall be shut down, the hose test gate valve opened, the pressure allowed to equalize with the source, the pump discharge gates closed, and each nozzle or test cap valve opened to drain the test layout.

## **5-2.2.14\***

The marks placed on the hose at the back of the couplings shall be observed for coupling slippage. If the coupling has slipped the hose shall have failed the test.

## **5-2.2.15**

Hose records specified in Chapter 3 of this standard shall be updated to indicate the results of the service test for each length of hose tested.

## **5-2.2.16**

All hose failing the physical examination, bursting, leaking, or having couplings

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that fail because of slippage or leaking shall be tagged as required in 3-1.6 of this standard, removed from service and sent for repair. For leaking hose or for hose jackets failing the physical

## **5-4.1**

Braided hose shall be service tested annually to 150 percent of its rated working pressure when tested in accordance with ASTM D380, Standard Method of Testing Rubber Hose.

## **5-4.3\***

Hard suction hose shall also be dry vacuum tested annually as follows:

- (a) The hose shall be attached to a suction source.
- (b) The free end shall be sealed with a transparent disk and connected to an accurate vacuum measuring instrument.
- (c) A 22" mercury vacuum shall be developed. While holding the vacuum, the lining of the hose shall be inspected through the transparent disk. There shall be no collapsing of the lining into the waterway.

# Information Sheet #2

TRADE SIZE IN.	JACKETS	NEW HOSE RATED ACCEPTANCE TEST PRESSURE PSI	SERVICE TEST PRESSURE PSI
*****			
Lined Industrial Standpipe, and Fire Department			
1 1/2 thru 2 1/2 *	Single	300	150
1 1/2 thru 4 1/2	Single	400	250
1 1/2 thru 2 1/2	Single	500	250
1 1/2 thru 4	Multiple	400	250
1 1/2 thru 4	Multiple	600	250
Unlined Standpipe 1 1/2 and 2 1/2			
	Single		150
Lined Forestry 1 and 1 1/2			
	Single	450	250
Unlined Forestry 1 and 1 1/2			
	Single	450	250
Relay Supply 3 1/2 thru 4 1/2			
	Single	400	200
5 and 6	Single	300	150
Engine Supply (Soft Suction) 4 thru 6			
	Multiple	400	200
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\*1 1/2 thru 2 1/2 single jacket hose with a new hose rated acceptance test pressure of 300 psi shall not be maintained on fire apparatus for fire fighting purposes.

Hard suction hose shall be service tested annually to 150 percent of the rated working pressure when tested in accordance with ASTM D380, Standard Method of Testing Rubber Hose.