

# New York City Double-Wall Tank Installation/Testing Supplement

## 1. GENERAL

1.1. These instructions are for Xerxes tanks installed under the jurisdiction of the New York City (N.Y.C.) Fire Department. Xerxes manufactures tanks that meet the installation and testing requirements of the New York City Fire Department. These tanks are identified by a special New York City label located on the top of the tank near the lifting lug.

1.2. The New York City Fire Department requires that plans and calculations be submitted to and approved by the Buried Tank Section Plan Examiner. These plans must be approved by the Department of Port and Terminals or the Department of Buildings, whichever has jurisdiction.

1.3. The installation must comply with Chapter 19 of the New York City Administrative Code and applicable Fire Department rules and regulations.

1.4. For tanks larger than 4,000 gallons, the New York City Fire Department must be scheduled by the installer for on-site inspections during four of the installation steps. These four appointments are noted below.

### **CAUTION**

Do not pressurize the secondary tank (interstitial space) by itself. The secondary tank should never have a greater pressure on it than the primary tank, or the primary tank may rupture and cause tank failure.

1.5. This supplement is to be used following the Preinstallation Section of the Xerxes Installation Manual and Operating Guidelines.

1.6. The psig and time for 4,000-gallon tanks and smaller appear in brackets [ ].

1.7. If you have questions or encounter any situations not covered in these installation instructions, please contact your Xerxes representative or technical support at Xerxes Minneapolis, 952-887-1890.

1.8. Piers: New York City requires piers to be installed to support the concrete top slab in some installations.

## 2. ANCHORING TANKS

(1st appointment for Fire Department inspection)

### 2.1. Anchor Slabs

2.1.1. All New York City installations require a concrete anchor slab. Site plans supplied by the tank owner will detail the pattern and size for the reinforcing bars.

Note: The N.Y.C. Fire Department must witness the pouring of the slab.

### 2.2. Anchor Points

2.2.1. The minimum tensile pullout force required for the anchors is 25,000 lbs. per anchor point.

## 3. POST-INSTALLATION TESTING OF A DOUBLE-WALL TANK WITH DRY INTERSTITIAL SPACE (5 psig AIR PRESSURE TEST)

(2nd appointment for Fire Department inspection)

### 3.1. General

Note: The N.Y.C. Fire Department must witness a 5 psig air test on the inner and outer tank after anchoring the tank.

3.1.1. If any leaks are encountered during these tests, please contact the Xerxes manufacturing facility from which the tank was shipped as soon as possible for repair.

Note: In order to test the primary tank alone, the test hose must not be connected to the service fitting. Keep the nylon tie in place. See quick disconnect assembly in FIGURE 3-1.

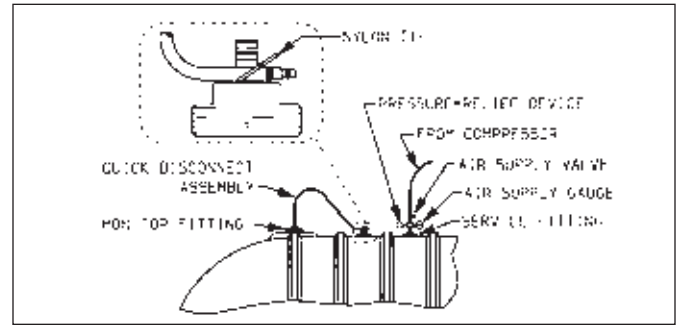


FIGURE 3-1

### 3.2. Air Test of Primary (Inner) Tank

3.2.1. Connect the test manifold to an available service fitting. Remove the remaining fittings, redope, and reinstall fitting plugs.

3.2.2. Pressurize the primary tank to 5 psig; add or remove air as necessary, and allow the pressure to stabilize. Close the valve on the test manifold supply line, and disconnect the air supply line.

3.2.3. Monitor the pressure for one hour. Soap test all service fittings and manways. Watch for active air bubbles, which indicate a leak.

### 3.3. Air Test of Secondary (Outer) Tank Test

3.3.1. Maintain the pressure in the primary tank.

3.3.2. Free the hose from the service fitting by cutting the nylon tie. (See FIGURE 3-1.)

3.3.3. Insert the hose into the quick disconnect assembly (found at the top of a service fitting). This will allow air to transfer from the primary to the secondary tank.

3.3.4. Add or remove air back to 5 psig as needed, and allow the pressure to stabilize. Close the valve on the test manifold. Disconnect the air supply line. Monitor the pressure for one hour. Soap the entire exterior of the tank and watch for active air bubbles, which indicate a leak.

3.3.5. When the test is completed, carefully release the air pressure from the tank by opening the air supply valve. The air supply line should have already been disconnected. When the air flow from the air supply valve stops, remove the test manifold.

## 4. POST-INSTALLATION TESTING OF A DOUBLE-WALL TANK WITH LIQUID-FILLED INTERSTITIAL SPACE (TRUCHEK) – 5 psig AIR PRESSURE TEST

### 4.1. General

4.1.1. The primary (inner) tank air-pressure test is the same as for a double-wall tank with a dry interstitial space. The following additional items are required when testing liquid-filled interstitial space tanks:

### **CAUTION**

Do not pressurize the secondary tank (interstitial space) by itself. The secondary tank should never have a greater pressure on it than the primary tank, or the primary tank may rupture and cause tank failure.

4.1.2. Open one service fitting and the fitting on the reservoir. Check for liquid in the reservoir. Remove the remaining fittings, redope, and reinstall fitting plugs.

Note: The fitting on the reservoir has a hose attached. This will be used again later in the 20 [30] psig hydrostatic test. Replace this fitting after the 5 psig air-pressure test.

4.1.3. Visually check the interior of the tank for liquid. (There should not be any.) Install the test manifold in the open service fitting. Connect the pressure source to the test manifold.

4.1.4. Check the reservoir liquid for bubbles during the primary air-pressure test. (There will be some change in liquid level during this test.) Continuous bubbling may indicate a leak. (The monitoring-fluid level will rise due to internal pressure.)

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4.1.5. After the test is completed, check the tank interior for monitoring fluid, and check the monitoring-fluid level in the reservoir.

#### 5. POST-INSTALLATION TESTING OF A DOUBLE-WALL TANK WITH DRY INTERSTITIAL SPACE – (20 [30] psig HYDROSTATIC TEST ON PRIMARY (INNER) TANK)

(3rd appointment for Fire Department inspection)

##### 5.1. General

Note: The N.Y.C. Fire Department must witness placement of backfill from the anchor slab to a minimum of 3 inches over the top of the tank.

5.1.1. The water-pressure gauges used for the hydrostatic test should have one-pound increments and have a full-scale reading of less than 50 psig.

5.1.2. The high-pressure hydrostatic (water-pressure) test and the aerostatic (air-pressure) test are to be performed after the backfill is at least 3 inches over the top of the tank and piping is completed.

### **WARNING**

It is the tester's responsibility to ensure that all equipment used to test the tank is in proper working condition, and that adequate precautions are taken to protect people and property during the test. Do not leave the pressurized tank unattended. Overpressurization could result in tank failure, and could cause death, serious personal injury or property damage.

##### 5.2. Hydrostatic Test on Primary (inner) Tank

5.2.1. Install test manifold to the primary (inner) tank.

5.2.2. Connect the water supply line to the test manifold as shown in FIGURE 5-1.

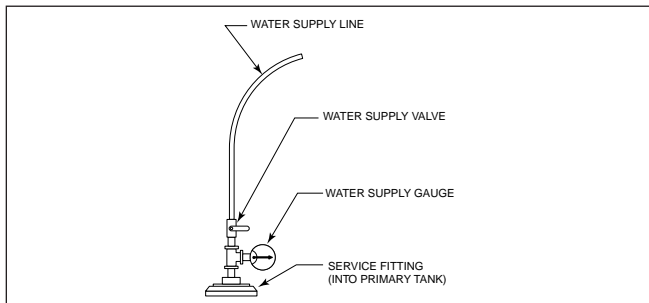


FIGURE 5-1

5.2.3. Carefully fill the primary (inner) tank with water. Do not let water enter the interstitial space for any reason.

5.2.4. Once the primary tank and piping have been completely filled with water, turn off the water supply valve. Finish sealing the remaining openings to the primary (inner) tank.

5.2.5. Notify all people on the test site that the test is ready to begin, and that they are to remain in a safe area throughout the test.

5.2.6. Pressurize the primary (inner) tank with water pressure to 20 [30] psig for 1 hour [30 minutes]. Watch for a drop in pressure.

Note: The hydrostatic test pressure will be 20 [30] psig unless modified by the Fire Commissioner on the basis of head-pressure calculations. The minimum test pressure will be 15 [17] psig or 1-1/2 times the maximum working pressure, whichever is greater.

5.2.7. Upon completion of the 20 [30] psig hydrostatic test on the primary tank, reduce the water pressure down to 5 [10] psig. Slowly pressurize with air the interstitial space to 5 [10] psig. Use a separate test manifold with gauge and a pressure-relief valve set at 6 [11] psig. Allow this pressure to hold for 1 hour [30 minutes].

Note: An alternative to performing Points 5.2.6 and 5.2.7 in sequence is to perform the test in the following manner:

Pressurize the primary (inner) tank with water pressure to 20 [30] psig. After attaining 20 [30] psig in the primary tank, use a separate test manifold with gauge (and a pressure-relief valve set at 6 [11] psig) to slowly pressurize with air the interstitial space to 5 [10] psig. Simultaneously hold both pressures for 1 hour [30 minutes].

### **CAUTION**

Do not pressurize the secondary tank (interstitial space) by itself. The secondary tank should never have a greater pressure on it than the primary tank, or the primary tank may rupture and cause tank failure.

5.2.8. Upon completion of this test, first release the air pressure from the interstitial space and then remove the water from the primary (inner) tank.

#### 6. POST-INSTALLATION TESTING OF A DOUBLE-WALL TANK WITH LIQUID-FILLED INTERSTITIAL SPACE (TRUCHEK) 20 [30] psig HYDROSTATIC TEST ON PRIMARY (INNER) TANK

##### 6.1. General

6.1.1. The water-pressure gauges used for the hydrostatic test should have one-pound increments and have a full-scale reading of less than 50 psig.

### **WARNING**

It is the tester's responsibility to ensure that all equipment used to test the tank is in proper working condition, and that adequate precautions are taken to protect people and property during the test. Do not leave the pressurized tank unattended. Overpressurization could result in tank failure, and could cause death, serious personal injury or property damage.

6.1.2. Install test manifold to the primary (inner) tank.

6.1.3. Connect the water supply line to the test manifold as shown in FIGURE 5-1.

6.1.4. Carefully fill the primary (inner) tank with water. Do not let water enter the interstitial space for any reason.

6.1.5. Once the primary tank and piping have been completely filled with water, turn off the water supply valve. Finish sealing the remaining openings to the primary (inner) tank.

6.1.6. Notify all people on the test site that the test is ready to begin, and that they are to remain in a safe area throughout the test.

6.1.7. Pressurize the primary (inner) tank with water pressure to 20 [30] psig for 1 hour [30 minutes]. Watch for a drop in pressure. The monitoring-fluid level will rise due to internal pressure.

Note: The hydrostatic test pressure will be 20 [30] psig unless modified by the Fire Commissioner on the basis of head-pressure calculations. The minimum test pressure will be 15 [17] psig or 1-1/2 times the maximum working pressure, whichever is greater.

6.1.8. Upon completion of the 20 [30] psig hydrostatic test on the primary tank, reduce the water pressure to 5 [10] psig. Slowly pressurize the interstitial space to 5 [10] psig by using a mechanically hand-operated pump. Use a separate test manifold with gauge and a pressure-relief valve set at 6 [11] psig. Allow this pressure to hold for 1 hour [30 minutes].

Note: An alternative to performing Points 6.1.7. and 6.1.8. in sequence is to perform the test in the following manner:

Pressurize the primary (inner) tank with water pressure to 20 [30] psig. After attaining 20 [30] psig in the primary tank, use a separate test manifold with gauge (and a pressure-relief valve set at 6 [11] psig); and with a mechanically hand-operated pump slowly pressurize with air the interstitial space to 5 [10] psig. Simultaneously hold both pressures for 1 hour [30 minutes].

### **CAUTION**

Do not pressurize the secondary tank (interstitial space) by itself. The secondary tank should never have a greater pressure on it than the primary tank, or the primary tank may rupture and cause tank failure.

### **CAUTION**

Apply pressure to the monitoring-fluid reservoir by using a hand pump only. Using a power pump (air compressor) could cause overpressurization of the interstitial space, and could cause primary (inner) tank damage.

6.1.9. Upon completion of this test, release both air pressure and water pressure, and remove the water from the primary (inner) tank. Release the air pressure from the interstitial space first.

#### 7. CONCRETE TOP SLAB

(4th appointment for Fire Department inspection)

Note: The N.Y.C. Fire Department must witness the pouring of the top slab.

7.1. The site plan supplied by the tank owner will specify the size, depth and reinforcement of the concrete top slab.