

NAVSEA
STANDARD ITEM

FY-04

ITEM NO: 009-25
DATE: 30 AUG 2002
CATEGORY: II

1. SCOPE:

1.1 Title: Structural Boundary Test; accomplish

2. REFERENCES:

2.1 MIL-STD-777, Schedule of Piping, Valves, Fittings, and Associated Piping Components

2.2 802-5959353, MIL-STD-777 Modified for DDG-51 Class, Schedule of Piping, Valves, Fittings, and Associated Piping Components

3. REQUIREMENTS:

3.1 Accomplish a preliminary air test of spaces in accordance with the following:

3.1.1 Install expandable plugs or blanks ***painted blaze orange*** in associated tank piping at the first valve, flange, mechanical joint, or piping terminating in the tank. Associated piping is defined as "an assembly of pipe, tubing, valves, fittings and related components forming a whole or a part of a system which starts or terminates in subject area, thus being common to and associated with same."

3.1.1.1 Submit ***one legible copy, in hard copy or electronic media,*** of a report listing the location of each expandable plug and blank to the SUPERVISOR.

3.1.2 Install two independent pressure gages.

3.1.2.1 Gage range shall be such that the test pressure is in the middle third of the scale.

3.1.3 Install two relief valves set at 15 percent above test pressure.

3.1.4 Install one vent valve.

3.1.5 The air source shall not exceed 25 PSIG and shall have a supply capability less than the exhaust capability of either relief valve.

3.1.6 Apply a soap solution to the opposite side of the structure and inspect for leakage.

3.1.7 Submit **one** legible copy, **in hard copy or electronic media**, of a report listing results of the preliminary air test, to the SUPERVISOR.

3.1.8 Remove each expandable plug or blank upon completion of repairs and testing, and install new gaskets and fasteners in accordance with applicable Categories and Groups of 2.1 or 2.2.

3.1.8.1 Submit **one** legible copy, **in hard copy or electronic media**, of a report listing the location of each expandable plug and blank removed to the SUPERVISOR.

(V)(G) **"UNOBSTRUCTED FLOW"**

3.1.9 Accomplish unobstructed airflow test of air escape and overflow piping.

(I)(G) or (V)(G) "AIR TEST" (See 4.1 for criteria.)

3.2 Accomplish an air test of spaces in accordance with the following:

3.2.1 Install expandable plugs or blanks **painted blaze orange** in associated tank piping, **including overflow and air escape piping to the overboard discharge or connection to a common tank overflow or air escape header**, at the first valve, flange, **or** mechanical joint. Associated piping is defined as "an assembly of pipe, tubing, valves, fittings and related components forming a whole or a part of a system which starts or terminates in subject area, thus being common to and associated with same."

3.2.1.1 Submit **one** legible copy, **in hard copy or electronic media**, of a report listing the location of each expandable plug and blank to the SUPERVISOR.

3.2.2 Install two independent pressure gages.

3.2.2.1 Gage range shall be such that the test pressure is in the middle third of the scale.

3.2.3 Install two relief valves set at 15 percent above test pressure.

3.2.4 Install one vent valve.

3.2.5 The air source shall not exceed 25 PSIG and shall have a supply capability less than the exhaust capability of either relief valve.

3.2.6 Apply a soap solution to the opposite side of the structure, associated tank piping, overflow and air escape piping, and inspect for leaks.

3.2.7 Remove each expandable plug or blank upon completion of repairs and testing, and install new gaskets and fasteners in accordance with applicable Categories and Groups of 2.1 or 2.2.

3.2.7.1 Submit **one** legible copy, **in hard copy or electronic media**, of a report listing the location of each expandable plug and blank removed to the SUPERVISOR.

(V)(G) **"UNOBSTRUCTED FLOW"**

3.2.8 Accomplish unobstructed airflow test of air escape and overflow piping.

(I)(G) or (V)(G) "AIR HOSE TEST" (See 4.1 for criteria.)

3.3 Accomplish a local air hose test in accordance with the following:

3.3.1 Air hose nozzle shall be as close as possible and pressure directed at the structure under test in a manner most likely to disclose leaks.

3.3.1.1 The minimum nozzle diameter shall be 3/8 inch and the **nozzle** pressure shall be 90 PSIG.

3.3.2 Apply a soap solution to the opposite side of the structure and inspect for leakage.

(I)(G) or (V)(G) "WATER HOSE TEST" (See 4.1 for criteria.)

3.4 Accomplish a water hose test in accordance with the following:

3.4.1 Use a one and one-half inch hose with a minimum nozzle diameter of one-half inch at 50 PSIG nozzle pressure at a maximum distance of 10 feet from the surface being tested.

3.4.2 The stream of water shall be directed against the structure in a manner most likely to disclose leaks. The opposite side of the structure shall be inspected to detect and locate leaks.

(I)(G) or (V)(G) "VACUUM BOX TEST" (See 4.1 for criteria.)

3.5 Accomplish a local vacuum box test in accordance with the following:

3.5.1 Install a vacuum box with a clear cover over the entire joint or fitting being tested.

3.5.1.1 Install the vacuum box so that the pressure differential is in the direction of an air test.

3.5.2 Apply a soap solution to the structure being tested.

3.5.3 Draw a vacuum of at least 10.2 inches of mercury and inspect for leaks.

4. NOTES:

4.1 The paragraph referencing this note is considered (I)(G) if the test is for work that requires record retention by the fabrication document. If the test is for work that does not require record retention, then the paragraph is considered to be (V)(G).