

NAVSEA  
STANDARD ITEM

FY-23

ITEM NO: 009-71  
DATE: 01 OCT 2021  
CATEGORY: II

1. SCOPE:

1.1 Title: Piping System; test

2. REFERENCES:

2.1 Standard Items

2.2 S9086-RK-STM-010/CH-505, *Piping Systems*

2.3 S9086-RJ-STM-010/CH-504, Pressure, Temperature and Other Mechanical and Electromechanical Measuring Instruments

3. REQUIREMENTS:

3.1 Accomplishment of testing of each new and disturbed piping systems must be in accordance with 2.1 and 2.2. (See Note 4.2)

3.1.1 Each master and backup test gauge must conform to gauge range and graduation shown on Table 504-6-1 of 2.3. The backup gauge must be cross-checked to the master hydrostatic test gauge up to the maximum test pressure just prior to start of testing. Master and backup gauges must track within 2 percent of each other.

3.1.1.1 Each master and backup test gauge used for vacuum testing must consist of 2 compound gauges with a 30 inch-0-30 PSI range.

(I)(G) "VISUAL INSPECTION - SHOP TEST" (See 4.2)

3.1.2 Accomplish a shop hydrostatic test of replacement piping, fittings, and components that can be tested in the shop or cannot be tested and inspected IAW paragraph 3.1.3 after installing in to the ship's system for evidence of external leakage and/or deformation. Allowable external leakage and/or deformation: None.

(I)(G) "VISUAL INSPECTION - HYDROSTATIC, LOW PRESSURE AIR, VACUUM, OR OPERATING PRESSURE TEST" (See 4.2)

3.1.3 Visually inspect the pressurized system or system under vacuum for evidence of external leakage and/or deformation. Allowable external leakage and/or deformation: None.

3.1.3.1 Each joint requiring inspection must remain uninsulated and unpainted until completion of successful inspection. Each joint tested and inspected under 3.1.2 would not require re-inspection unless the joint was disturbed during installation. These joints can be insulated and painted.

3.1.3.2 Provide a sketch of that portion of the system to be tested, showing the location of blanks, isolation valves, test connection, joints previously tested/inspected under 3.1.2 and the location of air vents to vent air. Sketch must be on the test site during the accomplishment of the test.

3.2 Accomplish a static head pressure test of each new and disturbed gravity drain piping (unpressurized piping), using clean, fresh water for a minimum of 30 minutes. Allowable leakage: None.

3.3 Accomplish an operational test of each new and disturbed gravity drain piping for proper operation and unobstructed flow.

3.4 Accomplish an operational test of each new and disturbed sounding tube piping by inserting a 16-inch theft sampler into sounding tube until it bottoms. Accomplish the test a minimum of 4 times for each sounding tube. There must be no binding or sticking of sampler during this test.

3.5 Submit one legible copy, in approved transferrable media, reporting the results of the test listing the requirements of 3.2 through 3.4, including *each location* of the new and disturbed gravity drain/new and disturbed sounding tube piping to the SUPERVISOR.

#### 4. NOTES:

4.1 Boiler pressure vessel piping is defined as, "The piping from the pressure vessel drum or header up to the first valve off the pressure vessel drum or header."

4.2 If nondestructive testing of new and disturbed piping systems is required the use of Standard Item 009-12 "Weld, Fabricate, and Inspect; accomplish" of 2.1 will be specified in the work item.

4.3 Test pressure and test medium will be specified in invoking Work Item.