

1. Scope

This specification describes the procedure to be used for Pressure & Leak Checking LHC Lower Heat Shield Supply Line as part of the Lower Heat Shield.

2. Applicable Documents

RHIC-CR-E-4703-0041

3. Requirements

3.1 Material /Equipment

Bottled Nitrogen

Bottled Helium

Calibrated Pressure gauge with Control

Veeco Vacuum Pump /Leak Detector Model MS-17

3.2 Safety Precautions

3.2.1 Technicians performing Pressure Testing shall be trained and certified in the procedures prescribed by the BNL ES&H Standard 1.4.0 /1.4.1 /5.1.0 for operating pressurized gas systems and in the use of nonflammable cryogenes by the Cognizant Engineer or Technical Supervisor.

3.2.2 Examine all pressure test equipment before pressure is applied to ensure it is tightly connected.

3.2.3 Suitable precautions shall be taken during pressure testing to eliminate hazards to personnel in the proximity of the test in the event of a rupture. The area shall be roped off.

3.2.4 Safety glasses must be worn during potential eye damaging operations.

- 3.3 Procedure
- 3.3.1 Set-Up
 - 3.3.1.1 Close off one end of pipe assembly using appropriate blank flange with copper gasket. Attach braided hose assembly to other end using copper gasket.
 - 3.3.1.2 Mount assembly onto bench.
- 3.3.2 Pressure Test Procedure

NOTE

Pressure test shall be witnessed by the ES&H Coordinator or Safety Engineering

- 3.3.2.1 Attach pressure gauge to nitrogen bottle and attach loose end of braided line to outlet of bottle.
- 3.3.2.2 Pressurize pipe assembly to 150 PSIG.
- 3.3.2.3 After 150 PSIG is reached, increase pressure in 30 PSI increments until the pneumatic test pressure indicated by the drawing is reached.
- 3.3.2.4 Hold at test pressure for 5 minutes.
- 3.3.2.5 After test, vent system and remove Nitrogen bottle.
- 3.3.2.6 ES&H Coordinator /Safety Engineering Representative to sign-off in traveler on completion of test.
- 3.3.3 Leak Check Procedure
 - 3.3.3.1 Calibrate the leak detector. Refer to the manufacturers calibration procedure.
 - 3.3.3.2 Attach Leak Detector to loose end of braided line.
 - 3.3.3.3 Attach a flexible line to Helium bottle.
 - 3.3.3.4 Draw vacuum using leak detector pump.
 - 3.3.3.5 While holding vacuum, spray Helium onto welded areas of pipe and onto bellows assembly. Measure and check leak rate to drawing specification.

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3.3.3.6 After test, vent system and remove pipe assembly.

4. Quality Assurance Provisions:

4.1 The Quality Assurance provisions of this procedure require that the technician shall be responsible for performing all assembly operations in compliance with the procedural instructions contained herein and the recording of the results on the production traveler.

4.2 The technician is responsible for notifying the technical supervisor and/or the cognizant engineer of any discrepancies occurring during the performance of this procedure. All discrepancies shall be identified and reported in accordance with RHIC- MAG-Q-1004.

4.3 Measuring and test equipment used for this procedure shall contain a valid calibration label in accordance with RHIC-MAG-Q-1000.

5. Preparation for Delivery:

N/A