

Head, Project Mechanical Engineering
Head, Technical Support
ES&H Coordinator
Quality Assurance
Electrical Systems
Design Engineering

M. Anerella
R. Ceruti
M. Chuc
H. Hocker
P. Joshi
P. Kovach

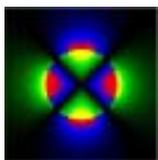
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Serial No	Part No	Part	P/L	ECN	Rev	P/L	ECN	Rev	P/L
Work Order #: _____				Deviation & Waiver: _____					

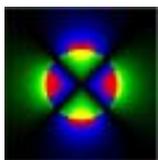
OP	Description	Name/Life #	Date	DR
10	This traveler covers only the work described herein. Moving, lifting, or reorienting the valve box is not a part of the work described here.			
20	The technicians shall be instructed by their cognizant technical supervisor in the operation of the required electrical test equipment and the electrical testing procedures.			
30	Hipot ("Hypot") and impulse testing pose an electrical hazard. At least two properly trained technicians must be present to perform this testing. When testing, a trained technician shall be stationed at any point where the item under test is accessible to unauthorized people, and barriers shall be set up. Signs shall be posted reading "DANGER HIGH VOLTAGE" and warning lights shall be turned on.			
40	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 SMD-MAG-1003.			

Measuring and test equipment used for this procedure shall contain a valid calibration label in accordance with the SBMS Subject Area 'Calibration', where applicable.



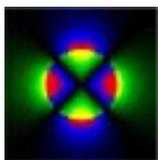


OP	Description	Name/Life #	Date	DR
50	Technicians performing Pressure Testing shall be instructed in the procedures prescribed by the SBMS Subject Areas by the Cognizant Engineer or Technical Supervisor:			
	<ul style="list-style-type: none"> * Compressed Gas Cylinders and Related Systems * Pressure Safety * Cryogenics Safety 			
	All relief devices and gauges used for pressure tests shall meet the requirements of the SBMS Subject Area. Examine all pressure test equipment before pressure is applied to ensure it is tightly connected.			
	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.			
60	All work performed herein shall be done in a manner compliant with the document "Work Plan for S-Phenix Magnet". All work which has not been categorized as 'worker planned work' shall require an approved work permit.			
70	Ensure excess solder is recycled or disposed of properly.			
80	Eye protection must be worn when removing flux, especially on hot surfaces. If surfaces are above 140F, thermally insulated gloves (such as welder's gloves) must be worn to protect from burns.			
100	Perform hypot test of valve box leads - leakage shall be <50uA :			
	CAUTION: BE SURE THE "HYPOT" IS GROUNDED AND GROUND LEADS ARE ATTACHED DURING TESTING. FAILURE TO OBSERVE THIS CONDITION MAY RESULT IN ELECTROCUTION.			
	Perform hypot. Slowly increase voltage to 520V (320V?).			
	Record leakage current (<50uA): _____			



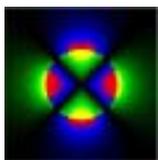
OP	Description	Name/Life #	Date	DR
110	<p>Prepare valve box for pressure & leak testing:</p> <p>1. Install valve box covers with O-rings. ____</p> <p>2. Solder blank off fittings to magnet end of valve box helium lines ____</p>			
120	<p>Pressure Leak Check:</p> <p>CAUTION: Move all personnel away from the valve box and the connections to the helium bottle.</p> <p>NOTE 1: The valve box has 2 seperate helium circuits, and a single vacuum jacket.</p> <p>NOTE 2: Vacuum leak testing shall be performed using a helium mass spectrometer leak detector with a sensitivity > 1x10⁻⁹ std. cc. he./sec.</p> <p>NOTE 3: Pressure tests need to be witnessed by an ES&H Representative</p>			
130	<p>Verify Valve Box Relief Valve:</p> <p>1) Verify existing relief valve acting on the lead box vacuum space is in place and is operative.</p>			
140	<p>Connect the 1st helium circuit to a helium bottle with a flex hose capable of 81PSIG through a regulator and gauge.</p>			
150	<p>Connect the vacuum pump line to the valve box vacuum space and start the mechanical pump. At 60 microns (60 x 10⁻³ Torr) start the turbo pump and valve it into the test loop. Close valve to the mechanical pump and turn off.</p>			
160	<p>Calibrate the leak detector.</p>			





OP	Description	Name/Life #	Date	DR
170	Allow to pump down to approximately 10 microns before leak check is started.			
180	Pressurize the 1st helium circuit with helium gas to 81PSIG as read at the helium bottle regulator. This equates to a 6.6 bar differential between the circuit under test and the vacuum space. This pressure is the equivalent of 1.1 times the operating pressure.			
190	Monitor the leak detector for a minimum of 10 minutes. The maximum acceptable leak rate at test pressure is 1×10^{-8} std. cc. he./sec. Leak Rate 1st Helium Circuit: _____ Witness - ES&H Rep: _____			
200	Shut down the helium supply. Bleed the helium pressure from the 1st helium circuit using a method compliant with Building 912 requirements.			
210	Move the helium flex line with gauge and regulator to the 2nd helium circuit.			
220	Pressurize the 2nd helium circuit with helium gas to 81PSIG as read at the helium bottle regulator. This equates to a 6.6 bar differential between the circuit under test and the vacuum space. This pressure is the equivalent of 1.1 times the operating pressure.			





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230	Monitor the leak detector for a minimum of 10 minutes. The maximum acceptable leak rate at test pressure is 1×10^{-8} std. cc. he./sec. Leak Rate 2nd Helium Circuit: _____ Witness - ES&H Rep: _____.			
240	Shut down the helium supply. Bleed the helium pressure from the 2nd helium circuit using a method compliant with Building 912 requirements.			
250	With the vacuum space still under vacuum, perform leak check of vacuum space by spraying helium over outside of valve box. Leak Rate: _____			
260	Relieve vacuum and remove lines.			
270	Verify All Traveler Operations Complete			
991	Revision History: Rev. A: Initial Release 6/25/15			

