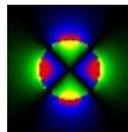


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Magnet Division Procedure



Superconducting
Magnet Division

Proc. No.: SMD-BEPC-3007

Revision: A

BEPC-II Cryostat Assembly

- Prepared by: [Signature on File](#)
- Cognizant Engineer: [Signature on File](#)
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- Q. A. Approval: [Signature on File](#)
- ES&H Review: [Signature on File](#)

Revision History

Rev A: Initial Release

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1. Scope:

This specification describes the procedure used to prepare the BEPC-II Cryostat Assembly.

2. Applicable Documents:

Dwg. 21010001

3. Requirements:

3.1 Material/Equipment

Shop air
Hand tools
Welding equipment

3.2 Safety Precautions:

3.2.1 It is imperative that safety precautions be strictly adhered to during all installation procedures given below. Two technicians, at a minimum, must be present at all times during performance of the assembly/disassembly and magnet rotation activities.

3.2.2 Safety glasses must be worn during pressure testing operations.

3.2.3 Safety shoes must be worn at all times during installation procedure.

3.2.4 Rigging assistance is required for all magnet lifting operations. Hard hats must be worn during crane operations. All lifting and handling operations requiring overhead crane operations shall be performed by holders of valid Safety Awareness Certificates. They shall also be instructed in the use of the appropriate lifting devices by the Cognizant Engineer or Technical Supervisor.

3.2.5 The technicians connecting and disconnecting power leads shall have Lock Out /Tag Out training for affected worker.

4. Procedure

4.1 Using alignment fixture (25-1939.01-5) weld (21010086) cryostat tube to (21010012) rear plate.

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- 4.2 If the cold mass assembly is still in the cryostat from pressure leak check, remove it.
- 4.3 Wrap outer heat shield with 40 layers of multi layer superinsulation.
- 4.4 In the area of key supports, wrap over (M.L.I.) with one layer of fiberglass heat protective blanket. Secure in place with Kevlar cord.
- 4.5 Reinstall cold mass back into cryostat tube.
- 4.6 Install keys but do not weld at this time.
- 4.7 Weld (21010071) bellows assembly to (21010016) inner cryostat.
- 4.8 Leak check this assembly.
- 4.9 Wrap inner cryostat tube with 20 layers (2 ten layer blankets) of M.L.I.
- 4.10 Install axial restraints along with their respective spacers and compression plates.
- 4.11 Starting from the lead end of the magnet, insert the inner cryostat into position through the bore of the cold mass.
- 4.12 Install the 21010033 long support posts onto the rear flange.
- 4.13 Install the 21010034 short support posts onto the (21010002) front plate.
- 4.14 Wrap all cryogenic lines and cold mass ends with 20 layers of M.L.I.
- 4.15 Install 21010022 end housing on non-lead end of magnet.
- 4.16 Put front plate into position by engaging short and long support posts.
- 4.17 Add o-ring and bolt the bellows assembly to the front plate.
- 4.18 Weld keys in place, periodically cooling welding area with compressed air.
- 4.19 Weld end cap in place, again periodically cooling weld with compressed air.

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- 4.20 Wiring Box
 - 4.20.1 Connect all magnet leads to a 12 foot harness. Connections are to be made in the wiring box on the 21010108 terminal board.
 - 4.20.2 Secure barrel splices with lacing cord and epoxy knots.
 - 4.20.3 Connect all V-taps to their resistors and spot heaters to the open terminals on (21010105) terminal board.
 - 4.20.4 Connect V-taps and spot heaters with the 12' extension harness.
 - 4.20.5 Install copper gasket and cover onto wiring box.
 - 4.20.6 Insulate wiring box and the bellows assembly with 20 layers of M.L.I.
 - 4.20.7 Install pressure relief valve onto front plate.
 - 4.20.8 Install extension tubes to cryogenic connectors.
 - 4.20.9 Grease and position o-rings in their respective grooves in the (21010010) end volume housing.
 - 4.20.10 Slide (21010010) end volume housing into position from NLE and bolt into place.
 - 4.20.11 Leak check assembly.
- 5 Quality Assurance Provisions:
 - 5.2 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.
 - 5.3 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.
 - 5.4 Measuring and test equipment used for this procedure shall contain a valid calibration label in accordance with RHIC-MAG-Q-1000.

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6 Preparation for Delivery:

N/A