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1. Scope:

This procedure describes the method used to measure the longitudinal straight section length; the overall length and end lengths of an individual coil, using the GAC built coil measurement fixture.

2. Applicable Documents:

2.1 Drawings

GAC Dwg. Nos. 120100007-spm 8cm dipole coil measurement fixture

2.2 Specifications

RHIC-MAG-Q-1004 Discrepancy Reporting Procedure

3. Requirements:

3.1 Equipment Required:

3.1.1 The tooling required is listed in section 2.1 above.

3.1.2 Vernier caliper with measuring accuracy " 0.001 inches.
(0-8 in. range)

3.2 Procedure:

3.2.1 Place a flat block on the dial indicator plunger of SHT6-1 gage angle assembly. Fully depress the plunger until the block rests tightly against the vertical face of the gage angle assembly. Set the dial indicator to zero, the -1 assembly has no step in the lower edge.

3.2.2 Place SHT6-1 and SHT6-3 gage angle assemblies on a flat surface facing each other. Bring them together until the step at the lower edge of the -3 assembly is firmly in contact with the face of the -1 assembly and the dial indicator plunger of the -3 assembly is against the face of the -1 assembly. Immediately adjacent to the cutout for the dial indicator of the -1 assembly set the dial indicator on the -3 gage angle assembly to zero.

3.2.3 Place the SHT6-3 gage angle assembly on the flat plate on the non-lead end of the fixture. Place the assembly against the gear rack and slide it toward the coil until the step at the lower edge of the front face contacts the fitting at the end of the invar bar. Record dial indicator reading.

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- 3.2.4 Repeat steps (3) using the SHT6-1 gage angle assembly at the lead end of the fixture.
- 3.2.5 Record the dimension for the length of the invar bar marked on the metal tag on the end fitting.
- 3.2.6 Place one SHT12-27 pole piece adapter into the non-lead end saddle of the coil and secure with a “Wheat Thin”, screw and modified insulator.
- 3.2.7 Repeat step (6) for the other end of the coil.
- 3.2.8 Using a micrometer or dial caliper measure the distance from the end of the coil to the flat surface of the (SHT12-27) pole adapter and record.
- 3.2.9 Repeat step (8) for other end of coil.
- 3.2.10 Run coil length program on PC to determine straight section length and overall length of coil.
- 3.2.11 Save all information in magnet database.
- 3.2.12 Print data sheet and insert into coil traveler package.

4. Quality Assurance Provisions:

4.1 The Quality Assurance Provisions of this procedure require compliance with the procedural instructions contained herein.

4.2 Calibration - The following tools must have a current calibration:

Vernier caliper
Dial indicators
Invar rods

4.3 All discrepancies shall be identified and reported in accordance with RHIC-MAG-Q-1004.

5. Preparation for Delivery:

N/A