

SSS TEST SEQUENCE

New Magnet On Bench, Scan the Name, Prepare Shift Log-Book etc.



INITIAL CHECKS BEFORE CONNECTION TO CFB (Cryogenic Feed Box):

- **HV Insulation Test**
- **Resistance measurement of all Voltage Taps, Quench Heaters, Temperature Sensor etc.**



- *Connection to CFB*

Carried out by ICS Group



PREPARATORY TESTS AT ROOM TEMPERATURE:

- **Lyre Test: Simulate Effect of Thermal Contraction in Cold condition**
- **IAP (Instrument Analysis Procedure): Check Functioning of Quench Heaters, Voltage Taps, and Temperature Sensor**
- **Quench Heater Resistance Measurement**
- **HV Insulation Test: After connection to CFB**



SSW TESTS AT WARM (ON SELECTED MAGNETS):

- **Single Stretched Wire Tests: By moving a wire inside the magnetic aperture - To measure the Magnetic Field Strength and Alignment Parameters**

Magnet Cool Down to 1.9 K



INITIAL COLD TESTS:

- **IAP: Check Offset and Gain Errors of Data Acquisition Instrumentation - Adjust wherever needed**
- **HV Insulation Test: Before Magnet Powering**
- **Slow Power Abort Test: Power the Magnet upto 1000 A and then back to Zero with Controlled Ramp Rate**
- **Provoked Quench Test: Power the Magnet upto 1500 A and check Quench-Heaters' operation by Provoking a Quench by Triggering one pair of High-Field Heaters**
- **Powering All Corrector Magnets upto their Nominal Current**

POWER TESTS AT COLD CONDITION:

- **TRAINING of Magnet: Feed the Magnet with Repetitive Current Ramp cycles until it gets "TRAINED" (Reaches the Ultimate Designed Current Value of 12850 A) – Refer Training Rules**
- **When the magnet is Trained, Generate a *.u file to record that Ultimate Target Current is reached**
- **De-Excitation Check: Reduce Current from 12000 A to Zero In Controlled way at a slope of -125 A/sec**

SSW TESTS AT COLD:

- **Single Stretched Wire Tests: By moving a wire inside the magnetic aperture - To measure the Magnetic Field Strength and Alignment Parameters**

MAGNETIC MEASUREMENTS (ON SELECTED MAGNETS):

- Measurement of Field profile, Harmonics etc. by Rotating a coil in the magnet aperture

FINAL TESTS AT COLD:

- HV Insulation Test: After Completion of Magnet Power Tests
- Minimum Energy Quench: Provoke a Quench by Firing one LF Heater at minimum required Heater-Voltage

Magnet Warm-up back to 300 K

FINAL TESTS AT WARM:

- IAP: Final Check for Electrical Integrity of Voltage Taps, and Temperature Sensor after completion of Power Tests at cold
- Final Resistance Measurement at Room temperature of Quench Heaters, Voltage Taps in main magnet, Corrector magnets, & Temperature sensor etc.

- *Disconnection from CFB*

Carried out by ICS Group

- **HV Insulation Test : After Disconnection from CFB**