G-2 Report

Brendan Kiburg
Fermilab
All Experimenters’ Meeting
Mon Oct 26, 2015
Initial Cool Down and Power Up, July 2015

- Powered to 3400 Amps (nominal = 5200A)
- Developed some resistive heating near the leads to one of the superconducting coils
- Decision to warm up → repair

Indium Joint
- Identified bad joint
- Designed repair
- Prototyped and tested
- Installed
- Cooled → better than new
September, 2015

- **Tuesday Sep 8th:** Restarted cool down of the coils

- Reached 4K weekend of Sep 19
- Powered Magnet Monday Sep 21 to full current!
Initial Scans with a Wideband NMR Probe in the magnet gap

June 1996 @ BNL

Sept 2015 @ FNAL

June 1996

1300 ppm

dipole

azimuthal position [deg]

Sept 2015

1300 ppm

field [ppm]

Fermilab
Goal for Our 9 Month Upcoming Shimming Program
Shimming Cart

- Lattice of NMR Probes
- Gap Sensors (measuring poles)
- Position sensors on quartz

- Stepper Motor
- Pulley
- Full 360 scans
Pole Gap Measurement using capacitexc and metrolab

Anticorrelated 10 ppm / micron gap prediction
Multiple Field Measurements Knobs → Tuning the Magnet

dipole moment blue: 10/14 red: 10/19 brown: 10/22

Started Making Adjustments

Wedges

Yoke steel

Small steel strips (small angular scale)
Conclusions

• The lead has been repaired
• The magnet was cooled and fully powered in Sept
• The magnet is fully operational

• Magnetic Shimming
  – We have recovered the Brookhaven conditions
  – We have their toolkit with some upgrades
  – Pushing ahead!