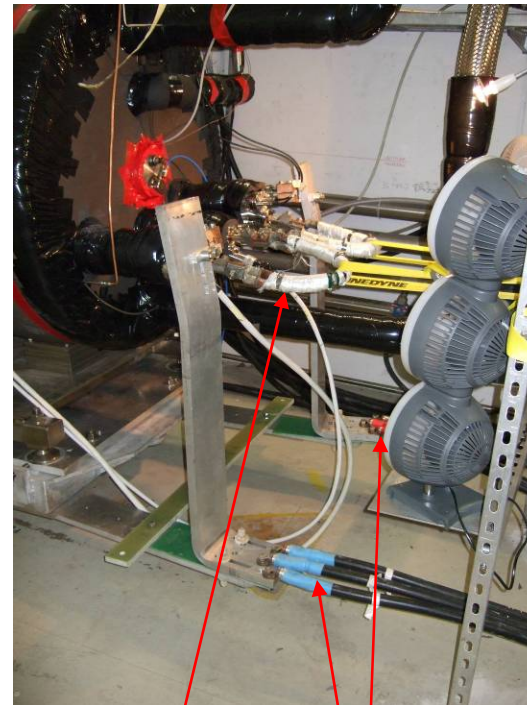




Hipot test, solenoid

● ● ● | Jumper cables connected

- Before test, the cable jackets were removed.
- Jumper cables still connected and the resistance measured for the whole coil package to ground.
- Result: $\sim 500 \text{ k}\Omega$ at 100 V
 - Much lower than previous tests ($\sim \text{G}\Omega$)
- Action: Remove jumper cables to separate coils.



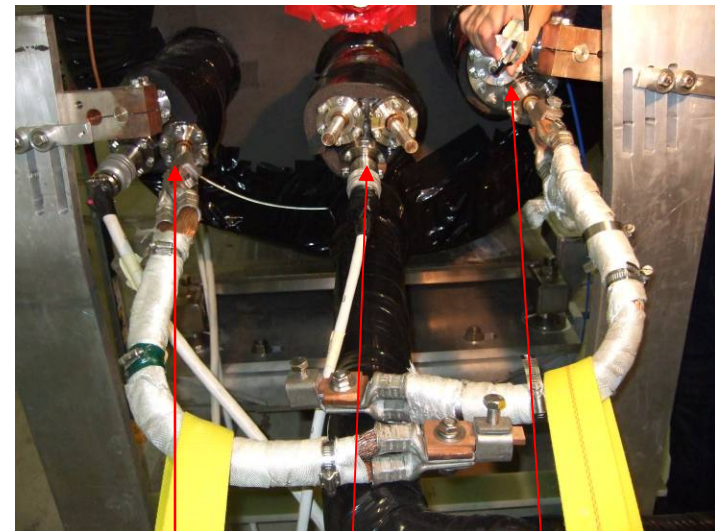
Jumper cables

Cable jackets



Jumper cables disconnected

- Outer and inner coil seem fine.
At 400 Volts:
 - ~500 M Ω to ground, outer coil (stable)
 - ~600 M Ω to ground, inner coil (stable)
- Middle coil:
 - At 50 V: current *increase* during 5 minutes from 88 μ A to 94 μ A (~ 0.5 M Ω , but current still increasing slowly)
 - Similar behaviour at 400 V
 - Portable Ohm-meter gave the decreasing values 0.9, 0.8 and 0.7 M Ω with a few minutes in between.



Outer Inner Middle



Issues

- The inductive behaviour of an increasing current was not observed during the previous hipot tests.
- Middle coil: 0.5 M Ω is still very high compared to the resistance of the coil itself.
- Unclear how the resistance to ground will change when switching to nominal working conditions (high current, low temperature).
- Hipot test in May gave tens of G Ω on each coil at 800 V.
 - http://www.hep.princeton.edu/~mcdonald/mumu/target/hkirk/Status_May_30.pdf