

Figure 1: Diagnostic data collected on June 26th 2014. From the top, the plots show: the 60.

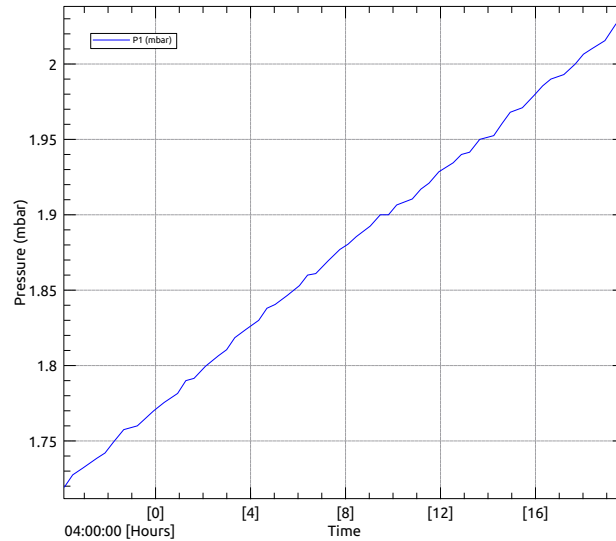


Figure 2: Diagnostic data collected on June 26th 2014. From the top, the plots show: the 60.

Most prominent theories:

1. Stycast not cooling: At low temperatures stycast has very low thermal conductivity. The thermometer, indicating the temperature of the blacked plate, is situated very close to the heater placed on the blacked plate. The heater is connected via 34AWG to the 1K stage. Assuming low thermal conductivity of the stycast, this allows the surface of the stycast to be relatively hot, while the immediate region around the heater is cooled by the 1K stage. This is supported by the fact that the temperature of this diode drops rapidly when we start condensing. In other words it tracks the temperature of the 1K stage very well. See figure (1).
2. Leak: Although multiple leak tests were performed with negative outcomes, a leak is strongly supported by the fact that the pressure inside the cryostat was 2mbar and rising by the time we opened up. See figure (2)
3. Thermal short: Copper contracts by roughly .3% at 1K. This means it will contract roughly 3mm. Without knowing the thermal contraction of the mu-metal, this is enough to close the gaps between the 1K shield and the mu-metal plate.
4. All of the above!

"Goodbye, have a beautiful time!"