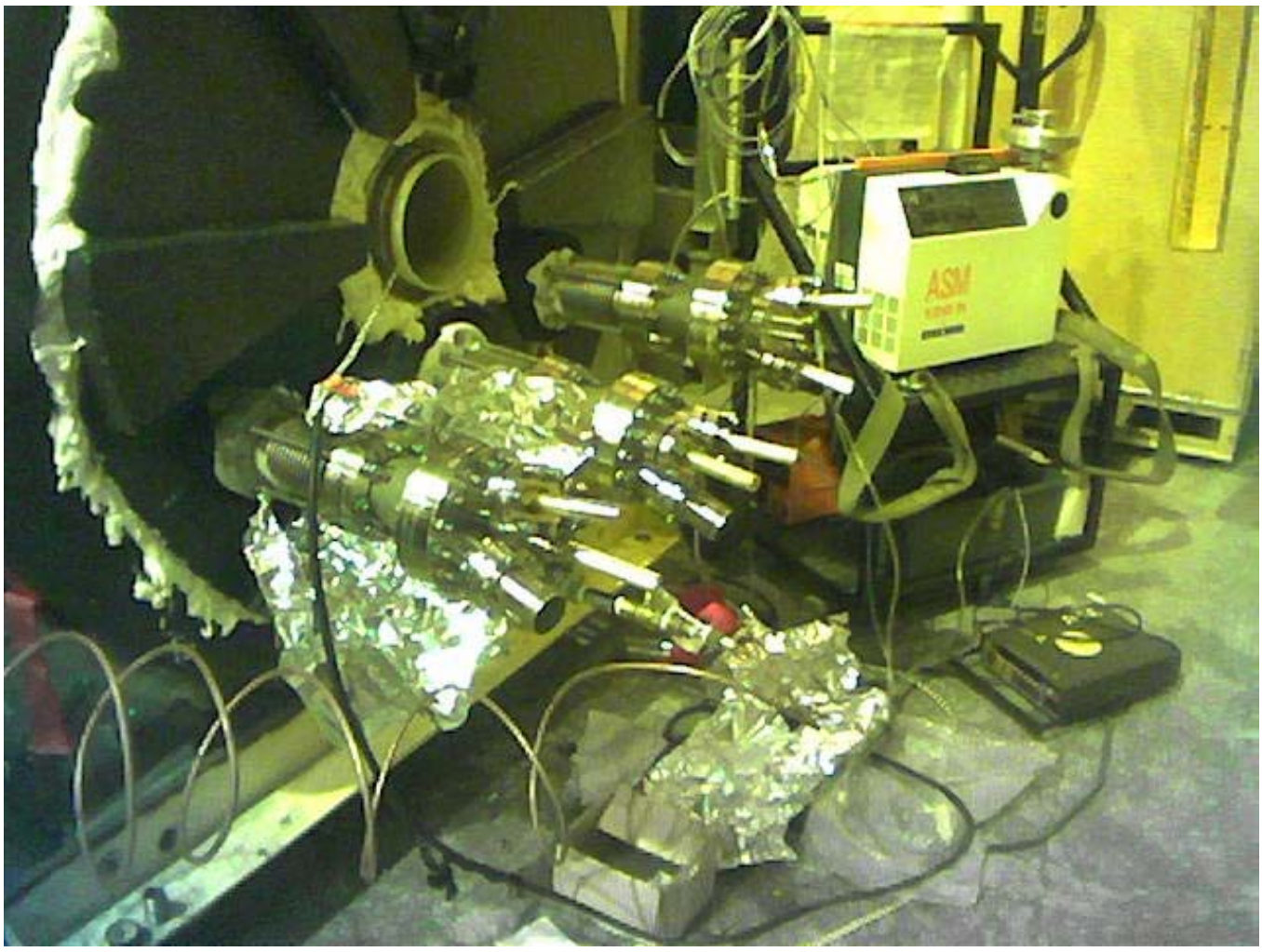
Pressure Tests, Friday March 9, through Tuesday March 13, 2007

Conflats were tightened – particularly the ones with the threaded rod bellows restraints.

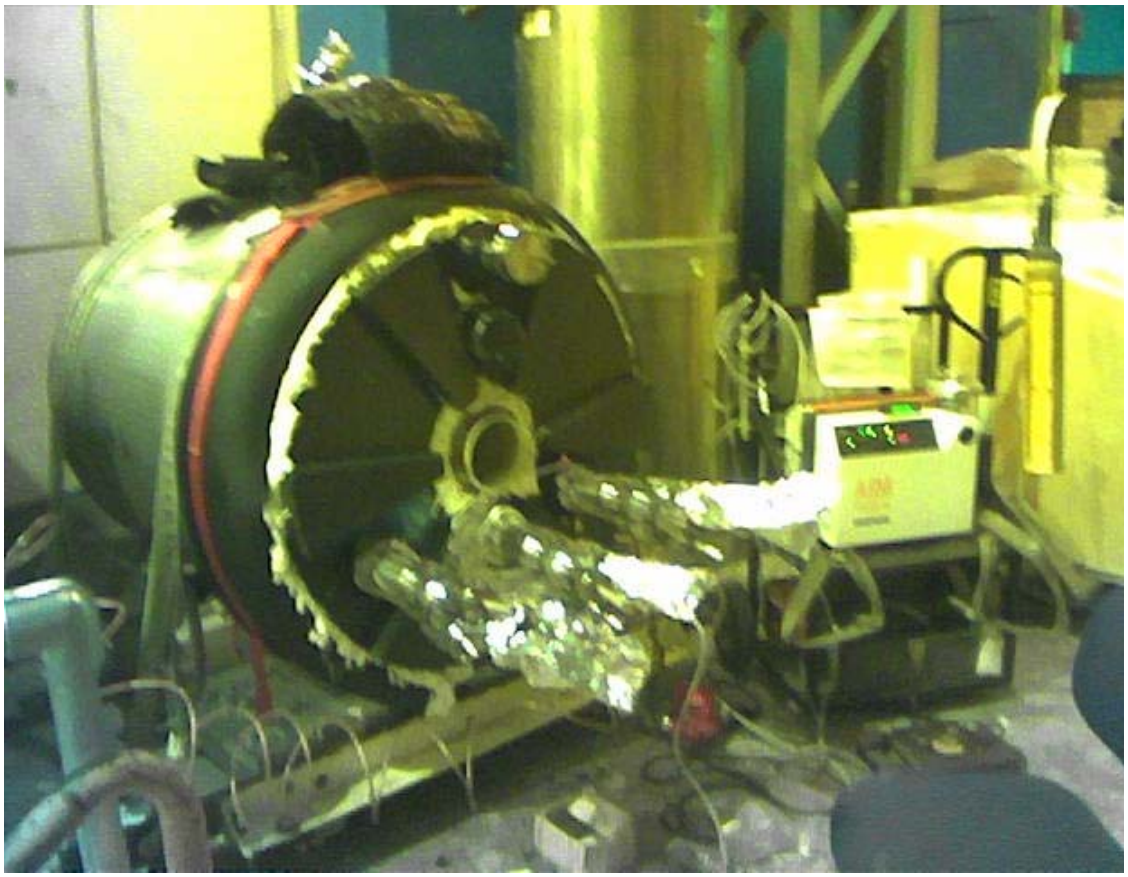
Bellevilles and platenuts were added to the terminal packing/gland details. Silicon packing is retained. Platenuts allow easy tightening of the packing if needed at LN2 temps, but this is not expected.

Helium leak detection was done with our system in sniffer mode. After some difficulty with leaks in the plumbing added to connect the He bottle, no leaks were found. Pressues of 140 psi were applied. Because of limitations in the available regulators and availability of fresh helium bottles, by the time I could get a good test of pressure retention, only 93 psi could be applied, but that held for about 14 hrs before I had to lower the pressure in preparation for shipment.

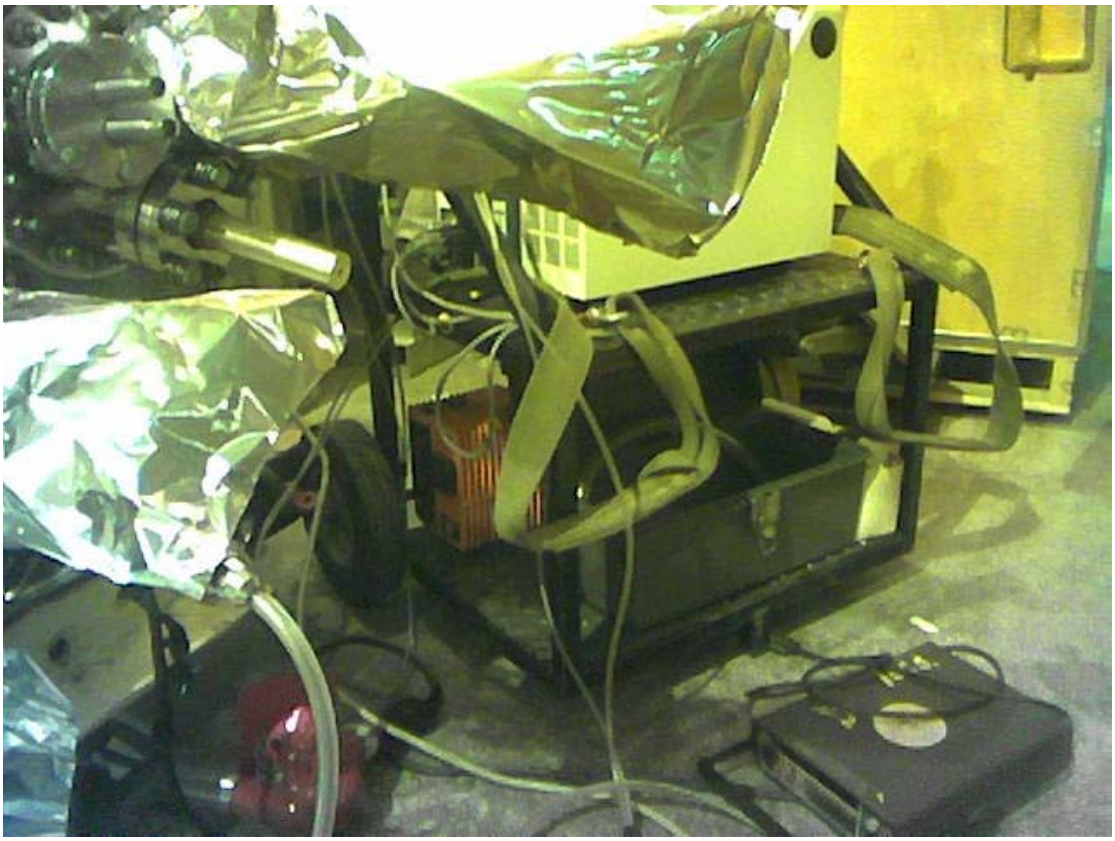
Video of the tests was made, and a DVD of tests at MIT has been included in the shipment.



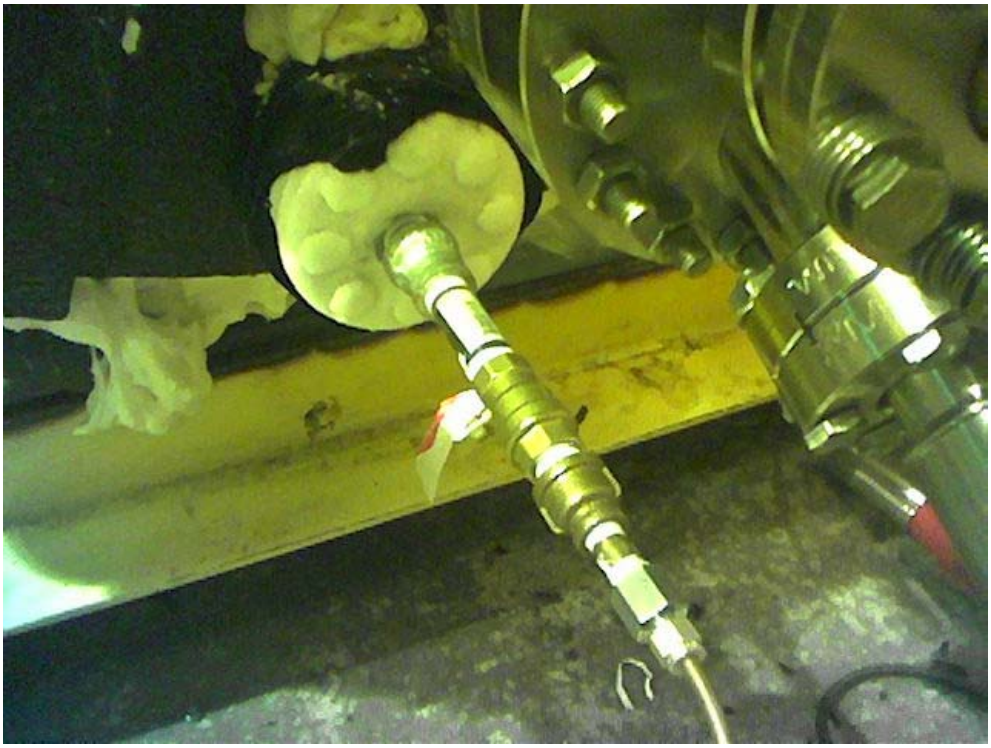
Pressure test setup with the helium leak detection system set up as a sniffer.



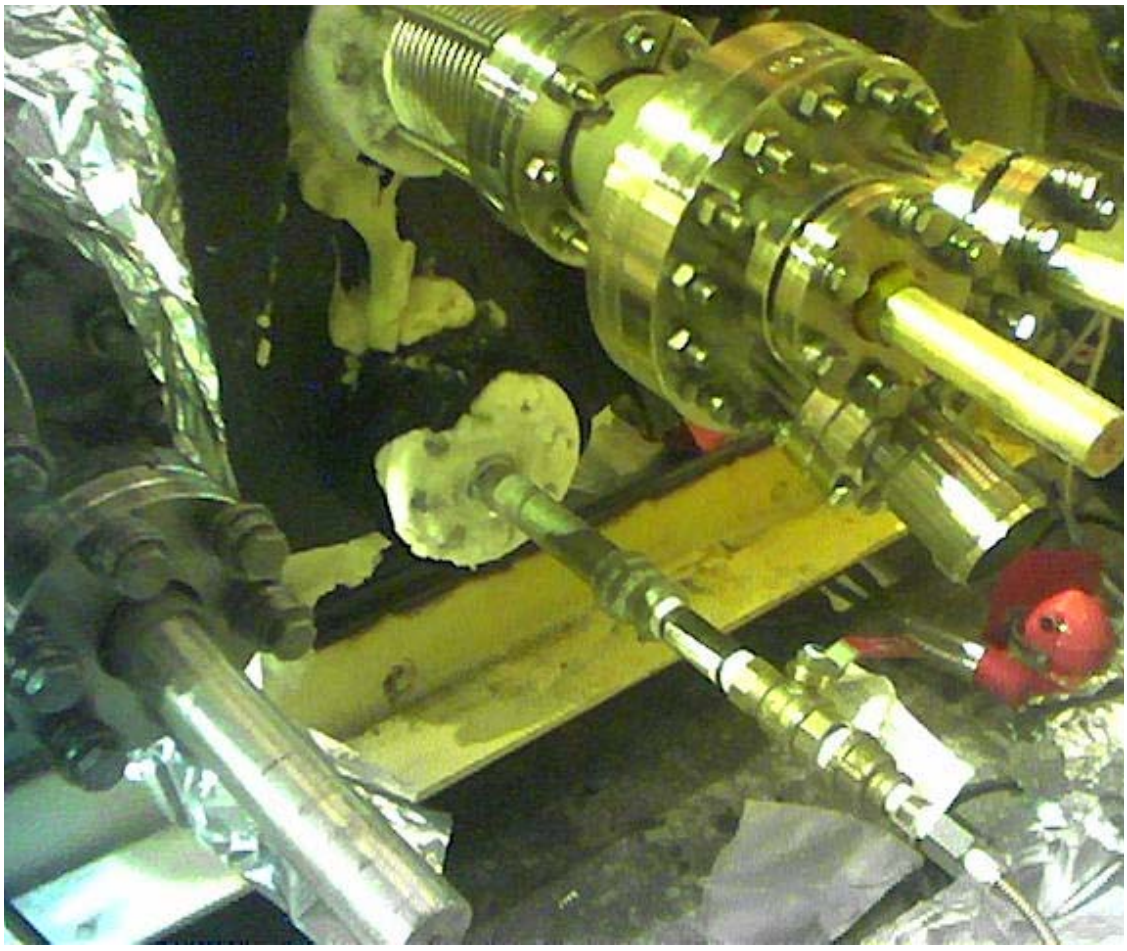
Aluminum foil was used to tent the joints to avoid contamination from the leak in the Helium gas inlet plumbing



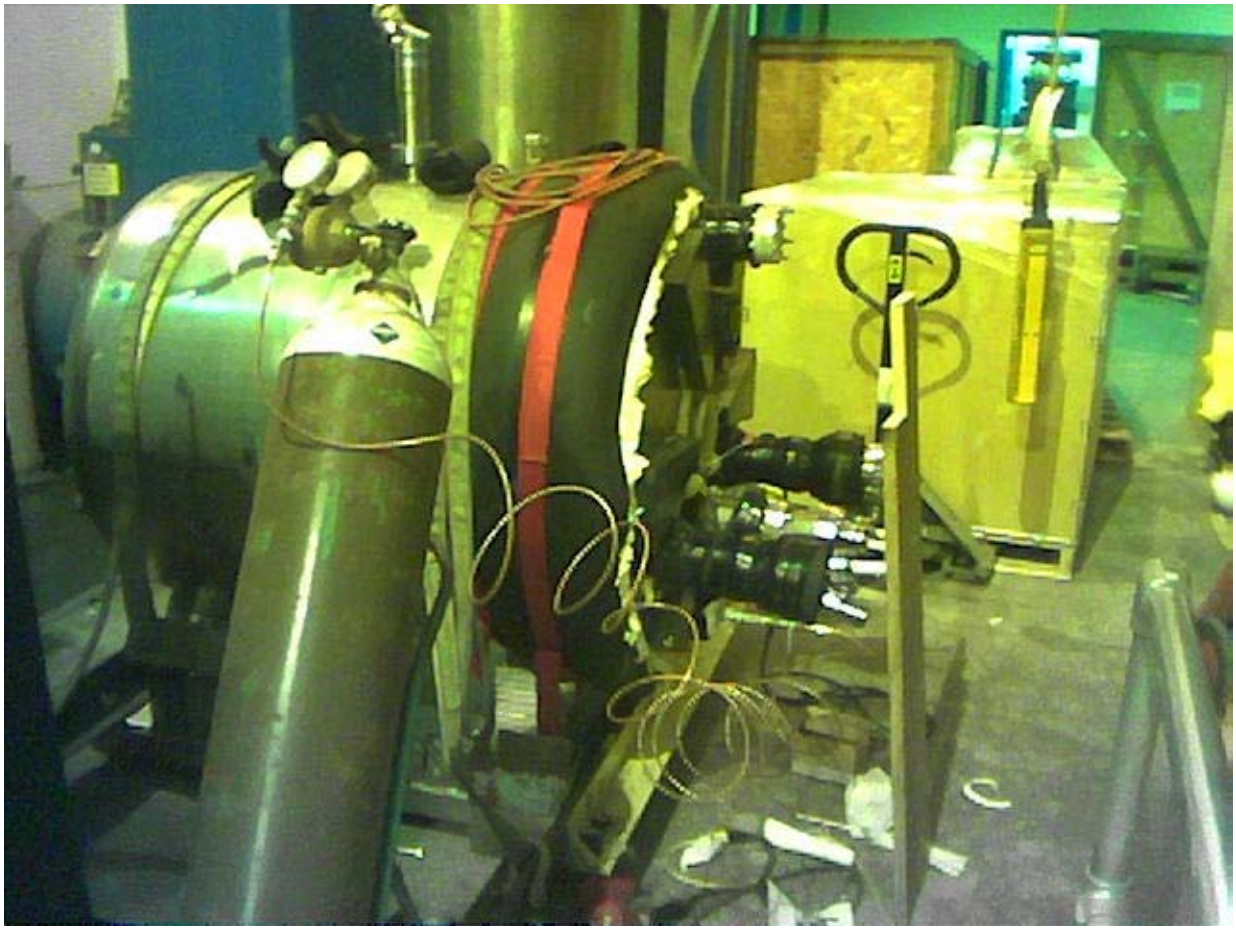
The sniffer probe was inserted in the aluminum foil tent around the joint being tested.



The close nipple pipe thread at the conflate leaked

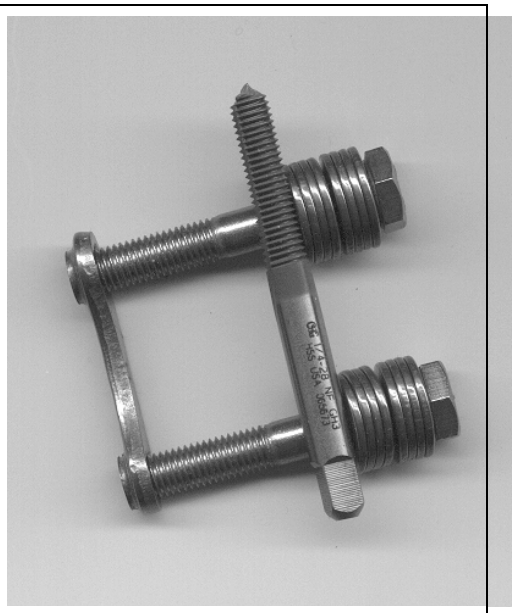


The close nipple was replaced with a pipe section with better formed threads. This did not leak



Pressure of 140 psi was applied – was not retained due to leaks in the Helium fill connections. Later when these were fixed, 93 psi was retained for 14 hrs. Helium bottle contents were not sufficient to go the 200 psi possible for the regulator. – Basically I ran out of Helium and didn't have time to get another bottle before shipping preparations were begun.

Belleville stacks were added to each of the bolts in the terminal assembly. This should help hold compression on the packing/gland as the assembly cools.



Platenut and Belleville stacks added to the packing nut/gland assembly