MERIT Magnet Status and Testing Plans
Wednesday Feb 22 2006 VRVS

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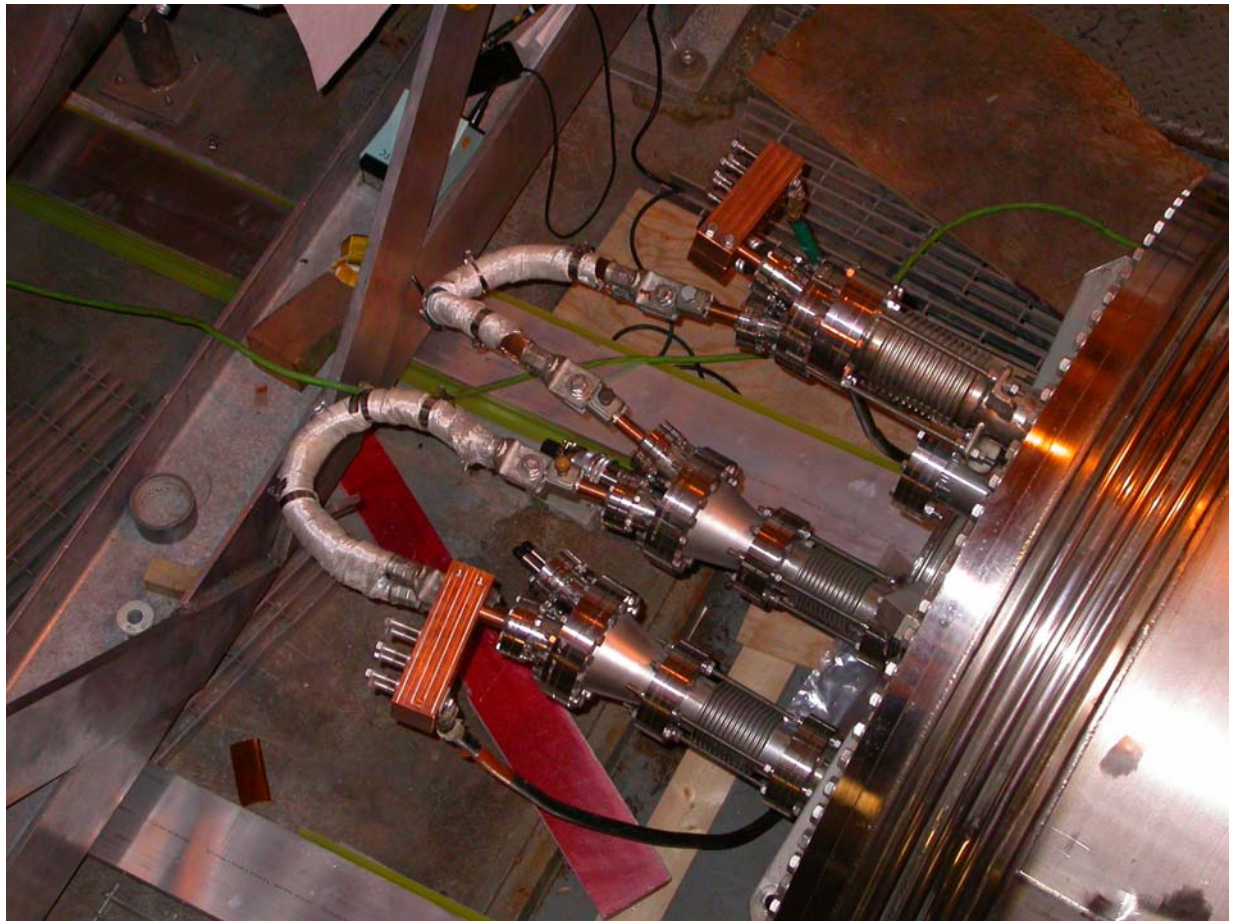


MERIT Pulsed Magnet –In PTF Facility at MIT-PSFC With Jumpers Connected

Labels Applied to the Base of the Magnet System

Status:

-Still assembling things

We have done some (very) low current tests

Most Bus Bar connections have been made and are being assembled.

Vacuum Jacket Pressure is holding at 60 Millitorr.

Vacuum Measurements

Baseline at CVIP	Jan 2006	5 millitorr minimum, 9 millitorr after shut down of vacuum pump, 100 millitorr after sitting over night
After receipt at MIT	Feb 7 2006	9.0 Torr = 9/760 = .012 atm
After an hour pump down	Feb8 2006	59 millitorr
Friday Feb 10		40 millitorr
Tuesday Feb 14 9:00 AM		60 millitorr
Thurs Feb 16 2:10 PM		60 millitorr

Vent pipe components are cut, many are welded. No progress in the shop. At this time I have decided not to put heat tracing on the pipe. We will use Armaflex insulation, and may leave some sections un-insulated. And use gutters if needed.

The ODH sensor has been received and we had a small tutorial on its use.

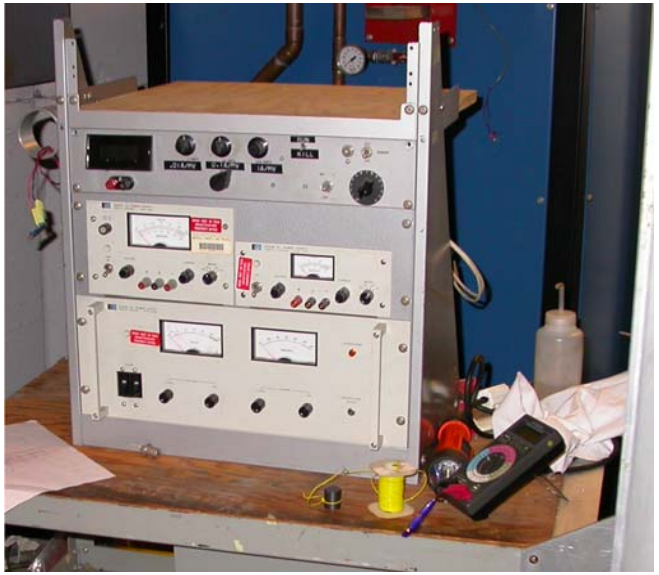
Cryogenic Lines are beginning to be run. These will be ½ inch copper pipe. This is what the long run from LDX is. We possibly can do a 1.9T 300 v pulse from room temperature (the coil heats only 5 degrees.)

Low Current Power-Up

10 volts was applied over about 5 seconds and the current, as measured by the power supply meter, stabilized at 22 amps. Welder current meter (hand held meter which forms a loop around the power lead) showed ~27 amps. The coil is at room temperature.

Date	Outer Segment #3	Inner Segment #1	Middle Segment #2	Coil	Current on Power Supply meter	Current From Welder Hand Held meter	Field Measured by the Gauss meter
Feb 16, 2006	4.55v	1.94v	3.25v	9.74v	22		85-25=60 milliT
Feb 16, 2006				9.77v	22	26.5A	85-25 =60 milliT

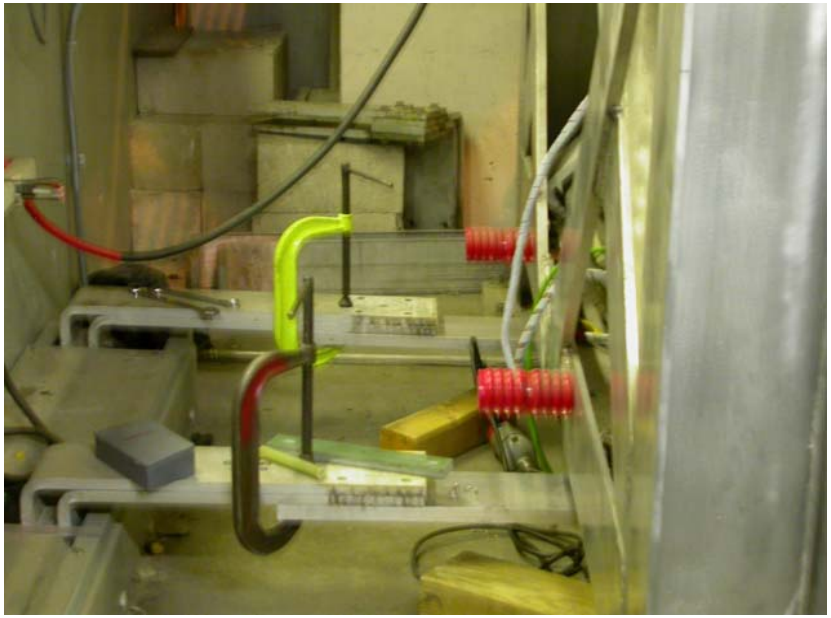
After a day warm up. It zeroed properly and read 60 milliT

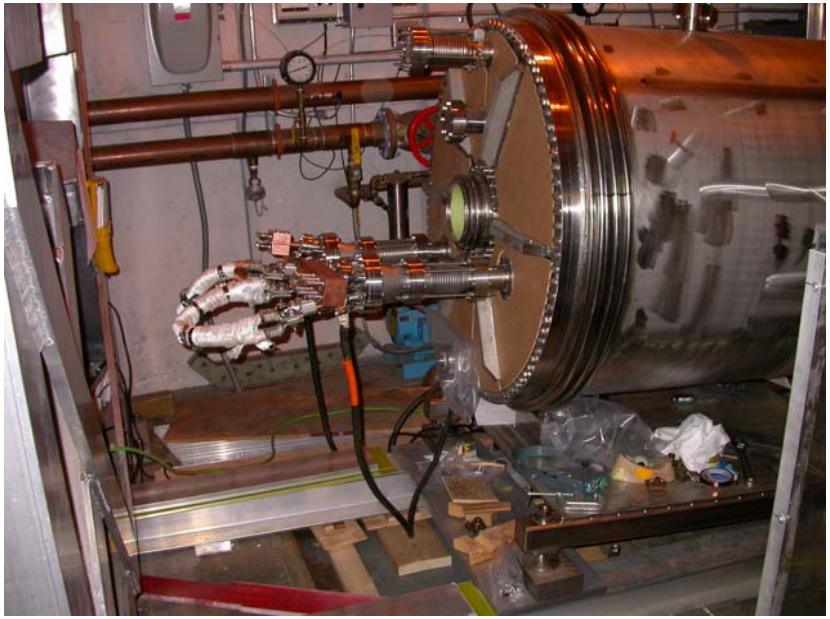


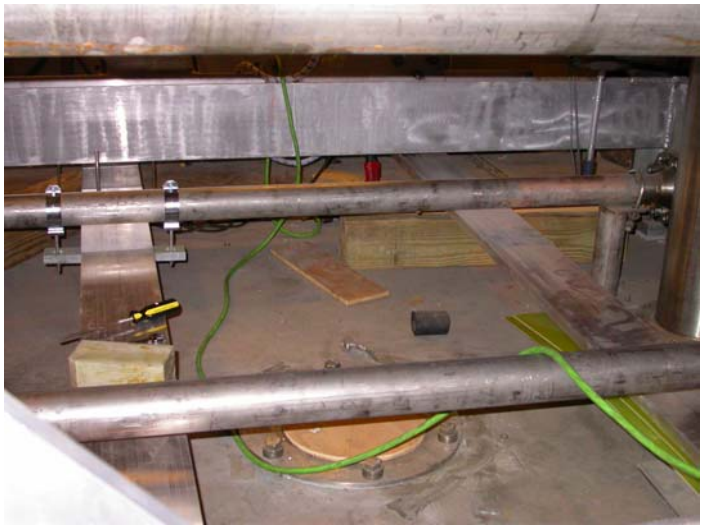
10 v 100 Amp Supply

Power, Lead, and Jumper Connections

WASP probe and Magnetic Reconnection Experiments are complete – or have a delay. We are connecting to the large power supplies and should be able to do some lo current tests this week or next.

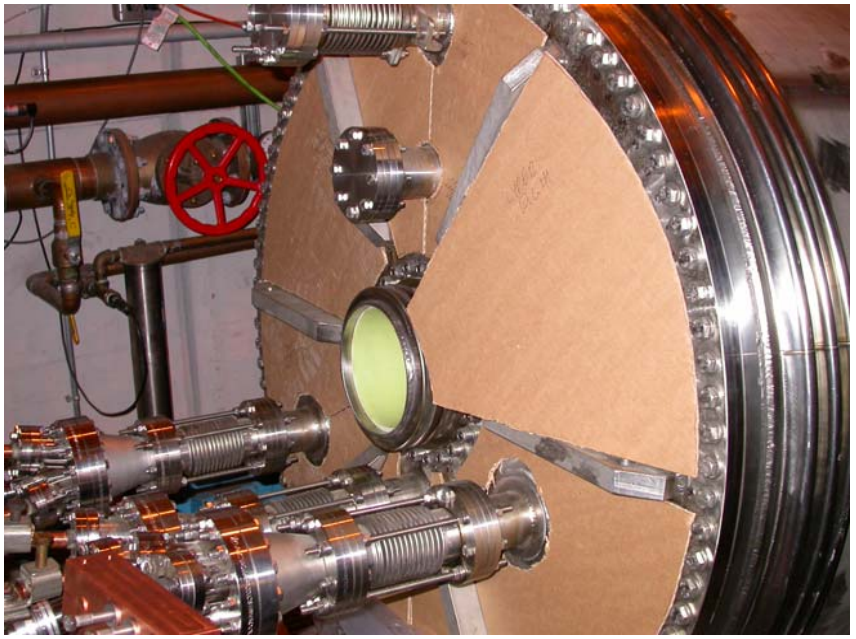




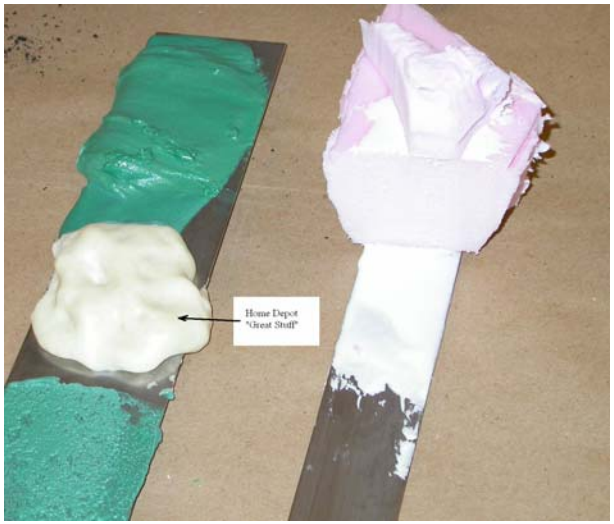


Insulation Tests

CTD materials slump badly on vertical surfaces – They would be almost impossible to apply to the cover. We plan to use Pittsburgh-Corning FoamGlas. It is a closed cell foam that survived dunk tests well. The cells have H2S and would be flammable, but the dunk test produced little damage to the foam cell structure (as measured by a “smell” test.



Templates are prepared to cut sections of foam glass to apply to the cover.



“Great Stuff” Home insulation foam survived the dunk tests very well. The white CTD material, applied in a thick coat lost it’s bond after a dunk test but behaved well as an adhesive. “Great Stuff” is flamable

Glass foam survived dunk tests well. Green is the CTD material. Blue is Stycast We still haven’t dunked this sample.

Monday 2-20 06 email:

Hello Peter.
>
>Here is all the documentation about the level sensors.
>For the little problem of sensitivity, it can be adjusting using
>potentiometer P1 on the card. Only one potentiometer on each card for 5
>diodes. But sensitivity need to be adjust when you cool down the diode
>by approaching it from the liquid, and not by tanking it out because it
>take a time to warm up.
>If when using P1 you are not able to adjust the sensitivity because you
>are at the end of the potentiometer, you can move the strap SW21 from it
>position and coming completely backward with P1 . This will change the
>polarity of the reference on the amplifier. But normally you will not
>move the strap until you have 100m of cable.
>See EDA-00279-V2_sch.pdf for schematic of the card.
>
>Hope this will be helpful for you.
>
>Regarding,
>
>Jean-Marc Quetsch
>

Feb 9 2006 test of the discrete level sensor – It did not seem to be able to detect when the diode was immersed or when it was in cold N2 gas just above the liquid. Voltage changed about 1mV out of 30 mV