
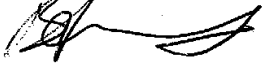



<b>BROOKHAVEN NATIONAL LABORATORY</b>		<b>Number:</b> PO-P-ATF-0028	<b>Revision:</b> 0
<b>PHYSICS DEPARTMENT</b>		<b>Effective:</b> 08/17/2011	<b>Page:</b> 1 of 2
<b>Subject: Terawatt CO2 vessel diffusion pump operations</b>		<b>Prepared by:</b> Karl Kusche	
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### Terawatt CO2 vessel diffusion pump operations

- 1) Turn on laser vessel's roughing pump (next to the amplifier). Fill foreline trap with LN2. Open manual valve to pump down the x-ray tube.
- 2) Turn on the diffusion pump's roughing pump (under the x-ray pulser) and open the manual valve to the diffusion pump foreline.
- 3) Turn on the heater switch for the diffusion pump (grey box next to power switch in TW room under regenerative amplifier).
- 4) Fill LN2 cryotrap on diffusion pump using the automatic fill control. Leave switch in AUTO mode.
- 5) After 15 min with the heater on and diffusion pump trap filled with LN2, open manual valve to the thermionic gauge (at the cryotrap). Make sure that the diffusion pump pressure reaches the 10e-6 Torr range.
- 6) Close the foreline valve to the laser vessel's roughing pump.
- 7) Open gate valve by pressing button on control panel in GW room. If it does not work, press bypass button at the right on the panel.
- 8) Turn on ionization gauge at x-ray tube. Vacuum should quickly reach the 10e-5 Torr range and proceed eventually to 10e-6 Torr.
- 9) Close valve to thermionic gauge and turn off readout device.

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- 10) Upon completion, close gate valve and shut down diffusion pump. Turn off LN2 automatic filler and both roughing pumps.

Service Note: Diffusion pump is Varian model VHS-4 (topped by model 362-4 cryotrap), which requires 300 cc of Type DC-702 oil (Dow Corning or equivalent). Inspect oil if unable to achieve ultimate pressure. If discolored or dirty, invert pump to pour out old oil. Clean walls and baffles if necessary. Simply pour in new oil.