

Appendix

May 8, 2009

During the few weeks you will be performing the experiment you may run into unforeseen equipment problems. This section is designed to provide solutions to some of these problems and is based on previous experience. Hopefully, this section will continue to be updated as more people perform the experiment and more problems are encountered or solved.

1 Recalibrating the Leak Valve

As the leak valve is very sensitive (and should never be turned so far in one direction that it stops), it is possible (by opening it too much) to lose track of the “closed” position. The following is a procedure to find this position.

- 1) Turn the leak valve until you think it is in the closed position (be careful, don't turn too far).
- 2) Close all gas bottle and regulator release valves and make sure all regulator valves are completely decreased.
- 3) Open all four gas system valves. This will pump out the gas system (if the gas roughing pump is turned on).
- 4) Close all four gas system valves.
- 5) Slightly open one of the gas bottle valves and increase the regulator valve until it reads 5 psi.
- 6) Close the gas bottle valve, open the regulator release valve.
- 7) Slowly open the gas manifold valve. If the PDR-D-1 pressure increases as you open the valve, the leak valve is not closed. If the pressure only increases very slowly, you can slowly “close” the leak valve while you open the gas manifold valve until the PDR-D-1 pressure stops increasing. If you do this, the leak valve is now in its closed position and you can skip the remaining steps. If not, continue to step 8.
- 8) Now there is gas in both staging tanks. So, close the gas manifold valve and open the gas system valve that connects the lower staging tank to the roughing pump. This will evacuate the lower tank. After a few seconds close this valve. 9) The PDR-D-1 gauge will begin to show a decrease in pressure because gas from the top tank is flowing into the bottom tank. Slowly close the leak valve until the PDR-D-1 reading remains constant.

Note: If the leak valve is not closed enough the PDR-D-1 may drop too quickly. If this happens repeat steps 1-7 until you determine the leak valve is closed.

- 10) To ensure the leak valve is fully closed repeat steps 1-7.