

## PHY170

### First pump-down procedure:

1. Check the valves. The high vacuum isolation valve (on diffusion pump) should be closed. The backing/roughing switch should be set to both closed. The air admittance valve should be closed.
2. Turn on the water supply (make sure both the supply AND return valves are open).
3. Turn on the gauge controller. Set the gauge controller to Channel 4, which chooses whether to display the Pirani or the Penning gauge depending on the pressure range.
4. Start the mechanical pump.
5. Switch the backing/roughing switch to roughing and write down the pressure about every 10 seconds. When the pressure drops more slowly, you can take data less often.
6. When pressure is below 100 mTorr, switch the backing/roughing switch to backing and wait ~20 seconds or so. (If you hear the pump “gurgling”, wait at least 20 seconds after the sound stops.)
7. Open the high vacuum isolation valve.
8. Plug in & turn on diffusion pump and write down the pressure when you see some change. Question: does the pressure keep dropping as the diffusion pump heats up?
9. After ~ 13 minutes, you should see the pressure drop rapidly as the diffusion pump begins operating. Record the pressures until it stops changing significantly.
10. Close the high vacuum isolation valve. Why does the pressure start rising quickly? Is it a leak from the atmosphere (not likely) or something else?
11. Turn off and unplug the diffusion pump.
12. Wait 10-15 minutes for the heater to cool.
13. Close the water valves.
14. Switch the backing/roughing switch to both closed.
15. Turn off the mechanical pump.