

5.1 Hydraulic Cart Fluid add/remove (live)

Written Procedure

5.1 Hydraulic Cart Compressed Air Side Repairs (live)

This procedure has been prepared to cover the repair, replacement, or modification of compressed air side components on the hydraulic cart. These include input compressed air regulator, filter, oiler, ballast tank, solenoid valve, and plumbing. To work on the compressed air side of the cart, it is necessary to compress and isolate the bubble chamber. Once the chamber is safe, the compressed air to the cart can be disconnected and the pressure bled down so that the cart can be worked on safely.

- 1) Stop the current data run. Stop the current data run by selecting the END RUN button while the chamber is in the expanded state. [There is an un-addressed bug in the “auto-run” code which fails to stop correctly if END RUN is selected during compression...] Wait for the “end run flag” yellow indicator to be enabled. Then issue a “manual trigger” to initiate complete stopping of the DAQ.
- 2) Stop the DAQ VI. Use the LabVIEW control bar “STOP” button.
- 3) Start the “Commissioning Tool” VI. This will ensure that the temperature regulation of the bubble chamber is maintained correctly, and that the temperature of the bubble chamber is stable.
- 4) Isolate the bubble chamber, in the *compressed* state, from the hydraulic cart by closing MV-11. Remember that in doing so, one has deprived the chamber of the ability to react gracefully to any subsequent change in temperature. While the temperature is in principle well regulated by the PID loop within the commissioning tool software, it is still prudent that all subsequent steps be executed with deliberate speed, consistently, of course, with their safe execution.
- 5) Disable pressure regulation using the Commissioning Tool hydraulic cart controls. Once this step is taken, there will be no further motion of the piston.
- 6) Disconnect the compressed air from the hydraulic cart and wait for the air pressure to bleed down.
- 7) At this point it is safe to disassemble the compressed air components on the hydraulic cart. Be sure to open joints carefully in case there is still trapped compressed air.
- 8) Complete the repairs, replacements, or modifications as required.
- 9) Restore the compressed air, and test the expansion/compression function. With the cart compressed, reopen MV-11, restore pressure regulation, close out the Commissioning Tool and restart the DAQ.