

Target To Do List Before Fermilab

These are all things to do or organized before everything goes for Fermilab:

NMR testing (warm+cold): All software and hardware should be setup before trying this again!! This can now be done inexpensively and much faster and easier with 100l of LHe whenever we are ready (ask me about how to do this). All warm bench tests should be completed first.

Make long cable connections for fridge and stick with [Fischer](#) connectors to connect to Lakeshore readouts

NMR fast absorption/dispersion flipping

NMR coil switching software

NMR TE calibration software

Test clutches on final bypass/run valve protection

Second EIO has already been check but it has half the power as the other one, which is not a very good backup option so need other option

Build and test actuator

Build and test turret

setup removable stepper motor controller for microwave bellows

Inserts need aluminum cup holder on opposite side of ladder (activity, long lived with Al)

Setup chiller monitoring system for microwave (fluid wheel)

Setup turbo monitoring system as well as vacuum pressure monitoring system (using controller remote and a new cold cathode gauge for high vac)

Finalize cryocontrols (need new hardware for this)

Finalize microwave ps controls (with modulation of cathode voltage (maybe anode is better/safer))

Finalized all temp, flow, level monitoring

Integrate slow control readouts into local storage and data base

Finalize 3 target inserts (this is in progress): NMR-coils, cup sensors, cup configurations

fix fridge sensors

install annealing system hardware and software

Run valve O-ring replacement or valve change-out

replace/fix and test new MKS pressure sensor (main manometer)

Get new MKS Main flow of larger diameter

The MKS Separator flow control replacement unit (contact MKS to see what will work for our needs)

The Run and/or Bypass valve has issues (maybe need replacing but could just be top seal)

target positioning and anneal heater position needs to be confirmed

He3 pressure probe has to be fixed and tested and calibrated

Shim control needs micro-controller compatible with LabView, and patched into Magnet VI (David is looking into this)

Experiment Turbo System has still not been tested successfully (Finally have all components back at UVA now)

Need to make cup stabilizers to hold cups in place, could be made out of Kel-F or aluminum if it could be optimized as a microwave reflector

Cold NMR is untested, full switchable warm NMR is untested (many things to do on NMR and interface, lots of software work and testing)

Piping and Swagelok for control as well as fridge back-fill automated controls (might need as backup annealing system)

Decide what safety pop-off valve will be used for the fridge

Make foam dielectric semi-rigid NMR lines made for the needed length

Decide which magnet level system is going to be use with monitoring and PID with liquefier

: (stick with ITM10), level monitor (stick with mercury iTC: could be iPS if use added cards, or liquefier)

Setup the dedicated computer systems and monitors for target subsystems

Setup a chiller monitoring systems (pumps, microwave) as well as temperature monitor of the EIO tube

Setup EIO readout VI to be integrated into the Microwave controller VI

Setup specialized target material transfer tub designed for these Drell-Yan inserts, as well as other loading equipment

Setup webpage training for shift operators

Setup manual pages for target controls and equipment