

Janis Low Temperature CCR Manual

Startup:

1. Attach sample in desired holder using 10-32 screws.
2. Confirm that Sensor A is working properly, by touching the sensor and watching the value increase on the Lakeshore controller.
3. Screw on the inner and outer heat shields, being careful not to over tighten them. This is best done by screwing on the shield all the way and then loosening $\frac{1}{4}$ turn.
4. Attach the outer vacuum can using $\frac{1}{4}$ -20 screws or the clamps provided. Make sure the O-ring is properly greased and set in the groove.
5. Connect the vacuum port to a turbo pump. Pump the chamber down to 10^{-4} Torr.
6. Plug the communications cable from the ICP/ICE computer to the serial connection on the back of the Lakeshore controller. Turn on the compressor by turning the Main Power switch clockwise and flipping the Drive switch UP.
7. Set the control temperature to any desired temperature below 200 K. Allow Sensor A to cool below 200 K before applying any heat.

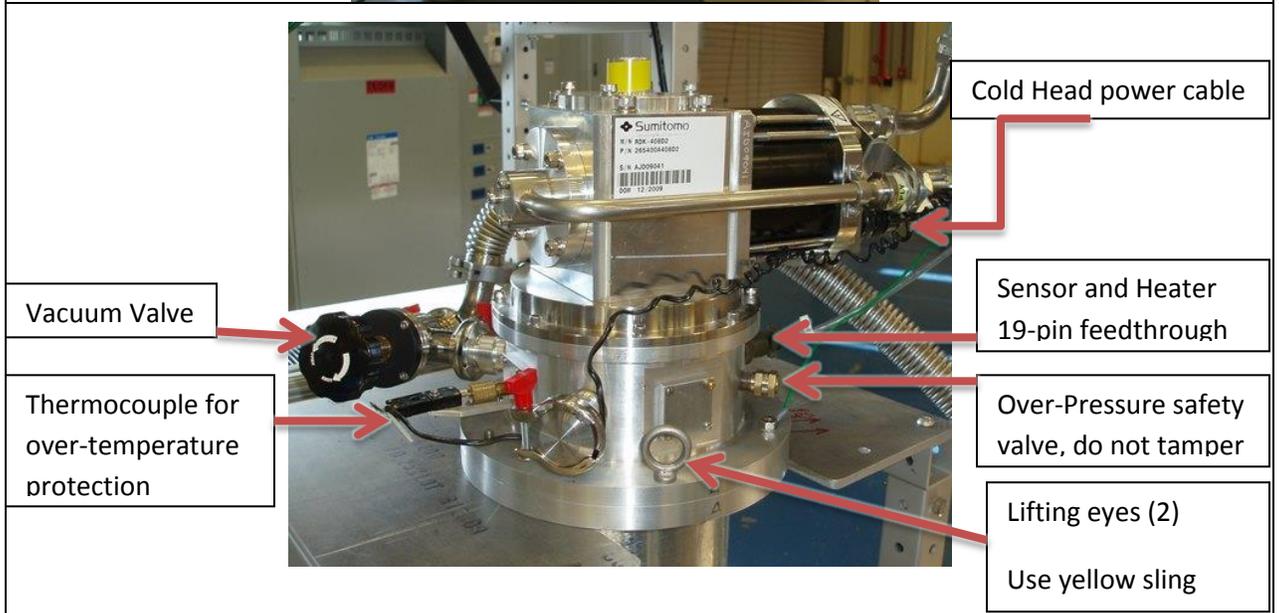
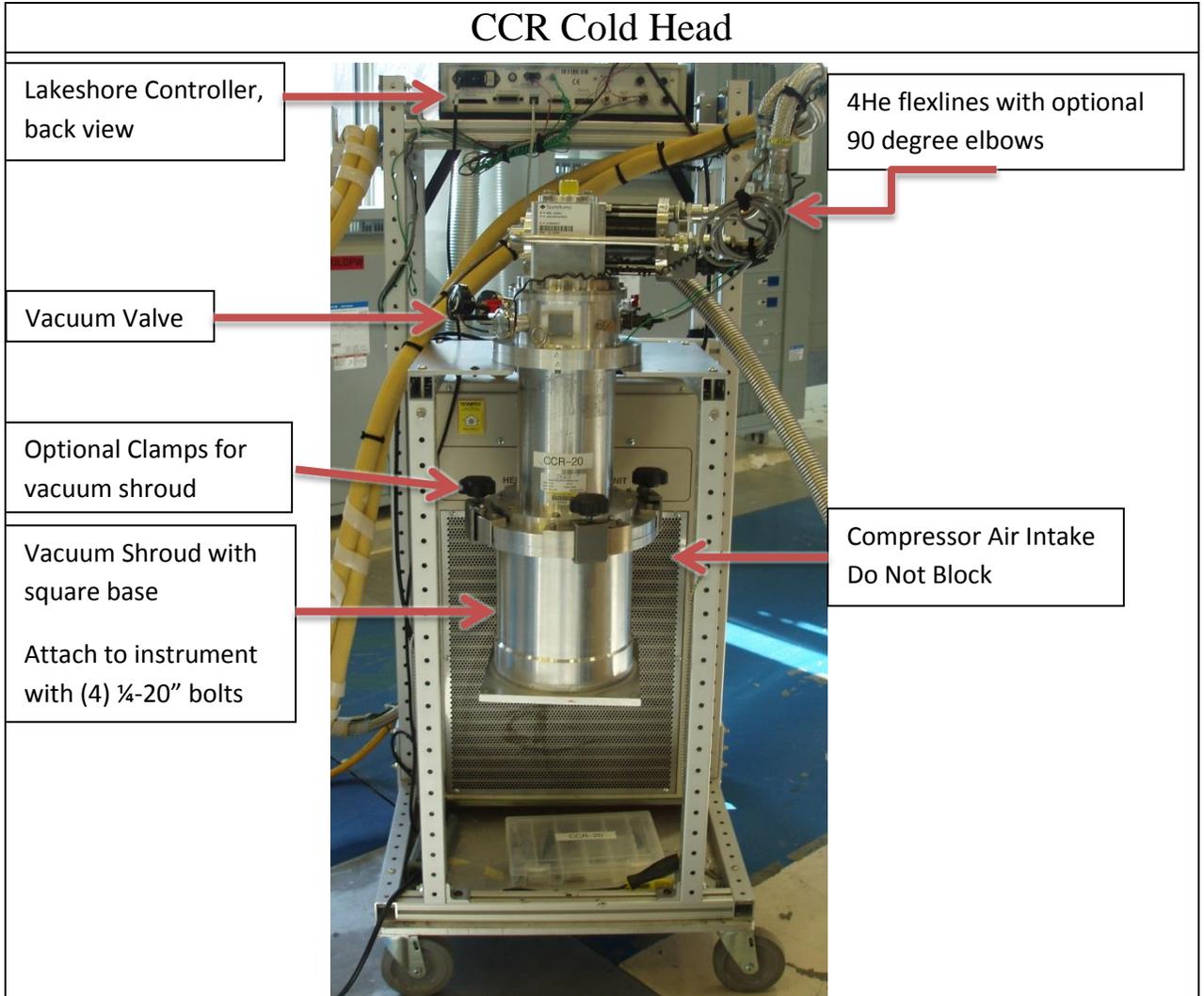
Operation:

- The compressor should remain ON at all times, especially when applying heat, unless changing sample as in the instructions below.
- Leave the turbo pump ON constantly for all temperatures above 200 K.
- If the compressor stops running, **turn off the heater** and contact User Services.

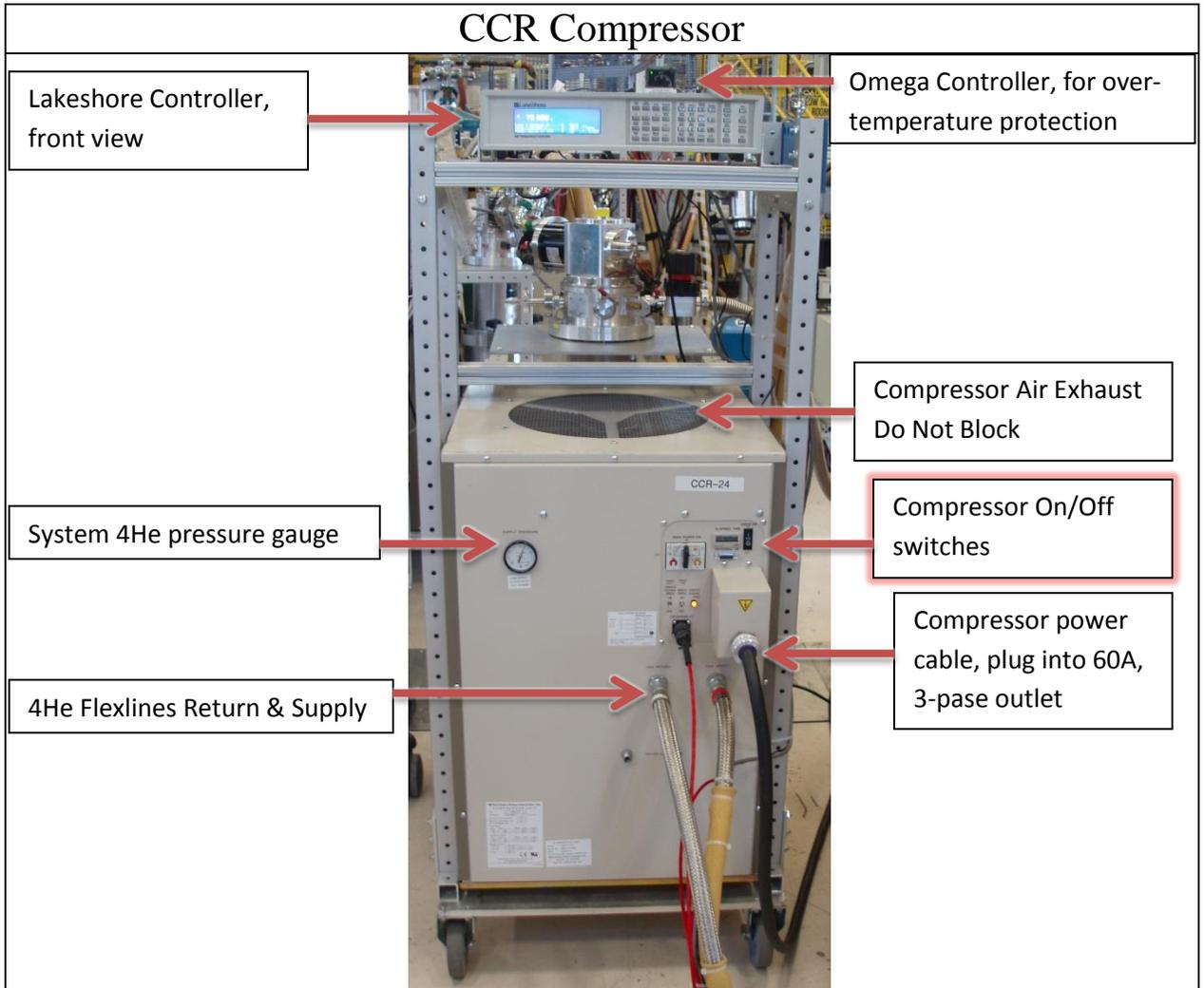
Shutdown or Change of Sample

- Turn OFF the compressor.
- Leave the heater ON with a set point of 300 K.
- Close the vacuum port valve and turn off the pump. Wait until the turbo pump is OFF before removing the hose.
- **Flush** the chamber with Helium:
 - Attach a hose barb on a KF-25 flange to the vacuum port.
 - Flush the low pressure Helium line and hose barb, and connect them.
 - Pinch the line one arm-span from the valve.
 - Open the valve slightly and then close it quickly. There is now enough gas inside to effectively exchange heat between hot and cold areas.
 - Wait 45-60 minutes for the cold stage (Sensor A) to reach room temperature.
- Once the Sensor A approaches room temperature, you can open the outer cover without the risk of ice buildup inside the CCR.
- Press HEATER OFF on the Lakeshore 340 controller.

CCR Cold Head



CCR Compressor



Lakeshore Controller, front view

Omega Controller, for over-temperature protection

Compressor Air Exhaust Do Not Block

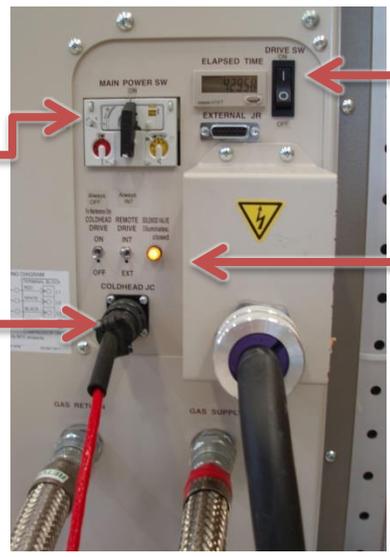
System 4He pressure gauge

Compressor On/Off switches

4He Flexlines Return & Supply

Compressor power cable, plug into 60A, 3-pase outlet

This is how the compressor looks when it is powered ON



(2) Flip drive switch UP

(1) Rotate Main Power Clockwise to point UP

Solenoid valve indicator
It is normal for this to cycle on and off during initial cooldown.

Cold Head power cable