Turbopump spindown procedure

WARNING: Read entire procedure before starting! The Turbopump can fail catastrophically if spun down too slowly.

The Turbopump is engineered to be nearly frictionless. Left unpowered, a spinning Turbo may take several hours to slow down. During this spindown, the rotor may reach a resonant frequency, inducing vibrations in the Turbo that can destroy the pump. To prevent this, one can introduce a small bit of air as a 'load' on the pump, quickly taking the Turbo through its resonance before vibrations become dangerous.

1. If the Turbopump gate valve (I252GV on vacuum console GUI) is open to the chamber, close it: select the pane on the GUI and click 'close'.

2. Close the foreline valve to the Turbopump (I252FV on GUI). This isolates the Turbopump so that it can be safely slowed down through its resonance frequency, separate from other vacuum components.

3. Select the Turbopump pane in the GUI and turn off the power. The speed of the turbo should begin to slowly drop by ~20 rpm/sec (in the I252 TURBO SPEED pane).

   Don't stop the procedure here! The Turbopump must still be slowed down to protect it from resonance.

4. Head to the Turbo itself and locate a ~1/2” thumb screw on the side of the Turbo casing. The screw valve is located on the casing ring labeled 'Turbo-V 3K-T'.

5. Slightly crack open the screw to let in a tiny bit of air to the Turbo (it doesn't need much). You should hear it start to slow down as the high-pitched whine gets lower. Close the screw to stop more air from entering the Turbo and head back up to the vacuum console to check the GUI.