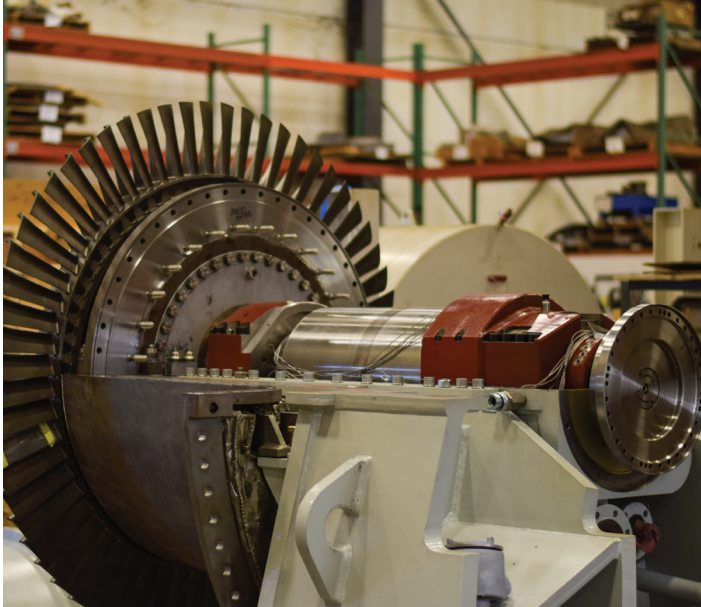


# RULE OF THUMB - FCC EXPANDER - START UP PROCEDURE

By Neal Wikert



## PRESTART CHECK OUT

1. Review instruction manuals for all train components
2. Verify that all train components have been properly aligned and that all couplings and guards have been properly installed.
3. Check all oil reservoirs to ensure adequate oil supply. All oil drain lines should have been flushed by this time. Verify lube oil flow to the bearing compartment of each component.
4. Verify casing drains on all components are open and clear.
5. Check low spots in air and steam piping are clear of accumulated water prior to startup.
6. Verify that electric power, air, water, and steam are available to the various system components. Turn on buffer air to bearing housing seals and adjust air pressure to minimize vent misting.
7. Verify that all inlets are clear of debris and foreign objects.
8. Perform functional check on all control equipment. Exercise all controlled positioned (non-manual) valves to verify functionality. Verify that all temperature and vibration instruments are operational and calibrated.
9. Verify all alarm and shutdown switches are properly set.
10. Set solenoid trip, turbine trip valve and over speed trip mechanism. Ensure all valves are positioned for unit start.

## AXIAL COMPRESSOR

1. Verify drains at the intake and discharge casings are open. Compressor and discharge flow meter pressure sensors and temperature indicators should have been calibrated by this time.
2. Verify that the inlet throttle valve is functioning. Set initial valve position at full open.
3. Verify the variable stator vane actuation system is functioning properly. Set initial vane angle at 0 degrees setting.



## STEAM TURBINE

1. Open steam turbine and piping drains to drain condensate.
2. Close turbine throttle valve and open bypass valve to atmosphere.
3. Blow down steam line by initiating steam flow through the turbine supply piping and out bypass. Progressively close piping drain valves once dry steam flow is established. Continue piping warmup until the bypass pipe temperature has stabilized at 650 deg. F. or above.

## EXPANDER

1. Verify drains at the intake and discharge casings are open.
2. Blow down steam cooling supply lines at the connection to the piping on the expander.
3. Close the expander inlet valve and fully open the bypass valve.

*For more information:*

Neal Wikert

Email: [RMS@rotatingmachinery.com](mailto:RMS@rotatingmachinery.com)

Tel: 484-821-0702

**Headquarters**

2760 Baglyos Cir.  
Bethlehem, PA 18020

**Houston Office**

16676 Northchase Dr., Ste 400  
Houston, TX 77060



[rotatingmachinery.com](http://rotatingmachinery.com)

Tel: 484-821-0702

Parts: [rms@rotatingmachinery.com](mailto:rms@rotatingmachinery.com)

Rotating Machinery Services, Inc. | 2760 Baglyos Circle, Bethlehem, PA 18020 | Tel: 484-821-0702