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## Magnetic Center vs. Mechanical Center

Last week we discussed the indications present in the current FFT of a motor experiencing axial movement, and we discussed checking the magnetic center of a motor as a troubleshooting procedure. A good suggestion from a long time friend and colleague of PdMA, Mr. Stu Mugford, was that the mechanical center on a sleeve bearing motor should be given the highest priority to prevent damage to the thrust bearing. Although the thrust bearing on a motor is commonly designed to allow uncoupled running, which is a minor load, it is possible that the uncoupled magnetic center might settle against one end of the bearing, which at heavy load (coupled) may be destructive. A preferred approach would be to find the mechanical center of the motor by sliding the uncoupled shaft axially in both directions and marking the midpoint of the travel. The motor is designed to run satisfactorily within 1/2" of the mechanical end float. Slight adjustments can be made from the midpoint mark toward the magnetic center in an effort to reduce some of the magnetic pulling. Always refer to the manufacturer/OEM owner's manual to determine the correct approach to running a sleeve bearing motor uncoupled. In most cases the coupled device (pump, compressor, etc.) has the only strong thrust bearing in the machine train.

Thank you to Stu Mugford P. Eng., Mugford Engineering Inc., Calgary, AB, Canada, for providing additional information regarding axial movement used in this follow-up tip.

You are invited to submit an Electric Motor Testing Tip of your own and receive a free PdMA mug or hat if we publish it! Contact Lou at 813-621-6463 ext. 126 or [lou@pdma.com](mailto:lou@pdma.com).