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Armature Defects on DC Motors

Current analysis of DC motors can provide health assessment of the DC Armature while the motor is running. Armature related anomalies can include commutator bar defects, riser defects (very common), and shorted turns or coils in the armature circuit. The fundamental analysis of these anomalies starts with understanding that the bar, riser, or winding with a fault passes under and out of the carbon brush face at a rate of the shaft speed times the number of brushes passed in a rotation. This causes a modulation of the DC armature current. A DC motor turning at 2000rpm with four brush holders has a brush passing frequency of 8000 rpm or 133.33 Hz. Trending of the brush passing frequency amplitude is highly recommended for early identification of developing armature circuit anomalies.

View http://www.pdma.com/pdfs/Articles/Online_Fault_Analysis_of_DC_Motors.pdf for a detailed description of online DC motor testing techniques.

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.

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