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Tip Of The Week

April 27, 2015

A Step in the Right Direction

Step voltage testing is generally reserved as a safe, controlled over-voltage test to monitor the performance of the ground insulation of the motor only (disconnected from power cables), where voltages higher than operating voltage are applied. Although use of the step voltage test often occurs in troubleshooting nuisance trips, it can also be seen as a quality assurance test. Beyond those basics it is important to be aware of the proper pre-charge necessary to perform an effective step voltage test. The two accepted pre-charge methods are "zero initial voltage" and "initial voltage at polarization index (PI) level". If you use the zero initial voltage method, it is critical that you fully discharge any residual voltage from the motor windings before starting the step test. This is similar to the requirements before performing a follow-up resistance-to-ground (RTG) or a PI test after a previous test was performed. However, a complete discharge (such as following an MCE® Standard test) is not required when using the initial voltage at PI level method. Instead, you start with a PI equal to 30 percent or less of the maximum step voltage value and progress directly into the step voltage test. For users of MCEGold® version 2.2 or later you will be delighted to know that the initial voltage at PI level method is already built in and automatic. And if you are in a bit of a hurry, you do not need to complete the full PI pre-charge before stepping up the voltage. At any time during the pre-charge you feel that the insulation has reached a steady charge (flat PI graph), a mouse click will advance to the step voltage portion of the test.

For more information on the Insulation Fault Zone view a short video at http://www.pdma.com/webinars/Insulation_Fault_Zone/insulation.html.

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.