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Synchronous Field Inductance

In last week's tip for synchronous motors we discussed the field circuit, a series connected group of windings wrapped around laminated pole pieces connected to the shaft of the motor, and the importance of temperature correction for the circuit resistance reading. The other field circuit parameter that the MCE measures for analysis is the field circuit's inductance. Once the circuit's inductance is recorded and set as a baseline by the MCE, PdMA's software will alert the operator of deviations from the baseline with a yellow caution set at 5% and red alarm set at 10% change from the baseline.

Combine both of these circuit parameters to evaluate the condition of the field circuit. The resistance measurements are there to help identify high resistance connections that may develop within the circuit. The inductance values provide heightened sensitivity to internal shorts developing within the windings. Feedback and case study examples from several of PdMA's customers indicate that once the inductance deviation from baseline exceeds 10% it is recommended both AC and DC voltage drop tests be performed to isolate the faulted coil.

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.