
July 22, 2013

It's Not Always the Motor's Fault

When testing a motor it is good practice to thoroughly test the entire motor circuit. A Wound Rotor Motor has two circuits – the stator circuit, which is very similar to a standard AC induction motor, and a rotor circuit. The rotor circuit usually consists of rotor windings, rings and brushes, and a resistor bank controlled using contactors. Depending on the application, the rotor circuit is used to control the torque, speed, or startup current of the motor. The external portion of the rotor circuit usually consists of an external resistor bank with a number of resistance steps. An unbalance of resistance in the resistor bank will cause an unbalance of the flux in the rotor creating a situation similar to a broken rotor bar. There are several tests using the MCEMAX that can be performed to evaluate this situation. With the motor de-energized, a standard test can be performed on each step of the resistor bank circuit to ensure resistance is balanced through each step and when the resistor bank is fully shorted out. With the motor running, a rotor evaluation test can be performed to look for a current unbalance during startup and after the motor is at full speed. An In-Rush test can be used to evaluate startup and switching times when troubleshooting anomalies in the rotor circuit.

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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