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## Flash Over on Wound Rotor Motor Slip Rings

Preventing flash over on a Wound Rotor Motor's (WRM) slip rings requires periodic inspection and testing of the rotor's insulation system. The point of the rotor's lowest insulation resistance on a WRM's rotor circuit will almost always be between the exposed metal surface of the slip ring and the rotor shaft. Looking at the typical installation of a WRM it is easy to understand how dirt, carbon dust, and other forms of contamination can build up in the area of the slip rings.

During start-up the high slip between the rotor and the synchronous magnetic field of the stator induces a large amount of energy in the rotor's windings. Lowered insulation resistance due to contamination build up around the rotor leads could easily lead to flash over (arcing between the rings or to ground) and damage the connections between the lead and the rings, the slip rings and possibly even the shaft.

Regular testing of the rotor circuit separate from the resistor bank is recommended to maintain a high level of dependability. Ensure your MCE green ground lead is connected to the shaft of the rotor, if possible, to get the most accurate measurement of the resistance between the windings and the shaft of the rotor. While you are at it ensure you closely inspect the slip rings and their insulation for any build up of contamination and clean if necessary.

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).