



A Leader in Electric Motor Testing

Tip Of The Week

June 9, 2014

Testing Corner Grounded Delta Systems

In response to a recent Tip of the Week, *Understanding Unusual Power System Configurations*, the question was asked, "What would be the difference between online testing of a Corner Grounded Delta system with a High Resistance Grounding Resistor (HRG) compared to a Corner Grounded Delta system with a solid earth ground?"

To answer this question, we start with what would you see when testing a Corner Grounded Delta with a solid ground. In a normal test of a solidly grounded corner delta, you will see a very low voltage (on the order of <12 volts) on the corresponding phase if the system voltages are balanced (theoretically a perfectly balanced system will have no phase-to-ground voltage on the grounded leg). If the system voltages are unbalanced there will be a slightly higher voltage on the grounded leg due to what is called the zero sequence impedance.

In a balanced HRG corner grounded delta, you will see very similar results to that of a solidly grounded system since there should be no neutral current flow through the HRG resistor. If the system voltages are unbalanced, there will be a slightly higher voltage on the HRG grounded leg. The voltage on that leg will be dependent on the amount of 3rd harmonic current flowing through the HRG resistor and the amount of resistance of that HRG resistor (Volts = Current * Resistance).

Knowing and understanding the power system and its nominal configuration is imperative to obtaining proper test results and properly analyzing those results.

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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