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## Resistance Imbalance Change From Baseline

It is not unusual to see a large three-phase induction motor with phase resistance perfectly or closely balanced with an imbalance calculating well below 0.1%. With this kind of manufacturing precision, the balance of resistance measurement can be a very sensitive indicator of a changing condition in the motor windings or circuit. Although we direct your attention more to inductance and impedance for identifying winding degradation, strong consideration should be given to establishing a change from baseline caution and alarm set point for balance of resistance. The recommended change from baseline alarm set points are caution at a 50% increase and alarm at a 100% increase.

Here is an example of the importance of establishing these alarm levels. A motor tests at baseline with a .1% balance of resistance. Two years later the balance of resistance test in the field was 1.5%. A balance of resistance of 1.5% is not in excess of previous alarm set points and may not seem too high. However, when compared to the baseline it is over a 1000% increase and immediately needs to be investigated further.

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).