



CASE STUDY – STATOR

RIC Diagnoses Stator Fault In New Motor

Industry: Cement
 Motor Type: AC Induction
 HP: 10

Fault Zone: Stator
 Volt: 460V
 RPM: 3495

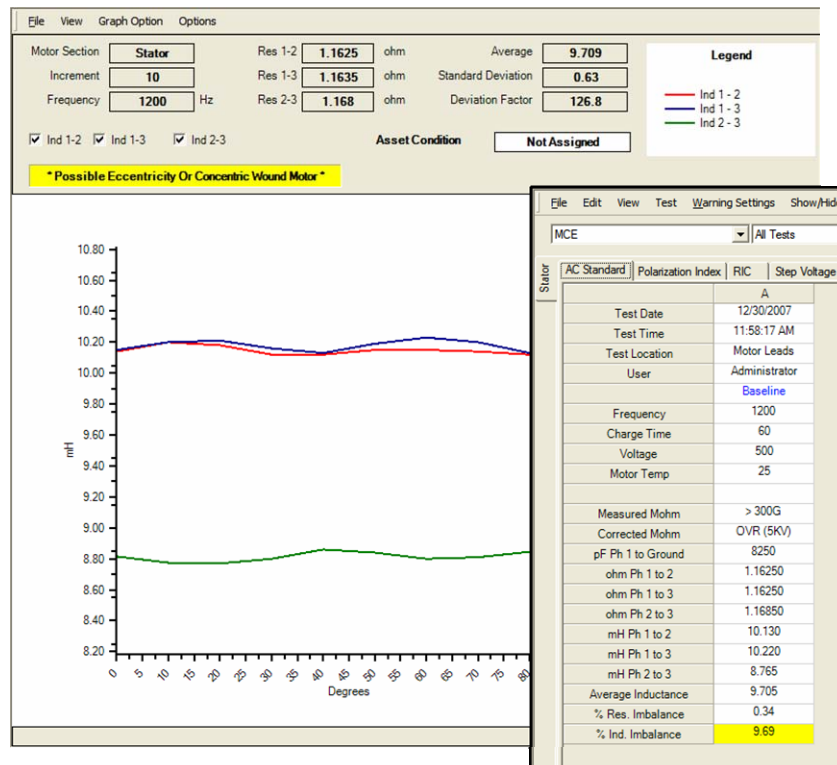
Situation

During the practical portion of the Introduction to MCEMAX course a brand new motor was brought in for testing. The motor was destined to replace another unit that was presenting bearing problems during routine vibration testing. The new motor had already been tested for resistance phase-to-phase and inductance phase-to-phase utilizing other pieces of equipment available in the electrical shop. It passed these tests with flying colors.



Testing

As with any new motor, the Rotor Influence Check (RIC) is a recommended baseline test. Therefore, that was the first test performed on this motor. Right away the RIC showed evidence of a stator fault. There was an obvious separation on the graph, showing phase 2-3 about 1.4mH lower than the other two phases. An AC Standard test followed the RIC. There was a 9.69%



Inductive Imbalance and a 0.34% Resistive Imbalance. Based on the results they were informed the motor was not in operational condition. It was decided to perform a test-run on the motor to verify its operation. The motor ran for about 35 seconds before going up in flames.



Conclusion

The MCEMAX provided an early warning of the critical stator fault. The Inductance graph on the RIC demonstrated what the usual resistance phase-to-phase readings missed.

Savings

The motor was to be used on a cement output conveyor belt. This type of failure, had it occurred during production, would have caused a minimum of a three-hour unscheduled stop. At an average of 150 tons of product output per hour, the final production loss would have amounted to well over \$90,000.