Test and Inspection for Motor Status Assessment (TIMSA)

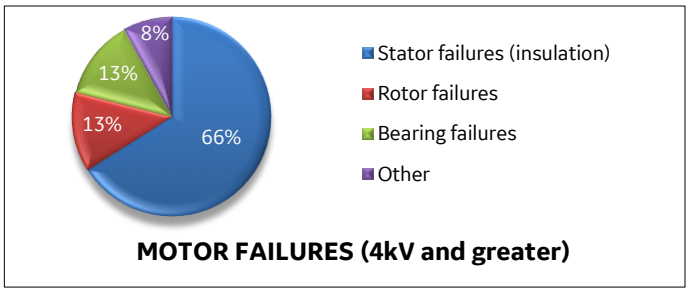
Advanced inspection program to reduce risk of failure on MV/HV rotating machines

REDUCING RISKS OF FAILURE USING TIMSA

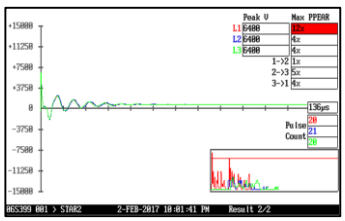
GE's advanced TIMSA program, is a comprehensive set of tests developed to examine the health of the motor or generator at a highly detailed level. This program will help identify critical issues likely to cause failures of your equipment that would normally be available from a simple view.

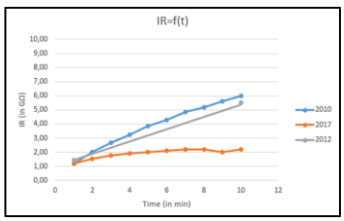
Following a TIMSA Inspection, GE can offer repairs and field services support, including parts replacement to help you act on the results to reduce risks and optimize maintenance costs. For the maximum benefit(s) TIMSA is ideally carried out on a regular basis.

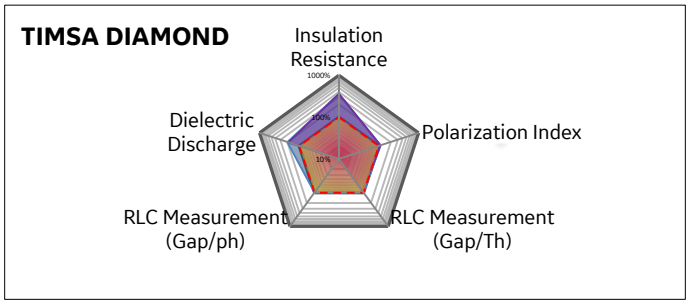
GE will provide expert staff to carry out a series of electrical and mechanical tests on your legacy equipment to very high standards of safety and quality.



MOTOR FAILURES (4kV and greater)







ROTATING MACHINES TEST & INSPECTION

ELECTRICAL TESTS

- **Internal Visual inspection or boroscopics –** to get a visual expert assessment of winding and core health.
- **Recording & analysis of operating data –** to measure voltage, current, temperature, vibration, etc.
- **Insulation Resistance test (IR**) - to verify winding to ground resistance and ensure that above the minimum acceptable value.
- **Polarisation Index (PI) –** to assess cleanliness of the windings. Permissible PI is 2.0 and above.
- **Dielectric Discharge (DD) –** to diagnose aging and deterioration of stator insulation.
- **RLC measurements –** to ensure that windings are compliant with original technical specification.
- **Step Voltage (SV)** – as stated in IEEE 43 § 6.4, this test assess the winding dryness and general condition.
- **Surge test –** conduct as per IEEE 522 standard to assess the inter-turn integrity of winding by fast rise wave comparison.
- **Partial Discharge (PD) measurement** [1] - to measure the winding's response to a specific stress level and to predict its future performance.
- **Dissipation factor (tan δ) measurement** [1] **–** to evaluate the quality of the stator winding's insulation.

[1] *Tests excluded on machines <4kV*

We perform all essential tests from the above to detect abnormalities in stator winding. Indeed, all traditional methods fail in detecting stator winding problems while this represents a major cause of motor failure.

MECHANICAL TESTS (Optional)

- **Bearing inspection –** open inspection on bearing journal surfaces, to measure and verify clearances.
- **Vibration analysis –** to identify signs of wear and tear in advance to avoid a very expensive damages.
- **Bearing oil analysis** – to determine the overall service conditions of a bearing system and identify issues before a failure occur.

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