

ROTOR WINDING SHORTED TURN TESTING & ANALYSIS SERVICES

GENERAL INFORMATION

Generatortech is the originator and leader of the technology to monitoring the health of generator field windings by assessing the measurements of magnetic flux in a generator's air-gap. Shorted turns are usually the result of failed insulation between individual windings in a rotor. However, coil-to-coil shorts can also occur in the end-turns that can remove one or two complete coils from the field winding. As units age, shorted turn problems are more likely to be experienced. The stresses involved in each stop-start cycle play an especially important role in the development of shorted turns. However, all rotor windings are at risk, occasionally newly rewound fields have been found to have shorted turns.

ANALYSIS SOFTWARE

Generatortech utilizes our own Shorted Turn Data Acquisition and Analysis software. This software, originally developed in the mid 1980's, has been continually improved over the years. The latest versions provide maximum flexibility, simplicity and reliability for data acquisition.

TESTING OPTIONS

Generatortech has several options for acquiring flux probe test data and expert analysis:

- Generatortech personnel perform on-site testing and analysis which includes formal reporting
- Generatortech provides rental testing equipment for data acquisition by plant personnel. Data is sent to Generatortech for analysis and a formal report
- Generatortech monitors your generator rotor windings via Internet connection to permanent monitoring equipment under a service agreement
- Purchase a portable or permanent Generatortech data acquisition and analysis package and perform your own analyses (*Generatortech provides free technical support and analysis consultation to owners of our equipment*)

CONSIDERATIONS

- Your generator should have a permanently mounted and functioning air-gap flux probe or be capable of accepting a 3/16" diameter temporary flux probe that would be inserted through the stator core cooling vent slots to reach the air-gap. Installing a temporary probe in air-cooled machines is generally not a difficult task. However, hydrogen cooled machines require more detailed planning and the installation of sealing fixtures in order to accept a temporary flux probe.
- Flux probe data acquisition is best done when the generator load can be varied through a wide range. Ideally this can be best accomplished during a startup or shutdown. If this is not feasible, Generatortech can review your situation and make recommendations of combinations of real and reactive power changes that will increase the sensitivity of the analysis.

TRAINING/SYMPOSIUMS/CONSULTATIONS

Generatortech Air-gap Flux Probe and Shorted Turn training classes and symposiums can be scheduled for staff and/or management. Generatortech staff are always available for phone consultations.