

**RECOMMENDATION OF MAINTENANCE
SCHEDULE BY ANALYSING CONDITION
MONITORING TEST DATA OF GENERATORS**

Kelum Niroshan Senarathne

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Department of Electrical Engineering

University of Moratuwa
Sri Lanka

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.....
K. N. Senarathne

.....
Date:

The above candidate has carried out research for the Masters Dissertation under my supervision.

.....
Supervisor:

Prof. J.P. Karunadasa

.....
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Abstract

Condition monitoring is a modern engineering tool developed to assess the status of valuable properties. The thesis describes generator stator winding condition by analyzing three main test procedures, called DC ramp test, Partial discharge test and vibration test. Above mentioned tests were conducted on three main power station attached to Thermal complex of Ceylon Electricity Board in Sri Lanka.

Off line DC ramp test is conducted on the generator stator winding by applying ramped DC voltage. Accordingly total leakage current is plotted against the applied voltage. After obtaining final leakage profile, analyzing is done according to the winding insulation type. Partial Discharge test equipment is installed to monitor electrical discharges due to voids of the stator winding. Those discharges will degrade the insulation and, if not corrected, repeated discharges will eventually erode a hole through the stator winding insulation, leading to failure. Therefore detection and analyzing methodologies discuss throughout the thesis. Finally discuss the importance of introducing PD detection system for identified generators which are more severe effect to generator and the power system.

Some rotating machinery problems show themselves as excessive vibration. It can be identified using online vibration measurement, because vibration signatures show machine's mechanical and electrical conditions. Also it can be identified possible effect to the stator winding.

During the case study, 19 generators were considered in plant wise to assess the condition using above mentioned tools. Tests were carried out to identify the status of generator stator winding and it helps to categorize the degree of acceptability of present condition and planned their preventive maintenance to improve the reliability and availability. Finally preventive maintenance schedule is introducing parallel to the present maintenance plan.

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