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(FACULTY OF MECHANICAL ENGINEERING)

PREDICTIVE MAINTENANCE OF AIR COOLED
CONDENSER FAN GEARBOX USING VIBRATION ANALYSIS

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ABSTRACT

An experimental type project using vibration analysis on the Air Cooled Condenser (ACC) Fan gearbox components. Vibration signal at various locations of ACC gearbox have been captured, stored and analyzed.

The project is in connection with the computer program. The portable vibration data collector is used to record data, which then transfers data to the host computer where data is stored in data management and analysis software.

Result of the experiment can be displayed in more than one spectrum plot but single spectrum plot is more appropriate for this analysis. Result is compared with the standard reference spectrum. Higher vibration amplitude than normal indicates that problem exists in the gearbox components such as gear defects, mechanical looseness, bearing defects, misalignment and imbalance. Thus, any immediate action can be taken to rectify the cause of the problems and to plan the maintenance program.

Bearing defect frequencies could not be detected at its earliest of initiation in this project, hence other method of detecting is necessary to effectively carry out predictive maintenance program.

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