

UNIVERSITI TEKNOLOGI MARA

**EFFECT OF OXIDATION IN ENGINE
OIL LUBRICANT ON YAMAHA
OUTBOARD ENGINE
PERFORMANCE**

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ABSTRACT

A four-stroke auto boat engine is increasingly used in maritime because it is easy to deal with daily. However, the oil lubricant in the outboard engine needs to change due to oxidation in lubricating oil that can increase viscosity, acids produced, increase insoluble compounds, additive depletion, and accelerated degradation of the oil. These effects the engine performance because of the corrosive and wear in the outboard engine. This study is limited to new and used engine oil Yamalube 115 hp that use in four-stroke Yamaha Outboard. In this study, the oil analysis has been done to determine and analyse the effect of oxidation in engine oil lubricant on Yamaha outboard engine. The experiment is to determine the oxidation of the used oil engine and compare the experimental data results with the new oil engine as a baseline. This result shows the comparison oxidation rate in lubricating oil to find the presence of oxidation. The method used to conduct the experiment is FTIR Spectroscopy. The result shows the different spectrum oxidation line between used and new oil lubricant. For recommendation use another method such as Linear Scanning Voltammetry and others method to validate the result and this study must include further study about oil density and temperature to determine oxidation in oil lubricant.

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