

INFLUENCE OF A TRANSMISSION OIL DEGRADATION ON SYSTEM-LEVEL BEHAVIOR

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ABSTRACT

During the operation of lubricated mechanical systems, lubricant properties may change. This can influence the performance of the mechanical systems in terms of durability and efficiency, for example. This study analyzes how field operation affects system-level performance in fresh and field-collected transmission oils. Thermal and tribological tests on the FZG machine were carried out to assess the oil performance under various operating conditions by analyzing the different sources of dissipated energy (bearings, tooth friction, churning...). The dissipated energy model used for the analyses is in good agreement with the experimental results. Results reveal that, through variations in efficiency, field-collected oils behave differently from fresh oils.

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