



# Investigation of Tapered Roller Bearing Damage Detection Using Oil Debris Analysis

By Paula J. Dempsey

BiblioGov. Paperback. Book Condition: New. This item is printed on demand. Paperback. 22 pages. Dimensions: 9.7in. x 7.4in. x 0.1in.A diagnostic tool was developed for detecting fatigue damage to tapered roller bearings. Tapered roller bearings are used in helicopter transmissions and have potential for use in high bypass advanced gas turbine aircraft engines. This diagnostic tool was developed and evaluated experimentally by collecting oil debris data from failure progression tests performed by The Timken Company in their Tapered Roller Bearing Health Monitoring Test Rig. Failure progression tests were performed under simulated engine load conditions. Tests were performed on one healthy bearing and three predamaged bearings. During each test, data from an on-line, in-line, inductance type oil debris sensor was monitored and recorded for the occurrence of debris generated during failure of the bearing. The bearing was removed periodically for inspection throughout the failure progression tests. Results indicate the accumulated oil debris mass is a good predictor of damage on tapered roller bearings. The use of a fuzzy logic model to enable an easily interpreted diagnostic metric was proposed and demonstrated. This item ships from La Vergne,TN. Paperback.



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