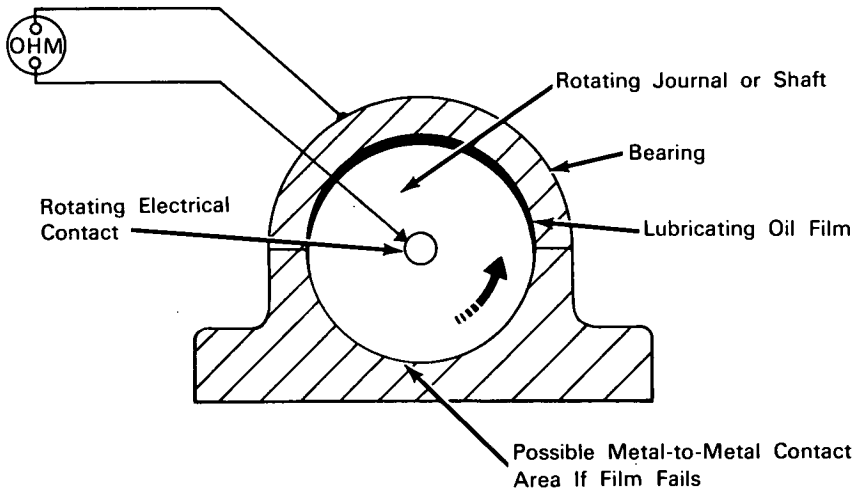
NASA TECH BRIEF

Ohmmeter Senses Depletion of Lubricant in Journal Bearings



The problem: A dynamic method of determining when a lubricating oil fails to cover any portion of the interfaces in a high-speed journal bearing has been needed in order to forestall galling or seizing of the rotating journal in the bearing.

The solution: Monitoring the electrical resistance across the oil film in a journal bearing connected to a high-speed rotating shaft.

How it's done: An ohmmeter is used as a sensor to monitor the electrical contact resistance across the interfaces between the rotating journal and the bearing. A sharp drop in resistance indicates metal-to-metal contact caused by failure of the lubricating film.

Notes:

1. The ohmmeter can be easily modified to give a visual or audio signal of metal-to-metal contact indicating lubricant failure.
2. This method would be of value in monitoring the oil film during normal continuous operation of rotating machinery or in life testing of various lubricants.
3. Inquiries concerning this innovation may be directed to:

   Technology Utilization Officer
   Lewis Research Center
   21000 Brookpark Road
   Cleveland, Ohio, 44135
   Reference: B64-10042

Patent status: NASA encourages commercial use of this innovation. No patent action is contemplated.

Source: A. O. Ross
(Lewis-37)
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