

# PIPELINE COMPRESSOR JOURNAL BEARING FAILURE

By Anthony Rubino, P.E.

An operator of a gas turbine driven pipeline compressor noted excessive oil usage at the impeller end journal bearing. Rotor vibration was typical and bearing temperature was typical at approximately 180F. Journal bearing failure was discovered after disassembly. The damage to the bearing indicated Babbitt fatigue, separation and melting. Loss of adhesion and molten Babbitt can be seen in the photographs. Most of the damage was located at the outboard (i.e., impeller) end of the bearing where the oil is contained by a floating

seal. A failure investigation was not performed but excessive oil flow through a worn floating seal was suspected to be the root cause.

The compressor typically operates in cyclic service subjecting the bearing to numerous starts and stops, as well as startup and shutdown vibration transients. The bearing had operated for approximately seven years. Fortunately, there was no damage to the shaft and the unit was restarted after installing a spare bearing.



Figure 1



Figure 2

*For more information:*

Anthony Rubino, P.E.

Email: [trubino@rotatingmachinery.com](mailto:trubino@rotatingmachinery.com)

Tel: 484-821-0702

**Headquarters**

2760 Baglyos Cir.  
Bethlehem, PA 18020

**Houston Office**

16676 Northchase Dr., Ste 400  
Houston, TX 77060



[rotatingmachinery.com](http://rotatingmachinery.com)

Tel: 484-821-0702

Parts: [rms@rotatingmachinery.com](mailto:rms@rotatingmachinery.com)

Rotating Machinery Services, Inc. | 2760 Baglyos Circle, Bethlehem, PA 18020 | Tel: 484-821-0702