

## **VIBRATION SIGNAL ANALYSIS OF GEAR TOOTH CRACK USING DIGITAL SIGNAL PROCESSING**

**J. K. PATIL, R.T. PATIL, P. B. GHEWARI AND S. S. NAGTILAK**

### **Abstract**

Rotating machinery are employed throughout the industrialized world of power generation & transmission. Geared units are generally used in branched rotor systems for speed variation and or change of direction of working. The vibration signatures of various gear working conditions are obtained from a machine set up using accelerometer. The spectral analysis of resultant vibration signature is performed for healthy gear condition & a gear with crack on one tooth. The spectral analysis provides information about the frequency contents of the signal. The comparative study of analysis of above two conditions show the presence of strong second harmonics in spectrum of cracked toothed gear indicating the faulty condition.