Vibration tests had been used successfully for many years to assess the condition of locomotive traction motors in a rebuild shop of a major national railroad. When the shop began processing traction motors built by a different manufacturer, the existing vibration test method was unreliable. Vibration measurements varied dramatically between identical tests performed on the same motor. Many motors that failed the vibration test were found to be in good condition when torn down, and motors that had just been rebuilt sometimes did not pass the vibration test.

**Problem:** Railroad locomotive traction motors were unjustifiably failing vibration condition tests causing unnecessary tear-downs to be performed.

Vibration tests had been used successfully for many years to assess the condition of locomotive traction motors in a rebuild shop of a major national railroad. When the shop began processing traction motors built by a different manufacturer, the existing vibration test method was unreliable. Vibration measurements varied dramatically between identical tests performed on the same motor. Many motors that failed the vibration test were found to be in good condition when torn down, and motors that had just been rebuilt sometimes did not pass the vibration test.

**Solution:** The vibration test procedure was modified to measure at locations which were not affected by bearing housing resonances. Advanced vibration diagnostic methods utilizing both low frequency spectral criteria and demodulated high frequency measurements were proposed in conjunction with a process for determining vibration limit criteria.