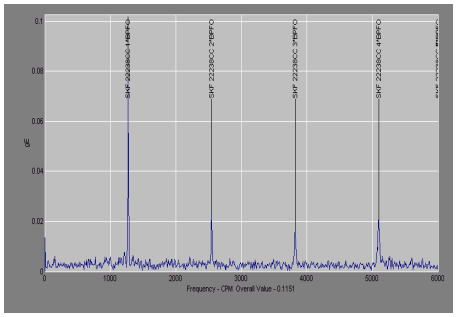
Enveloped Gs Detection

- *Early warning signs of broken gear teeth are subtle but can be found with the right tools.*
- *Replacing parts that are about to fail saves everyone from unnecessary headaches.*

Case History Bearing defect Gsenv

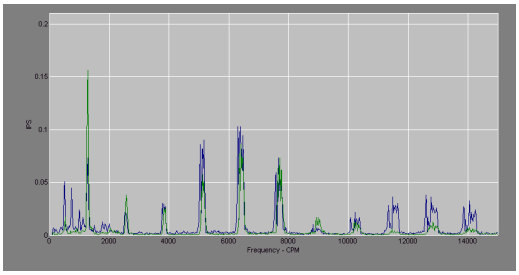
During October 2002, while completing our monthly check on a coalmine longwall operation, we discovered a bearing defect on the coal side of the belt tail roller. The bearing outer race was spalled and cracked along with the rollers being pitted. The Enveloped Gs spectrum below shows the evidence of these forces.

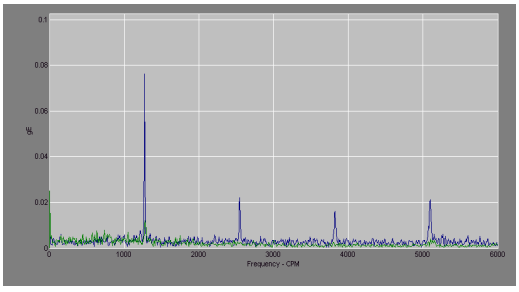
The picture at the top of the page shows the outer race cracked and destroyed two weeks later. The bearings on the roller were 22238 bearings.



Enveloped Gs is a very important tool in early detection of bearing problems. I have also found it to be an excellent tool in determining which bearing is bad on a two bearing pulley. Low frequency travels very well through the shaft from bearing to bearing, however high frequency does not travel as well.

The first spectrum overlay below shows both bearings in velocity. The second spectrum shows both bearings in Enveloped Gs (Gsenv). The enveloped Gs spectrum definitely shows which bearing has the defect. Blue is the right bearing and green is the left bearing. Both bearings were replaced, but our customers wanted to know which bearing was bad. Enveloped Gs is a positive check. I have also used SKF Enveloped Gs to determine which bearing is bad on a gear case shaft. Please don't forget to use the correct filter band for the running speed rpm. An incorrect filter band will not provide the best results.





Spend a little money now to save big money later.

Any questions feel free to contact Larry Massey
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