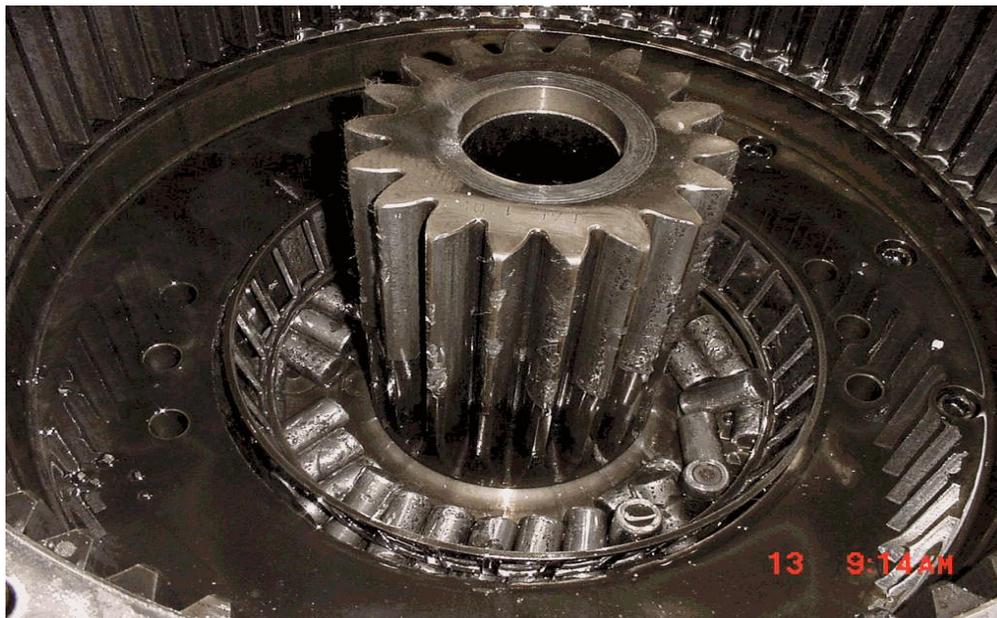




# Carrier Bearing Defects

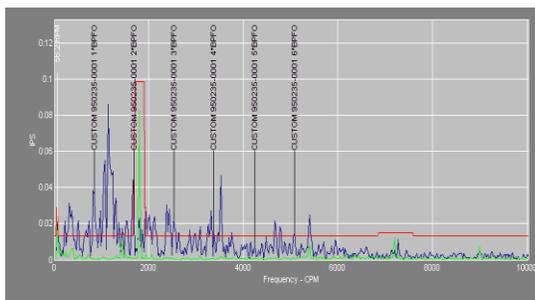


- Early warning signs of broken gear teeth are subtle but can be found with the right tools.
- Replacing parts that are about to fail saves everyone from unnecessary headaches.

## Case History Longwall Shearer Arm

The outer race defect frequency is caused when the rollers hit a defect on the outer race. The vibration must travel through the outer race, the mechanical interface between the housing and the transducer, and converted to an electrical signal. In the case of the ranging arm planetary bearings, that are covered by the cutting drums, we have to collect data quite a distance from the bearings. For this reason amplitude values of 0.04 ips are important. The damping affect of the mass and density of the case will cause the values to be lower. This requires the uses of baseline spectrums, enveloping and the use of lower filter bands when using enveloped acceleration. We use SKF data collectors and Prism software for our analysis.

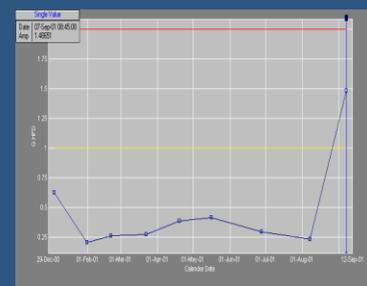
The spectrum above shows the carrier bearing outer race defects and excessive noise penetrating the alarm envelope. The base line data, taken at the start up of the panel, can also be found on this spectrum.



We need to emphasize at this time that frequencies at 843, 2530, 3370 cpm may be serious carrier bearing defects. The carrier bearing appears to be the weak link in the unit. We did see the 843 at an earlier inspection, but it was not present at the next inspection. Bearing defects do get better before failure.

The picture at the top of the page is of the sun gear and carrier bearing. The bearing degradation and sun gear spalling is excessive. Material was found on the magnet of the drain plug. The complete ranging arm was changed with no loss in production.

**Spend a little money  
now to save big  
money later.**



Above is HFD trend, this trend detects metal to metal contact when lubrication is insufficient

Any questions feel free to contact Larry Massey  
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