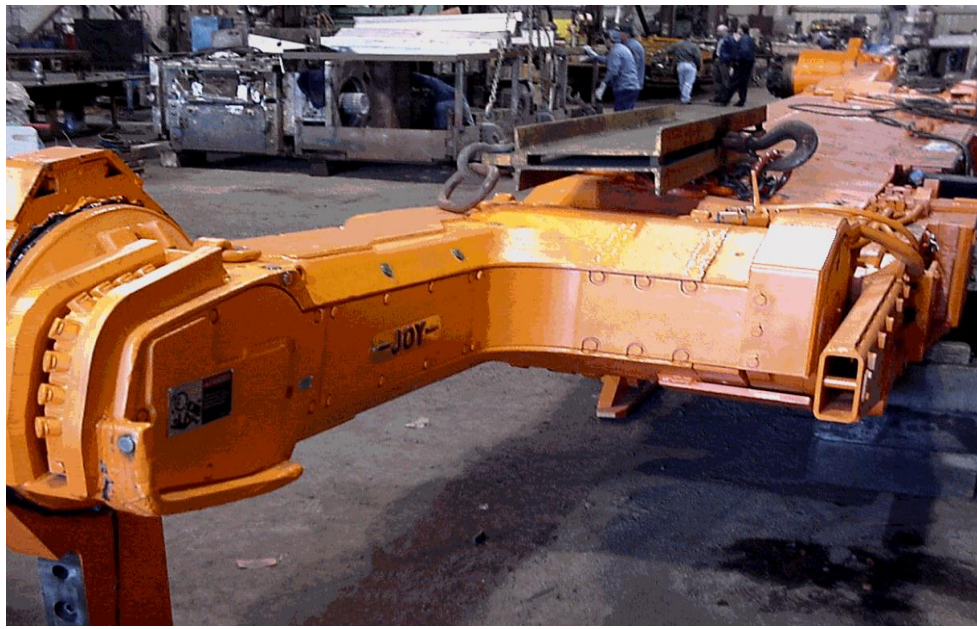


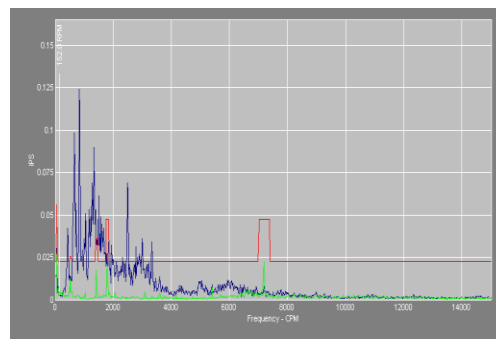
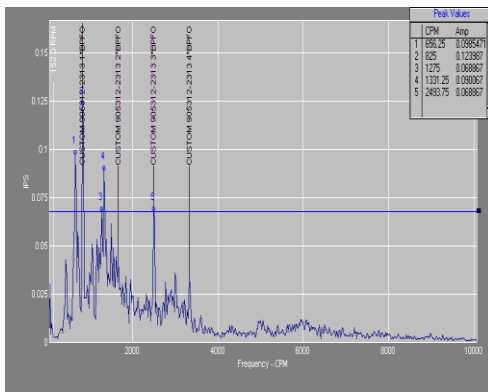
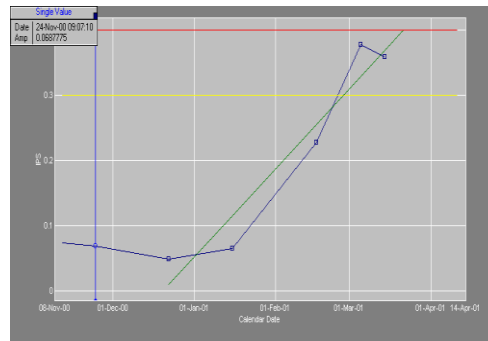
Planetary Defects



- 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 spectrum below shows an outer race defect overlay. Two bearings are possible: the planet gear bearing and the planetary carrier bearing. Notice the raised floor under the bearing defects. The dual planetary unit is hard to analyze due to the rotating cutter drum covering the planetary.



Additional tools were used to determine when the repair work should be completed. We used regression graphs and baseline spectrums along with narrow band alarm enveloping. The oil analysis was also a determining part of the proactive maintenance program. Below is the regression graph showing the unit entering our preset danger alarm with in one week.

From the above information and the oil analysis it was decided by management to schedule the replacement of the low speed planetary and bearings. The planetary carrier bearing outer race had excessive degradation. The unit was replaced during scheduled down time, with minimum production loss and no failure.

Spend a little money now to save big money later.



Above is the outer race from the planetary bearing

Any questions feel free to contact Larry Massey lmMassey@ma.r.com