



## Keeping Walkers Running

- Expensive history of unexpected & catastrophic extruder gearbox failures.
- MHC-Memo gives early detection of deterioration in an internal oil-pump.
- Catastrophic failure prevented allowing identification of the root cause.

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Walkers Snack Foods have long recognised the benefits associated with Condition Based Maintenance and for this reason has been implementing Condition Monitoring (CM) for a number of years.



A key aspect of this strategy has been the use of the MHC-Memo instrument which is based on the high frequency Acoustic Emission (AE) technique.

Initially an instrument was evaluated at a pilot site where its general applicability was proven and a number of faults soon detected resulting in significant savings. Following on from this the same approach has been rolled out throughout all UK sites. The present case study is just one example of the benefits this has given the Walkers group.

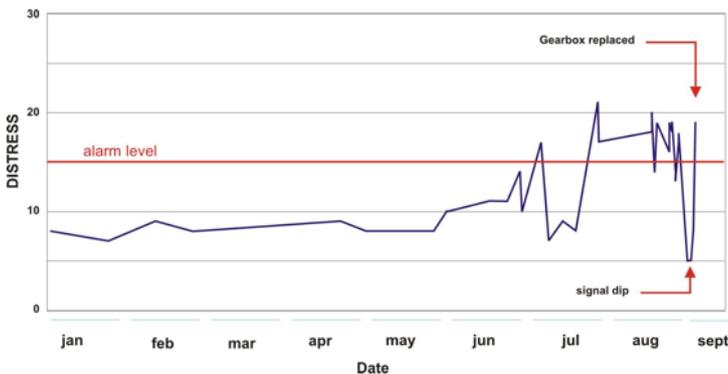
Over a period of years two major gearboxes had failed catastrophically at one particular Walkers site. In each case the internal damage was so complete that there were no clues as to the root cause of the failures. In addition to the extensive damage, the unexpected failure resulted in lost production time and a serious economic impact on operations.



*"We are impressed with the results the memo is giving us and how easy it is to use"* Dave Pickup  
Walkers Snack Foods

To address this, periodic measurements were initiated using the MHC-Memo instrument when a replacement extruder gearbox was installed in January 2003. The trend of Distress<sup>®</sup> values for the first 9 months of operation of this gearbox is shown in the accompanying plot. From this it can be clearly seen that the Distress<sup>®</sup> reading increased significantly in June 2003 and first tripped the alarm level (set at Distress<sup>®</sup> = 15) in July 2003.

Although oil analysis showed nothing untoward in the second half of August preparations were made for the gearbox replacement in view of the AE indications. On the weekend of 6th - 7th September the gearbox was replaced (with minimum disruption to production) and it could be immediately seen that the replacement gearbox exhibited normal levels of Distress<sup>®</sup>. When the suspect gearbox was stripped down it revealed that the internal oil pump had failed. Stripping down of this unit revealed significant damage to a bearing race.



The breakdown of the oil pump, would have rapidly led to extensive internal damage and the complete failure of this gearbox. This suggests that the brief dip in the Distress<sup>®</sup> readings on 2nd September corresponded to the final failure of the oil pump and the subsequent rapid rise corresponded to oil starvation in critical parts (a pre-cursor to what would have been total catastrophic failure).

The main findings can be summarised as follows :

- Previously 2 gearboxes had failed catastrophically at great cost.
- The MHC-Memo has been shown to provide a simple and effective warning of impending failure allowing gearbox replacement to be planned so as to minimise disruption to production and secondary damage.
- On-going cost savings are anticipated as future gearbox degradation is detected and acted upon.

Distress<sup>®</sup> is a registered trademark of Kittiwake Holroyd

To find out more about how the MHC-Memo can transform your maintenance strategy contact :



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