

CASE STUDY

Industry: Rail Industry
Customer: Maintenance provider in Germany

OFF-HIGHWAY 
POWERTRAIN SERVICES

▶ Off-Highway Powertrain Services now a trusted service partner for rail customers too!

▶ Case Description

For our rail customer, on one of their track tamping machines, the powertrain from hydraulic pump on the sieve wagon was recently redesigned. The customer wished to understand if the powertrain was in good condition. High Tech Analysis was carried out to capture vibrations on the bearings of the main engine and the distribution gearbox using multiple measurement points.

The analysis of the vibration measurements captured at two different operational points showed opportunities for improvement. Our experts identified the permissible effective vibration velocity according to ISO Standards 10816 part 6 for the diesel engine.

Based on the findings, Off-Highway Powertrain Services (OHP Services) suggested the following measures:

- ▶ Immediately carry out field balancing on the diesel engine
- ▶ Check for imbalances in the rest of the powertrain and make required adjustments

The customer preferred to wait for the time being and perform further observations on his own. After 3 months, as predicted by OHP Services; the cover of the diesel engine collapsed, also causing damage to the fan.

▶ Technology Snapshot

High-tech Analysis:

Different technologies like vibration measurement, thermographic measurement and alignment check are used to get to the root cause of the problem. A multi-channel vibration measurement system was used for the vibration and natural frequency analysis. Sensors were installed at different positions of the machine to record



OHP Services was contacted again by the customer and performed a repeat measurement to determine the continued presence of high vibrations on the engine. Finally, field balancing was then carried out.

The customer was extremely impressed with the added value we provided through our extensive powertrain expertise. They have now recommended our services to other rail maintenance providers.

these measurements. Detailed reports with hard facts were generated to support maintenance decision making. Main advantage of this service is early identification of fundamental powertrain faults leading to minimised risk of unplanned downtime.

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► **Challenge:**

- Check the application to determine the current status
- Approve the design or if necessary, recommend and carry out improvements

► **Solution:**

OHP Services approach was as follows:

- Measure the vibrations to determine the problem
- Carry out field balancing on the diesel engine



Checking the alignment of the flange parallelism

► **Customer Value:**

- Higher machine availability
- Improved operator safety through proper functioning of the machine
- The vibration levels are below maximum allowable limits (ISO 10816-6)
- Better understanding of the status of the powertrain

► **What's special?**

- The customer asked OHP Services to check the powertrain for abnormalities. However, OHP Services recommendation for field balancing was ignored. Now, the customer trusts OHP Services as our prediction regarding the potential failure was confirmed by a later breakdown.