

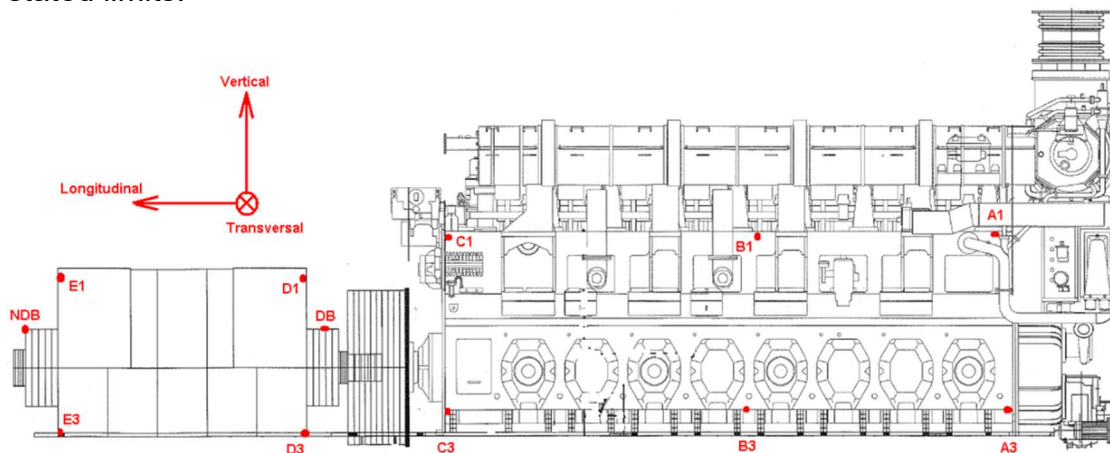


Vibration measurements (linear and rotational):

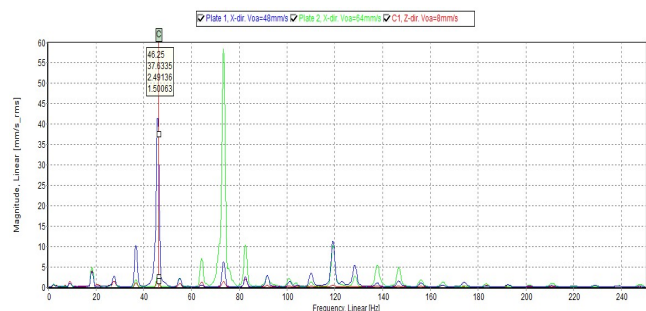


“When the vibration level exceeds OEM limits, the efficiency and availability of the unit will be affected and action on short notice is required. Especially Alternator, Coupling and Turbocharger. When exceeding the limits for a long period a catastrophic failure could occur.”

- Measuring linear vibration levels to compare with international standards or OEM stated limits.



- Frequency analyses: a developing fault will show up as increasing vibration at a specific frequency associated with the fault (=> Predictive or Condition Based Maintenance).



- Modal analysis to discover the natural frequencies and visualize their mode shapes and deflections. A natural frequency of any structure, engine or generator set can cause resonance. Measurement results can be used to fine-tune the calculation method. By detuning (for example adding or removing mass or mechanical stiffness) the resonance will be shifted out of the operating speed, resulting in lower vibration levels.
- Dynamic balancing of the whole set-up of engine crankshaft, PTO, coupling/ clutch, gearbox, and (propeller-) shaft.



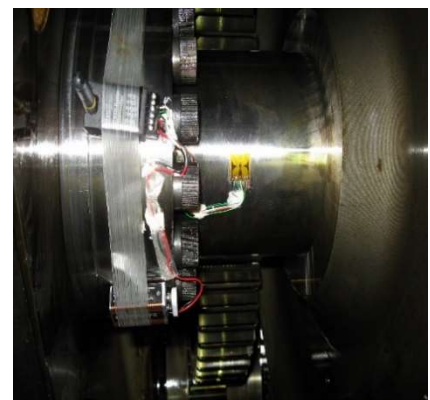
- Operational Deflection Shape (ODS) to visualize the deflection caused by vibration of a running engine and localize the weak spots. Specific knowledge of the deflection shape makes it much easier to improve the set-up.



- Rotational vibration measurement on flywheel and/ or shafts via speed pick-ups and/ or shaft encoder when;
 - Engine/ gearbox or propeller (shaft) replacement,
 - Verify condition status of an installation,
 - High temperatures in vibration damper and clutch,
 - High wear of vibration damper,
 - Gear hammering,
 - Instable running engine (misfiring etc.).



- Torque measurement on rotating shafts, even inside the engine to verify:
 - Actual output of the engine,
 - Dynamic load going through the drive line,Using strain gauge technics and telemetry systems.



All measurements carried out by our specialist with CAT II certification according ISO 18436.