

# Business case: postponing mandatory “class” related maintenance using REDS

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## Why REDS?

Aviso’s Engine Monitoring System REDS is a continuous measurement instrument that monitors the status, health and efficiency of a running combustion engine, by measuring the torsional vibrations in the engine. It is designed to measure whether the engine is running in a balanced state by recognizing functional deviations.

Due to the increasing and more stringent regulations from the IMO, and various certifying bodies worldwide, ship owners are forced to search for user friendly solutions to manage and operate their ships in such a way that they minimize their footprint on nature, environment and society.

After completing the development of their REDS system, Aviso Diagnostics searched for a testing opportunity on board of an operational and sailing vessel. A ship owner, operating a Ro-Ro Ferry between Hoek van Holland and a U.K. port, was interested in testing REDS as part of their Energy Savings Program. Besides their focus on energy efficiency Aviso was asked by the ship owner to monitor the functioning of the vibration dampers installed on the port and starboard engines.

## Using monitoring to postpone replacing the vibration dampers

The specific goal of the request to monitor the vibration dampers was the fact that these dampers were reaching the end of their life time (based on running hours) and should be replaced by new ones. As docking time for the vessel was scheduled in a year from that moment, the owner wanted to know if the functioning of the dampers was still sufficient enough to postpone replacing the vibration dampers until that time.

Class regulation (Lloyds Register in this particular case) prohibits any further operations at sea when the damper exceeds its lifetime or when damper functionality is limited by damage or other root causes. The conclusion, after REDS was installed, was that no excessive engine excited torsional vibrations were present on the crankshaft of the engine. Using REDS allowed the owner to continuously monitor the engine excited torsional vibrations.

## Class agreed to postpone the mandatory replacement of vibration dampers

After officially informing Lloyds Register about the situation, and explaining in detail the purpose and usefulness of REDS in regard to this particular situation, **Class agreed to postpone the mandatory replacement of the present vibration dampers on board.**

Class imposed the following terms and conditions in regard to the monitoring and follow up of the situation:

- the damper condition must be watched and monitored by REDS.
- a 3-monthly situation report of REDS measurements must be handed over to Class, for evaluation and follow up, to “judge” the situation on a permanent basis.
- use REDS as “permanent watch dog” for the remaining operational time frame at sea.

The vessel went on to complete its’ remaining operational time at sea under auspices of REDS. No further obstruction, delay or suspension occurred which caused and/or required expensive in-between measures to be taken.

## Conclusion

We can conclude that the philosophy of “time dependent” and “class related” maintenance on board of ocean going vessels, under certain circumstances, may be “subject to discuss”. The application of engine diagnostic monitoring systems (such as REDS) help greatly in enabling “conditional” based maintenance.

More specifically, the cost saving as a result of postponing mentioned damper replacement far outweighed the investment in REDS.

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