



EARLY DETECTION OF FAN INSTABILITY IN MARINE ENGINE ROOM

AVT Reliability® supports marine operators in improving asset reliability and operational safety through condition-based maintenance, using Machine Sentry® technology to identify early-stage faults and guide timely corrective action.

AT A GLANCE

Industry:	Marine
Process:	Engine Room Ventilation
Equipment:	Forward Engine Room Fan
Products:	Machine Sentry®
Services:	Condition Monitoring, Vibration Analysis, Diagnostic Support
Outcome:	Early fault identification and proactive maintenance planning

THE PROBLEM

The engine room ventilation system is critical for supplying fresh air for combustion and removing heat from machinery spaces. These systems rely on large fans to circulate significant volumes of air throughout the engine room.

Failure or degradation of this system can impact engine performance, increase operating temperatures, and introduce safety risks. Maintaining reliable operation is essential for safe and efficient vessel performance.

OUR APPROACH

AVT Reliability® Ireland conducted an ad hoc condition monitoring survey following concerns raised about the fan's operating condition.

Vibration data was collected and analysed alongside a visual inspection of the asset. Observations were documented and reported via the Machine Sentry® platform, with an action note issued to guide next steps.

Given the criticality of the asset, AVT also recommended upgrading the monitoring strategy by installing Machine Sentry® Fixed sensors to enable routine monthly vibration analysis and ongoing condition tracking.



“In cases like this, the value is in identifying the problem early and giving the team a clear path forward. That’s what prevents failures before they happen.”

- AVT Reliability Engineer

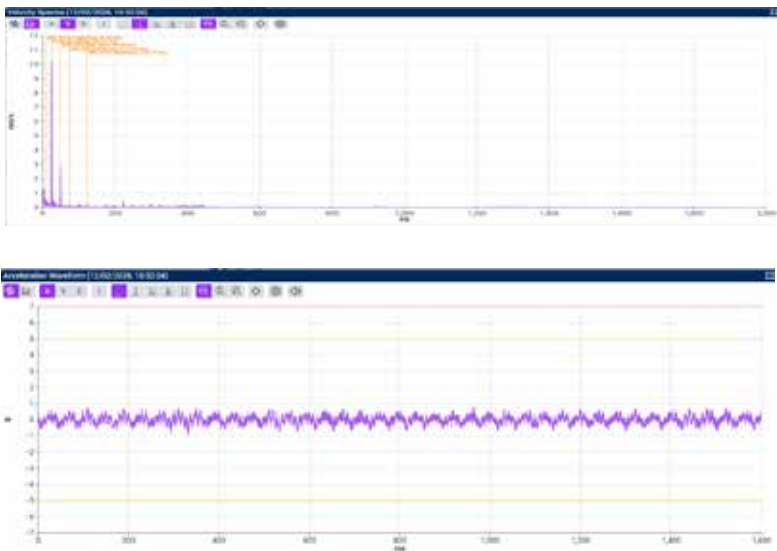
OUR FINDINGS

During inspection, AVT engineers observed a visible wobble in the fan during run-down, along with signs of wear on the anti-vibration mounts.

Vibration analysis revealed:

- Multiple harmonics of running speed
- Indicators of imbalance
- Signs of possible looseness at the motor/fan drive end

These findings suggested that the issue could be related to a combination of degraded mounting support, imbalance, or potential component looseness.



RECOMMENDATIONS

Based on the findings, AVT issued a structured set of recommendations to address the issue:

- Replace worn anti-vibration mounts
- Inspect the fan assembly for looseness or mechanical damage
- Check the motor drive-end bearing for play
- Clean impeller blades to remove any build-up
- Dynamically balance the fan if no structural defects are identified

These actions provide a clear, staged approach to resolving the issue while minimising unnecessary intervention.

FOLLOW UP

At the time of reporting, corrective actions were pending. However, early identification of the issue allowed the vessel team to plan maintenance proactively rather than react to a potential failure.

If left unaddressed, the condition could have progressed to increased vibration, accelerated wear, and potential fan failure, impacting engine room ventilation and vessel operation.

**Need advice?
Contact our experts**

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