



WARD+S MARINE ELECTRIC #TheWardsWay [LEARN MORE](#)

Home Articles Events Galleries Directory Classifieds

Daywork Next Triton Event

Career

Balance Below: Online condition-monitoring technologies transport data, not people

Posted on Apr 23, 2019 by Rich Merhige in Balance Below, Editor's Pick | 0 Comments

AMESOLUTIONS.COM

Vibration, Noise & Alignment Specialists

ADVERTISEMENT

Balance Below: by Rich Merhige

Editor's Picks



Yachts face new block for travel to Cuba

By Dorie Cox The U.S. Department of the Treasury on June 5 removed authorization for "group people-to-people" educational travel to ...

Jun 11, 2019 | Cruising Grounds, Editor's Pick, News | 1 Comment

Prev Next

A lifetime of experience. A family of services.

#TheWardsWay

WARD+S MARINE ELECTRIC

[LEARN MORE](#)

WARD+S MARINE ELECTRIC

Has equipment failure cost you a charter or owner's trip? When it comes to yacht maintenance, failure to plan results in, well, failures.

The yachting world has been hesitant to adopt a predictive and preventative maintenance mindset, mostly due to preconceived notions about cost, when in reality some of the most advanced diagnostics are quite affordable thanks to new technology.

In a perfect world, machinery would be monitored continuously so any deviations from the baseline data could alert crew that they have a problem brewing. Continuous monitoring allows for early detection so conditions such as misalignment, engine misfire, or worn parts can be remedied before an unplanned outage occurs, keeping machinery running smoothly while increasing its lifespan.

Online condition monitoring is a relatively newer development in reliability-centered maintenance that allows engineers to detect irregularities in their machinery before shutdowns occur. It is the process of continuous monitoring of a machine that pulls data that can be accessed 24/7 wirelessly and is a significant component of predictive maintenance. The system will generate data at the machine's most crucial moments and can detect changes in the machinery's performance.

While commercial and government fleets have more familiarity with remote monitoring, these newer systems are designed to be more user-friendly and affordable for yacht owners and operators. Working smarter, not harder, is the concept. These units send data to a trusted vibration analyst who can diagnose exact problems and address the root cause.

How do online condition monitoring systems collect continuous real-time data and determine machinery health? Accelerometers are permanently affixed to the desired machinery, and cables are connected from the accelerometer to the online condition-monitoring system. A machinery database with the relevant machinery,

Featured Listings

WaterMakers Inc.



Need Affordable
Internet
For Your Yacht?

USA • Bahamas

[CLICK HERE >](#)

MPT – Maritime Professional Training



Yacht Equipment and Parts

Bellissima Luxury & Fine Art Services



measurement tasks and alarm levels is then created and uploaded into the online condition-monitoring system.

Vibration data is collected across all channels simultaneously (good for picking up any transient events) and transferred to the integrated yacht management system via ethernet, or to an onshore server via mobile cellular router. The real-time data can then be analyzed in two ways: on-site quick check using automated email notifications and visualization software; or remotely by a qualified vibration analyst.

Captains or chief engineers also can set up alarms to receive notifications of machinery updates on their phone or computer. Some of the more advanced analyzers on the market, using 16 or 20 measuring channels, can detect machine failures such as unbalance, misalignment, gear mesh and bearing failures. Other online condition-monitoring systems can monitor hydraulic fluid.

Online wear particle sensors are used to detect oil cleanliness. The sensor is installed upstream of the oil filter and connected to the integrated vessel management system via ethernet — it also can be paired well with the online vibration data collector. The sensor then uses eddy currents to detect wear debris from gears and bearings in the oil that passes through it. This data can then be sorted into the subsequent size and contamination level classes outlined in ISO 16232. Online condition monitoring systems can detect early signs of wear in pressurized lubricated systems.

The list of benefits of condition monitoring is extensive, and it can have an enormous impact on machinery's productivity levels:

- **Reduces traveling and maintenance costs.** This is one of the main benefits of condition monitoring. Even though it is often practiced, the “fix it as it breaks” tactic is always more expensive. One equipment failure can lead to a ripple effect, where other equipment surrounding the machinery will also start to fail. Yacht operators now have the ability to

transport the data, not the contracted person, which also saves time and travel costs.

- **Maximizes productivity.** With CM, engineers can be sure to optimize their production and meet deadlines, which means no more missed or delayed charters.
- **Reduces risk and helps prioritize maintenance tasks.** With frequent and reliable updates about machinery, engineers have a real-time list of potential maintenance tasks and their priority. This can help them contract maintenance companies promptly and plan around scheduled projects, saving time and money.
- **Increases lifespan of machinery.** Healthy machinery lasts longer. Condition monitoring not only can eliminate hidden costs, but can also boost machinery availability overall.

The newest systems on the market are a fraction of what they used to be, and are much more accurate and user-friendly. Next time an opportunity to invest in condition monitoring presents itself, don't say "Why?" — say "Why not?"

Rich Merhige is owner of Advanced Mechanical Enterprises and Advanced Maintenance Engineering in Ft. Lauderdale (www.AMEsolutions.com). Comments are welcome below.

Related Posts...





Yachts face new block for travel to Cuba

By Dorie Cox The U.S. Department of the ...Treasury on [Read more](#)



Friends, bosses remember Capt. Rob Fregeolle

By Dorie Cox Capt. Robert Byron Fregeolle died May ...26 [Read more](#)

Share This Post

Like 16

Tweet

Share

Need Affordable Internet For Your Yacht?  **USA** Unlimited GB up to 100Mbps

[CLICK HERE >](#)  **Bahamas 300GB/\$350**

Leave a comment

Your email address will not be published. Required fields are marked *

Comment

Name *

Email *

Website

Please answer the question below to leave a comment. *

- 3 = one 

Post Comment

This site uses Akismet to reduce spam. [Learn how your comment data is processed.](#)

© 2017 The Triton. All rights reserved.
Web site design and management by [Connell Communications](#).