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Plan to keep, care for spares in an emergency



Engineer's Angle

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One of the worst things that can happen out at sea is discovering the need for an emergency service and not having access to the necessary parts. Spares can even be an issue when planning for drydock, and they are not ordered within the proper time. Thousands of dollars can be wasted in expediting charges, extra fees for extended lay days or dockage.

The importance of spares increases for heavily used and expensive equipment. Yachting is certainly in this category, and yachts operate in a unique environment, making safety and reliability particularly critical.

When a new build is launched, often little thought is given to spares. For the most part, if there's a need for a part on a new vessel, it's covered under warranty. Unfortunately, warranties expire. That's when it's up to the captain and chief engineer to ensure proper maintenance is executed so emergencies don't occur. Or when they do (and they will), spare parts are within reach so as little downtime as possible is needed.

The preference, along with predictive and preventative maintenance, is to purchase spares ahead of time.

When assessing what spare parts to have on board, break down the vessel into three levels: system, subsystem and item. Then evaluate the inventory of spares required at each level.

Optimizing what spares to carry

should consider the following:

- Criticality based on the impact of the system malfunctioning and how it would affect the efficiency of system or vessel as a whole and safety.
- Availability of the part.
- Cost of the part (taking into consideration the downtime if the part is not stocked) and what it costs to hold a part in stock.

A few of the systems that comprise a vessel include the main engines and propulsion systems, steering, stabilizers, auxiliary engines and generators, electrical distribution, navigation, water maker, sewage system, and fire and safety systems. Without a doubt, all components of these systems will need to be replaced during the vessel's lifetime. The cost to supply spares over the course of a vessel's life depends on the build and the maintenance regimes, as well as environmental factors.

It's said that spares can cost between 5 and 15 percent of a vessel's annual operating costs. With new technology emerging, part costs are expected to rise at least 2 percent in the next few years.

Source OEM parts when possible. They often come with better warranties, are more reliable, and the suppliers can provide better support. A lot of times, they can even recondition or reengineer existing components to suit the repair. Other suppliers aren't always aware of updates to equipment that OEMs are, and they usually don't have a completely thorough background.

Nonetheless, bargain shopping happens and generic parts are used to save costs. When they work, it's great.

But if they don't, the vessel could end up losing much more than it saved from buying an off brand.

Sometimes, there is a need for reverse engineering or engineered modification to replace or repair a part no longer available from the original manufacturer. If done correctly, this can add a new or improved function to an old process. Updated techniques and modern materials can make operations, maintenance and support easier and more reliable. Lower quality parts are often re-engineered from severely worn original components. It's likely they won't function like they should or last very long.

Proper storage of spare parts is often overlooked. For example, a steel diesel injector in a damp environment will not last long, especially if stored in a moisture-absorbing cardboard box. Rubber and neoprene hoses, impellers and V belts must also be stowed properly. Keeping a rubber part in a hot engine room will bake it over time, causing it to warp, deform or dry rot.

When storing spares, keep them insulated from the moisture-rich environment. If warranted, spray them with a rust preventative lubricant and seal well. Use good quality airtight boxes for long-term storage. Worse than having no spare is having a spare that has gone bad, as it gives you a false sense of security when you really need it most.

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