Cost predictability and reliable performance are essential for ship owners and operators. At the same time, increasing complexity means that technical knowledge by maintenance service providers is becoming critical to supplement ship crews’ competences. Monitoring and real-time data combined with competence development create new opportunities for planning and conducting maintenance in a dynamic way that minimises downtime and improves lifecycle efficiency. OEM spare parts are an essential part of the equation, as they offer proven reliability that makes planning possible.

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LOOKING FOR GROWTH IN TIMES OF GROWING COMPLEXITY

In today’s market we are seeing an increasing focus on total cost of ownership and finding efficiency improvements for the whole lifecycle of installations. As part of this, optimising maintenance is seen as an important source of growth through the maximised uptime and the more efficient use of capacity it enables.

Meanwhile, technological developments and the growing complexity of engines, propulsion, auxiliary and automation systems are generating a demand for new types of competences and solutions. As crews are reducing in number, finding professional skills to be utilized for maintenance and troubleshooting is increasingly challenging. As a result, the technical knowledge of maintenance service providers is becoming critical to supplement ship crews’ own competences, and shipping companies are increasingly looking for opportunities to outsource maintenance to service experts.

For service providers, supporting their customers in business growth requires a deep understanding of their installations and performance in order to ensure maximised operational efficiency. This not only means that installations need to be reliable and available according to their operational profile. But more and more, it also means that there’s a constant need to optimise and develop the performance of the equipment as well as the maintenance and servicing schedules and procedures.

Digitalisation will definitely cause a shift in how maintenance is conducted in the future. Smart technology is already being used to enhance services in the shipping industry. Wärtsilä has a firm belief in the new possibilities offered by digital solutions for improving the understanding of customer needs and enabling better cooperation and more efficient services. The bottom line, of course, being that optimised maintenance is a way for ship owners and operators to gain a competitive edge.

Market trends and drivers
- Growing focus on OPEX and lifecycle efficiency
- Digitalisation and new technologies create new opportunities
- Ship owners and operators using high performance equipment gain a competitive edge on the market
- Complexity of engines, propulsion, auxiliary and automation systems is continuously increasing
- New fuels are entering the market that require new handling and operating skills
- Smaller crews require outside technical expertise
- More stringent regulations have to be met concerning emissions, safety and energy efficiency
FROM CONDITION MONITORING TO DYNAMIC MAINTENANCE PLANNING

A modern approach to maintenance and improving an installation's performance includes the planning of operations and maintenance based on actual real-time equipment data. This way performance can be optimised effectively to minimize downtime, balance cost structure and improve overall efficiency and safety.

Conventional equipment maintenance is done strictly based on equipment running hours or calendar. This can make it difficult to match the maintenance schedules of different equipment having an effect on operational availability, performance and opex.

Digital technologies make it possible for service providers to provide an increasingly analytical perspective into their customers’ operations. With today’s technology, it is already possible to collect and analyze installation data and remotely monitor performance. This allows conducting maintenance in a dynamic way, based on the equipment’s actual condition.

**Dynamic Maintenance - optimise, advise, predict**
- Remote equipment condition monitoring
- Optimised operational availability
- Diagnosing and predicting the future condition of the equipment
- Advice for maintenance and fine-tuning of equipment

The key idea behind Dynamic Maintenance is to make operation data available to subject matter experts for analysis, and then communicating the result of the analysis back to the operations organisation. Knowing the actual condition of the equipment allows optimising the maintenance intervals according to actual equipment condition instead of the rigid hour-based individual maintenance schedules of different pieces of equipment. This reduces risk and opex, and makes it possible to reschedule and group equipment maintenance into maintenance windows that fit in with other business factors.
EXPERTISE IS CRITICAL

In spite of all the technological advances we are seeing, machines can not be a substitute for human expertise. Data only becomes valuable information through analysis and interpretation by an experienced expert who can put it into the right context and understand the particular installation’s operating conditions and requirements. Using the latest technologies, it is possible to connect field service crews with the vast global knowledge base formed by human and technological intelligence.

People and competences are thus still a service provider’s main asset. Even with all the attention that is given to modern technologies, we should not forget to also keep in mind the importance of a solid can-do attitude that is the main characteristic of a practical, quick and proactive field services organisation.

Managing competences to stay on top of new technologies

With new technologies constantly flowing to the market, effective competence management is needed to ensure the availability of skilled professionals. This means both adapting existing competences and professional skills to new products and operating environments, and attaining new competences like gas or system engineers needed to be able to utilize new technologies at their maximum potential.

An important part of competence management is ensuring that the right technical expertise is available when and where needed. In the marine sector this means that the field service organisation has to be truly global, with strategically located workshop facilities complemented by a mobile field service force that is capable of performing also specialised tests and diagnostics at an installation. Ensuring this and keeping up with developments in technologies, as well as certification requirements, entails that an extensive training programme is implemented and available to all technical experts working in the field.
An important, although often overlooked, element of ensuring reliable operation is the use of OEM spare parts. The risk for breakdowns can grow if non-OEM quality parts are used. Thoroughly checked and tested OEM spare parts that comply with major quality standards and authority regulations are the most competitive choice in the long run.

Acquiring spare parts for complex installations can be time consuming and frustrating, as correct parts for different equipment need to be identified and delivery schedules coordinated in order to minimise downtime and unnecessary delays during maintenance breaks. Good planning is essential for both the spare parts supplier and the customer in order to ensure prompt availability and delivery.

An OEM partner that can offer one stop shopping for spare parts whenever they are needed and provide reliable deliveries wherever needed, can considerably enhance routine maintenance processes and also ease coping with unexpected situations requiring fast responses.

**Easy-to-buy kits, sets and packages**

Choosing OEM spare parts is a way to ensure having the right parts for a particular equipment configuration, thus avoiding delays in maintenance or even hazardous situations due to incorrect parts. Also, when evaluating spare parts suppliers, a key consideration should be the supplier’s capability to truly deliver all parts for an installation’s equipment, from engines to auxiliary, propulsion systems, and electrical, control and automation systems.

To make spare part acquisition simpler and more efficient, an OEM manufacturer can offer pre-planned spare part kits, sets and packages for specific maintenance jobs. These are differentiated by the scope of the solution, and spare part packages can also include the field service work for carrying out the maintenance.

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Spare part kits, sets and packages ease the task of identifying and ordering the parts needed for specific maintenance tasks.

**Spare part kit**

Fixed amount of **Spare Parts. Packed and stocked together for a specific job.**

**Spare part set**

Fixed amount of items delivered together for a specified maintenance job combining different **Spare Part Kits and Spare Parts with fixed price.** Priced, offered, sold, packaged, invoiced and delivered together under one material code.

**Package**

Specified amount of items: Combining **Spare Parts, Spare Part Kits, Spare Parts Sets and Field Service work.** Priced, offered, sold, packaged, invoiced and delivered together under one material code.
PUTTING IT ALL TOGETHER: SERVICE AGREEMENTS THAT FOCUS ON MAINTENANCE PLANNING ARE A WAY TO OPTIMISE OPERATIONS AND MAINTENANCE

A service agreement with an expert service provider like Wärtsilä can be an efficient solution for optimising maintenance. Depending on the agreed scope, a service agreement can cover anything from spare part deliveries to full performance and operational accountability for an installation, freeing the owner from many day to day operational concerns, and allowing focusing on core business.

By agreeing on fixed and budgeted maintenance costs as well as shared goals and defined performance indicators, a service agreement can bring considerable benefits:

- Reduced maintenance costs and long term cost predictability
- Improved efficiency of equipment
- Reduced fuel and lubricating oil consumption
- Improved equipment reliability
- Significant reduction in unexpected breakdowns
- Reduction in fault diagnosis time and associated costs
- Improved installation uptime
- Improved maintenance period adherence and reduction of over-runs

**Online Services for enhanced efficiency**

Online Services increases flexibility and maximises the value of Wärtsilä services for our customers. Efficient and easy to use, it lets customers access up to date information on their installations and equipment whenever, wherever. Information and services within Online Services will provide customers with full transparency of the data and delivery process.

Online Services includes the options of technical bulletins, interactive manuals, advisory services and service history. Through the service it is possible to view spare part prices and availability, make RFQs and purchase online, as well as track and trace the deliveries. The options also include registering warranty claims for new equipment deliveries and follow-up resolution progress as well as creating a request for technical support.
Ensuring your lifecycle operations

Wärtsilä is an experienced operator, with a proven track record in operation and maintenance services since the 1990’s. Globally, more than 19 GW of generating capacity in both marine and land based installations – a total of more than 490 installations – is covered by Wärtsilä’s service agreements.

Wärtsilä offers four types of standardised agreements, ranging from complete asset management solutions to maintenance and technical management as well as supply agreements. However, all agreements are customised to fulfill each customer’s specific needs.

Want to know more?
Please contact us:
• www.wartsila.com/services