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CASE WALLEM: BLENDING ON BOARD REDUCES LUBRICATION COSTS FOR BULK CARRIERS

Ralf Veigel
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Today, the main engine of a vessel should have highly flexible operational capabilities, while, at the same time, maintaining high reliability. Versatility, in terms of the operational load and different fuel oil qualities of the engine, affects operational costs. Wärtsilä's Blending on Board (BOB) solution optimises the overall lubrication performance of large bore diesel engines.

– Wärtsilä gave us an attractive solution that addressed our need to adjust the lubrication oil, according to changing conditions, says Ralf Veigel, Fleet Manager at Wallem Group.

The Wallem Group delivers maritime solutions. It enhances and protects its clients' assets with its vast collective knowledge, experience and expertise. Established in Shanghai in 1903 by Haakon Wallem, the company today is one of the world's largest providers of maritime solutions, within the fields of Ship Management, Ship Agency, Shipbroking, Commercial Vessel Management and Freight & Logistics. The Group has 400 vessels of different types currently under management, a pool of 12,700 qualified seafarers worldwide, and offices in 47 countries.

The 81,681 DWT bulk carrier MV Belo Horizonte, operated by Wallem and owned by AO Schiffahrt, sails worldwide. The ship takes on cargo, where it is available, frequently calling on ports in South America, and also Singapore, but mainly there for bunkering.

The Belo Horizonte is equipped with a two-stroke diesel engine and, every so often, operates with high sulphur fuel, under harsh conditions and different engine loads. The crew manages these conditions by regularly measuring the residual BN-value and adjusting the feed rate, according to the engine manufacturer's recommendation.

– As we were using the recommended regular measurements of the residual BN-value, a flexible system to provide the right BN-value of the lubrication system attracted great interest. Up till know, we have only been able to adjust the feed rate or, where possible, use a second lubrication oil, says Ralf Veigel.

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Challenges	Solution	Benefits
– Optimising lubrication by flexible adjustment of the BN-value for different engine running conditions	– Installing Blending on Board (SEA-Mate® Blender), with system oil and additives, allowing a closed loop lubrication by measuring the residual BN-value of the piston underside oil	– Reduced lubrication feed rate – Reduced costs for lubrication oil – Avoidance of cold corrosion – Less separator discharges, thus, additional savings

ADJUSTING THE CONCENTRATION OF ADDITIVES

The main purposes of cylinder lubrication is to build an optimal oil film for piston running, neutralising sulphuric acid from fuel combustion, and cleaning. A technically and commercially favourable alternative to the traditional measures is to maintain the cylinder oil feed rate at the most optimal level, under almost all operational conditions, while, simultaneously, adjusting the cylinder oil’s properties to the actual conditions.

This is exactly what is achieved with the BOB concept. The concept is to keep the cylinder oil feed rate constantly low, while adjusting the concentration of the additives in the oil. This results in a wide base number range, from 40BN to 120BN.

– Wärtsilä’s Blending on Board solution was attractive, as the system addresses the need to adjust the lubrication oil, according to the changing situation, including the engine load, fuel and environmental conditions, says Ralf Veigel.

Wärtsilä’s scope of supply included the delivery and installation of the BOB system SEA-Mate® Blender, consisting of a blender with a blender control panel. Installation of the system is relatively simple and can be done without interrupting the vessel’s commercial operations. The pre-inspection of the engine system took place in Singapore and the installation of the system was performed in South Korea in December 2013. The solution has been designed in a modular way, in order to allow easy installation, and is compact enough to be placed in the engine room.

– The time between pre-inspection and the installation was less than six weeks. The installation, including piping and necessary tank adaptations, could be carried out during a port stay of the vessel, which is quite an achievement. Thanks to the close cooperation between Wallem and Wärtsilä, the challenges, such as the short time, the organisation and transportation of the goods, did not affect the installation work, states Ralf Veigel.

REDUCED COSTS FOR LUBRICATION

With a BOB installation, the used system oil is transferred from the main engine, and, optionally, also the auxiliary engines, and is then blended with a specially formulated cylinder oil additive. The result is cylinder oil for the specific operating conditions of each vessel, thus reducing a vessel’s lube oil consumption by 10%-50%, depending on the currently used feed rate.

To reduce corrosion, Wärtsilä and other engine designers recommend increasing the cylinder lubrication oil feed rate or the use of different lubrication oils. However, with the BOB equipment in use on a vessel, the reduction in corrosion can be achieved by adjusting the BN of the lubricant, and not by increasing the cylinder oil feed rate.

Wallem’s experience with the BOB solution has been very positive, so far.

– We have been able to optimise the lubrication, reduce the feed rate and stabilise the piston running, says Ralf Veigel and continues to highlight the benefits that Wallem has gained through this installation:

– We have optimised the piston running, achieved flexibility and, most importantly, reduced the costs concerning lubrication.

VALUABLE TECHNICAL SUPPORT

Mr. Veigel says that Wärtsilä has been supporting his team throughout the installation and also when using the system. He points out that there has been a mutual exchange of open and trustworthy information already before the installation, which supports Wallem’s aim to reduce the lubrication costs.

– Part of this successful product is a close cooperation with Wärtsilä and having a fast and direct contact to their technical know-how. This is, especially, relevant for newly introduced products. If a ship operator requires flexibility and runs the engine at low loads with different fuel qualities, I would, without doubt, recommend installation of the Blend on Board system, concludes Ralf Veigel.

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