A modern solution to a modern dilemma

Operational costs are rising, oil prices are soaring and concerns over the environment are growing. So where does that leave the ship owners?

The dependence on oil poses a big dilemma for shipping companies. It is fast becoming an unsustainable resource both from an environmental and economic point of view. Oil prices are soaring, adding further pressure to ship operating costs, while the carbon footprint left by the shipping industry is showing few signs of getting any smaller.

The dilemma lies in the lack of feasible alternatives. The vast majority of ships are reliant on oil for fuel and for lubrication. And while the former problem may be alleviated eventually by green ship technology, the latter is always likely to remain. So where does that leave the ship owners?

Typically ships with smaller engines carry out oil drains at 500 hours, replacing it as per manufacturers recommendations or when it has become contaminated with combustion products or fuel, and often without analysis. Naturally this is very expensive, not to mention damaging for the environment – an engine running only 4,500 hours a year would be subject to nine oil changes, at great cost to the environment and the ship owner, and potentially to the engine if proper analysis isn't carried out.

Reducing this cycle to just twice a year may seem like wishful thinking, though it is something that MarShip UK is able to do in the shape of its EDI Lube Oil Purifier, a system so unique that it may just revolutionise the way your ships use oil.

The EDI is to the oil what the kidney is to the blood, according to MarShip UK's Peter Weide, a former Chief Engineer with CP Ships who has more than 30 years experience in the industry.

'If you fit an EDI you're cleaning and purifying the oil, firstly filtering it to one micron, then passing it through an evaporation stage to remove gaseous acids and fuel,' he says. 'The EDI is a clear two stage system; it is not just a filter.

Peter Weide

'The oil that is sitting in the engine doesn't get cleaned,' says Peter. 'It does have clever additives that hold the muck and dirt in suspension, which is where some oils are better than others. Consequently the oil gets saturated with these contaminants and has to be changed. If you have something that can take the dirt out you can make your oil last longer. That's where the EDI comes in.'

QUALITY WITHOUT COMPROMISE

The result is lube oil that is extremely clean and subsequently better for the engine. That means that oil drain can be extended by up to four times or more, with additional savings on engine oil filters. This life extension means a saving for the ship owner and the ability to perform a monthly analysis on the oil that can indicate otherwise undetected problems with the engine. It is conceivable that with high quality or synthetic oil in an engine fitted with an EDI purifier the oil will last many thousands of hours between oil changes.

'Essentially, the EDI system is improving the engine's lifespan, which is arguably where its real value lies'

When the EDI arrives on board the engineers are advised to change the oil then fit the system. At 250 hours (if the vessel had been working to 500 hours) engineers are then advised to change the filter because it will have cleaned the engine and the filter will have become blocked (a spare filter is included). At the 500-hour mark, when the oil would normally have been drained, samples are taken, and repeated every 100 up to 2,000 hours, or to an agreed target. Following each sample an analysis report is emailed to the Superintendent and the vessel if required. That's included in the package.

'Month on month we'll be able to spot trends,' Peter adds. 'For example, we'll be able to see if there's copper, tin or lead in the oil indicating bearing wear, or if there's Iron which can indicate problems with the Cylinders or if the oil contains aluminium, which can indicate a problem with the pistons for example. If you take your oil out at 500 hours you won't get that.'

Payback, protection and peace of mind

Essentially, the EDI system is improving the engine's lifespan, which is arguably where its real value lies. By installing the system on a new vessel you're protecting new parts with better, cleaner oil, giving it a head start.

With an older vessel there's an even greater need to install an EDI because it has greater bearing wear and especially soot ingress – and that's one of the main reasons engines have to be overhauled. If you can remove the contaminants from the oil then you can decrease damage to the bearings and thus reduce the need for an overhaul.

So, how much does this cost? Well, not as much as you'd think. The cost and the associated savings are demonstrated, in a proposal MarShip UK submitted to a client.

In this example we have a CAT 3508 engine that is operating 4500 hours a year. The number of service intervals in this example is nine, so you're changing the oil and filters

nine times a year.

The total cost for each change is £1,010, so over the course of the year is £9,090. The cost of two EDI purifiers is £1,782. This reduces the number of service intervals to an average of 2.3 a year. To change the oil using an EDI it costs £1,236, a total cost for the first year of £4,563 that includes the units. Essentially, the ROI is within two oil changes. Using the example above, years two to five produce greater savings – around 69% or £6,309.

'What I like about this product is that it's simple,' Peter says. 'It's just a filter and a chamber with a heater, nothing fancy. It is widely paraphrased that "oil is the life blood of the engine" - if you consider the oil to be the blood then the EDI is definitely the kidney. In the marine industry, £1,700 isn't a lot of money for something that is as effective as this. Rarely do you get a product that gives you pay back in two oil changes or measured in a couple of months.

'Some customers will say they don't want to take the chance of having an extended oil drain. But Caterpillar for example recognise extended oil drain through their CSA program and better quality oil, ExxonMobil also makes a long drain oil, and that oil is more expensive than their normal oil because it contains better additives that extends its lifespan.

'What they don't have is something to take the contaminants out, just handle them better. If you have something to take the contaminants from the oil and allow it to do its job it will last a lot longer.'

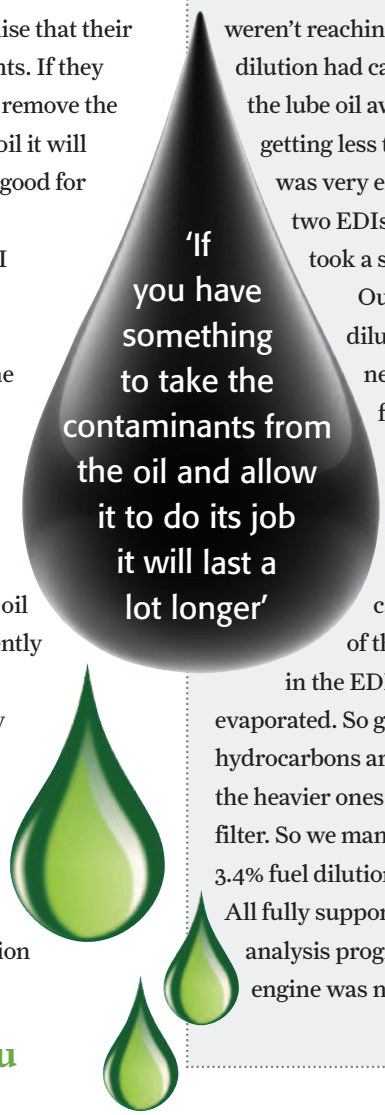
A brighter, cleaner future

Over the next 18 months MarShip UK will be working closely with the marine industry to further integrate the EDI system and its benefits. The company is installing the EDI on catamarans that use 20RK270s, and have installed on RoRo's while the process to get type approval with Lloyd's Register is underway. Elsewhere, Peter says he's working hard to go into partnership with a number of oil companies and pushing the environmental credentials of the EDI system.

'We're interested in going into partnership with lube oil companies. We want them to talk to their customers. The oil companies recognise that their oil is prone to contaminants. If they can use a system that can remove the contaminants from their oil it will last even longer, which is good for their customers.

''Above all else, the EDI system is one of the most environmentally friendly products you can get at the moment. If you're extending your oil drain by four times, you're extending the life of your filters by four times, you therefore don't throw the oil and filters away as frequently so the impact on the environment is ultimately very positive.'

A product that saves money while saving engines and the environment? I think we may have found the solution to our dilemma.



Contact Marship UK via sales@marship.eu

CASE STUDY:

Meridian Marine - Fuel Dilution

Marship UK installed two EDI filters on The Humber Viking for Meridian Marine Management to solve a fuel dilution problem.

'The Lub oil in this case had serious fuel dilution problems,' says Peter. 'This meant that the fuel had got into the lube oil. The lube oil has a certain viscosity and the fuel has a much lighter viscosity. This makes the lube oil very thin.

'In this case the client was supposed to drain the oil every 250 hours. They weren't reaching 200 hours before the dilution had caused them to throw the lube oil away. So they were getting less than 200 hours, which was very expensive. We installed two EDIs, changed the oil and took a sample.'

Our results showed the dilution of 3.4% on brand new oil. 'The residual fuel caused that in the systems and pipes,' Peter adds. 'We started the process and the fuel dilution came down. Because of the evaporation effect in the EDI the fuel is being evaporated. So gradually the lighter hydrocarbons are being burnt off while the heavier ones are being caught in the filter. So we managed to take it from 3.4% fuel dilution to 0 after 1000 hours. All fully supported with our oil analysis program to ensure the engine was never compromised.'