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King Fisher Marine Improves Reliability with Lubricant Upgrades

By Equipment Manager Luis Garza of Kingfisher Marine



For more than fifty years, Kingfisher Marine Service has been the leading dredging company on the Texas coast. Every year, we create and maintain hundreds of miles of waterways and dredge millions of cubic yards of material for the U.S. Army Corp of Engineers, municipal port commissions, and other public and private customers. We have earned a reputation from excellence, expertise and ingenuity by doing the toughest jobs on time and on budget.

I have been the equipment manager at King Fisher for the past eight years and have the responsibility to improve reliability and lower operating costs. During this time, we have implemented a number of changes to achieve this goal. An important part of these savings was achieved by upgrading the quality of our lubricating oils along with ongoing used oil analysis in our critical equipment.

King Fisher has been using some of Royal Purple's high film strength synthetic lubricants since 1992. The first application was on the dredge Leonard M. Fisher. A Lufkin gearbox was howling and the temperature was running at 195 degrees F. Royal Purple Synergy Gear Oil was installed; and after about 48 hours, the temperature dropped to 130 degrees F. and the howling noise disappeared within a short period of time. The gearbox operated for two and a half more years without incident.

The second application was on the booster barge #1 when a pump shaft bearing began to run so hot that the operator began to run water on the housing to try to cool the bearing. In an attempt to avoid shutting down in the middle of a job, the decision was made to change the oil to Royal Purple Synfilm 100 in hopes it would bring the temperatures down. This worked. The pump ran for 31 more days to finish the job and then for 60 more days on a new job before coming in for repair. Upon disassembly, the 8-inch journal bearing fell in half. From that point on, we have, insisted on the use of Royal Purple Synfilm 100 in all main pump bearing stands. The oil's high film strength does an amazing job of protecting the main pump stand roller bearings.

However, there was an incident where the oil pump failed on a 2,000-HP Fairbanks engine using Royal Purple motor oil. The engine was run until it ultimately seized. Amazingly, there was no damage to the crank shaft and no welded components or discoloration in the engine.

King Fisher runs its engines hard, virtually 23/7. We

were changing a major brand marine engine oil and oil filter every 15 days (350 hours). To determine whether improved lubrication could help our engine operations, I decided to incrementally try lubricant upgrades and monitor the results carefully with used oil analysis. Over a year, I learned that we could safely change filters monthly and change the oil once every three months (every 2,100 hours). Oil analysis indicated that this six-fold increase in drain intervals was conservative. We saved money by buying and disposing of less oil and filters but also by eliminating the liability of transporting and changing oil over water.

Additionally, we found that the engine oil upgrade significantly reduced engine repairs and replacements. Engine turbocharger life used to be about 6 months at a cost of \$800-\$1000 per incident. Now we haven't replaced one a turbocharger in over two years. We previously replaced 8-9 engines a year. Since upgrading our lubricants, we have only replaced 7 engines in the last three years. We have also reduced the temperatures in the reduction gear boxes. Clutches, which used to fail yearly, cost between \$10,000-\$12,000 for just the clutch and an additional \$20,000-\$30,000 for major damage. We have now gone two years with no clutch repairs in the three boats where this was a problem.

Additionally, since upgrading our engine lubricants, even the failed engines are extremely clean upon disassembly. We recently broke a fuel line on an engine causing the crankcase to fill with diesel fuel until it was spitting out of the breather. We drained the crankcase, repaired the fuel line and refilled the engine with new oil and restarted the engine. It has been running normally now for over two months.

Our experiences have taught us that it is important to continually seek new products and technology to control costs and maintain the quality of service that King Fishers customers expect. Improving lubricant quality has proven to be significantly important to reducing maintenance costs and improving equipment reliability. My advice to anyone choosing to embark on a similar effort is to make sure you incorporate used oil analysis during your initial evaluation so that you are able to make an informed decision in establishing what the useful life of the new oil will be in your equipment.