# Synthetic Lubricants, Training, Optimize Equipment Maintenance

GKN Aerospace's largest U.S. manufacturing site, based in St. Louis, is a 1.7 million sq.-ft. under roof, 76-acre campus. The facility specializes in designing and machining large frame aerospace structures, components, and assemblies for aircraft and aero engine manufacturers. It was purchased by GKN plc in January 2001 from Boeing, one of GKN Aerospace's largest customers.

"Our goal was to turn, what used to be a Boeing feeder shop facility for many years, into a first-tier supplier operation," recalls Bart Weihl, senior director, engineering, GKN Aerospace. To achieve that goal, says Weihl, the company had to first change the business focus, and then the daily operational processes. "We had to transform ourselves using a lean manufacturing approach, all in an effort to become more efficient."

### Inventory Management and Lubrication

When Weihl and his team set about improving their operational costs and efficiencies, it quickly became clear what their primary task was: to optimize GKN's lubrication program. To control their inventory of greases and lubricants, Weihl tapped Wallis Lubricants, a nearby St. Louis-based distributor of ExxonMobil products in early 2002. According to Wallis Lubricants account manager John Koch, "drums of oil and greases clogged the GKN centralized oil house." At the time, Koch said, GKN was using 25 different lubricants and more than 12 different grease types.

For Weihl and his team, the excess inventory posed two critical problems. “First, it took up a lot of valuable space,” says Weihl. “Also, many of the oil and grease barrels looked similar, and that caused confusion. With all those barrels stacked together we had to search each barrel for the label of the right product. That resulted in us having multiple open containers of the same product.”

From an inventory management standpoint, it was a major problem, according to Weihl. “We used so many greases and lubricants that were only suitable for very

limited and highly-specific applications. “Since we operated by buying everything in bulk, we often had an oversupply of those greases and lubricants, appropriate only for very specific applications, and had too little of the products that we needed more frequently."

To address these issues, GKN worked with the Fairfax, VA-based ExxonMobil, and Wallis Lubricants. The team conducted a series of data and equipment audits and oil analysis. The audits and resulting data, according to Stephen Foote, sales engineer, ExxonMobil Lubricants & Specialties, "clearly showed that GKN needed a better system of inventory and purchasing controls and would benefit from a more streamlined product mix. Using high-quality synthetic oils would make the most economical sense for GKN," he says. "It was critical that we recommended the correct number and type of lubricants."

Compared with conventional, mineral lubricants, synthetics deliver much greater protection, oxidation, and thermal stability, over extended time intervals. This was just what the 250 pieces of equipment at GKN needed. "Based on the results of the audits and the recommendations of Wallis Lubricants and ExxonMobil, we decided to increase the number of ExxonMobil's synthetic oils we use," Weihl says. "With synthetics we have found that they not only work better across a broader range of applications for our needs but they also deliver much better protection for our equipment."

Working with Wallis Lubricants, Weihl and his team dramatically reduced the amount of inventory on site. Floor space associated with lubricant storage has also been reduced by up to 90 %. GKN is currently working to return the additional factory floor space to production. "Today, GKN relies on a range of premium and synthetic oils, such as Mobil DTE 25 hydraulic oil, to help extend equipment life and enhance performance," Foote adds. Moreover, the oil drums that used to clog the GKN centralized oil house are a distant memory, replaced by seven point-of-use (POU) sites, where lubricants and greases are available for equipment. Wallis Lubricants currently monitors the inventory of GKN's POUs twice per week. In accordance with GKN's specific lubrication needs for that week based on Wallis' inventory report, deliveries are scheduled.

Although better management of their inventory costs and reducing the plant space devoted to storage was an important first step for Weihl and his team, more needed to be done. Specifically, GKN wanted to educate their maintenance professionals to be adept at critical items, such as conducting oil analysis. To educate plant

personnel, Wallis and ExxonMobil conducted hands-on training classes on three key factors:

&#149 How to conduct oil analysis;
&#149 How to use and select the correct lubricants; and,
&#149 How to properly store and handle lubricants.

According to Weihl, the success he and his team have had in training their maintenance experts and enhancing their inventory management for grease and lubricants is another key "step in our ongoing efforts to generate continuous process improvements." According to Koch, more than two years later, after implementing training and the recommendations from Wallis, Weihl estimates that the company has easily saved more than $60,000 in total lubrication, maintenance, and lubrication inventory handling costs since they began working with ExxonMobil and Wallis Lubricants. "This system is a win-win as GKN has substantially reduced its inventories on-site," he says. "We have substantially reduced the emergency deliveries due to stock-outs, and we have optimized our deliveries to GKN in accordance with the distribution routing system."

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