

**APPLICATION**  
Gearboxes

# LE Drastically Reduces Gear Oil Usage with New Program

**TESTIMONIAL**  
Lubrication Engineers, Inc.

## CHALLENGE

Expensive, time-consuming annual oil changes

## SOLUTION

Lubrication reliability program & condition-based maintenance

## RESULTS

- Extended oil changes by at least 7 years
- Reduced annual oil use in 4 gearboxes from 61 to 0 gallons
- Saved significant amount of money and time

## Company Profile

A leader in lubricants since 1951, Lubrication Engineers, Inc. manufactures and markets high-performance lubricants formulated from highly refined base oils and proprietary additives. LE also offers a full line of lubrication reliability products and services, including solutions for oil analysis, storage, handling & transfer, contamination control, and training. LE's 200,000-sq-ft manufacturing facility and technology center is in Wichita, Kan.

## Application

LE uses several grease kettles to manufacture its premium greases. If it takes more than six hours to get parts and fix a kettle gearbox, production time is adversely affected, which could impact LE's ability to meet customer needs. Two of LE's kettles – K4 and K11 – are the focus of this testimonial. The K4 grease kettle has a 5,000-lb capacity and is driven by two U.S. Motors gearboxes – one with 8-gallon oil capacity and one with 35-gallon capacity. The gearboxes are approximately 40 years old as of 2016. The K11 grease kettle has a 15,000-lb capacity and is driven by two Hansen gearboxes – one that holds 6 gallons of oil and one that holds 12 gallons. These gearboxes are five years old as of 2016.



## Challenge

The LE maintenance team was changing the oil in all of its gearboxes every year, regardless of need. This was expensive and time-consuming.

## Results

In the seven years since these changes started taking place, LE has reduced oil consumption on the four gearboxes from a total of 61 gallons per year to zero gallons – a total of 427 gallons so far. Oil analysis has provided peace of mind that the oil remains contamination-free and in like-new condition.

“In all of this time, the oil only dropped 3 centistokes in viscosity, well within OEM recommendations for an ISO 220 or 320 gear oil. It would have to drop 22 cSt before we'd consider changing it,” said Brett Rausch, maintenance technician. “Now we can just plug in the filter cart and walk away. No more changing oil. It used to take us half a day to change the oil.”

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***“We decided to clean our lubricant better – using filtration and other reliability tools – instead of just changing it every year,” said Mario Serrano, maintenance supervisor.***

### **LE Solution**

In 2009, LE officially started its new lubrication reliability program, transitioning from interval-based to condition-based maintenance. This meant treating the lubricant as an asset, instead of as a consumable, by keeping it clean and dry. The K4 and K11 grease kettles were among the first pieces of equipment to receive special attention. LE was already using its high-performance Duolec® Vari-Purpose Gear Lubricant in the gearboxes – 1605 (ISO 220) in K4 and 1606 (ISO 320) in K11 – so the goal was to extend the life of the lubricant while continuing to protect the equipment.

The main components of the new program were training, oil analysis, filtration and contamination control. First, LE sent its maintenance team to reliability conferences and put them through MLT I training classes. This helped the maintenance team become more knowledgeable about the equipment, the reason for the changes, and the goal of the program. Next was the Xpert™ Equipment Reliability Assessment – a lubrication survey that covered the entire plant and identified every lube point. Next, they focused on oil analysis and began using it more intentionally to find out if they could extend oil service life. They started doing it in a way that gives better, more repeatable results.

“Now, when we draw our samples we always draw from the same place, using Xamine™ sample ports,” said Brett Rausch, maintenance technician.

They also started filtering the oil annually using new Xtract™ filter carts. They experimented with filter micron size and number of passes through the filter until they found what worked best to reach their ISO goal of 17/16/13. They implemented contamination control tools such as Xclude™ desiccant breathers, Xtract™ sight glasses and Xpel™ color-coded tags and labels. Finally, they installed Lube-It® lubrication management software on their computers and mobile devices to keep track of their new sampling and service schedule.

*Thank you to Brett Rausch, maintenance technician; Mario Serrano, maintenance supervisor; and Darren Booth, VP of manufacturing operations, for providing the information used in this report.*



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### **Results (cont.)**

In addition to reducing lubricant usage, the need to dispose of waste oil has been eliminated, and maintenance hours have been freed up to perform more proactive maintenance in other areas of the plant. This has led to a positive impact on LE’s bottom line, as well as improved job satisfaction for employees.