Reliability Program Maximizes Gearbox Life

The number one cause of failure in any mechanical application is contamination. Every industrial plant has a sizeable investment in both its equipment and the lubricant that is purchased to protect that equipment, so it only makes sense to protect these assets. A good lubrication reliability program in place to prevent contamination will protect the equipment and the lubricant, which in turn will eliminate or greatly reduce unscheduled downtime as well as increase profits.

Some of the common suffering points for gearbox applications are oil foaming, overheating, and emulsification – all caused or aggravated by use of the wrong oil for the application; and contaminant ingression that leads to lubricant failure and mechanical wear.

All of these suffering points can be solved by implementing the following six lubrication reliability best practices for gearboxes.

Best Practices for Gearboxes

1. Install desiccant breather
2. Install sight glass
3. Select and use the right high-performance gear oil for the application
4. Implement oil analysis
5. Filter to 17/16/13 cleanliness code
6. Implement color-coding & tagging

At LE, we implemented these six best practices on our own gearboxes. Prior to that, the LE maintenance team was changing the oil in all of its gearboxes every year, regardless of need – an expensive and time-consuming task.

Since we implemented these six solutions more than eight years ago, we have not changed our oil a single time, and we have had no lubrication-related downtime. In fact, the oil is nearly ageless, providing the same asset protection today as the day it was added. This has significantly reduced our maintenance, repair and lubricant costs, and freed up our maintenance team to engage in more proactive reliability activities.

Components of an Effective Gearbox Lubrication Program


Breather


Sight Glass


Gear Oil


Oil Analysis


Filter Cart

Color-Coded Labels

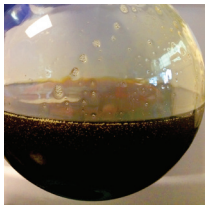
Identify the suffering points

Move forward with proven solutions for extending equipment life

Oil Foaming, Overheating & Emulsification

Some gear oils foam and lose performance in the presence of moisture. Some gear oils are not able to maintain film strength when subjected to heavy loads, air or high temperatures. In this way, inferior or incorrect gear oil can lead to unnecessary wear and unplanned downtime. While OEMs recommend the viscosity and whether an EP package is needed, other important performance properties are often ignored. Thermal stability, oxidation resistance, demulsibility, resistance to foaming, friction reduction, shear stability, tackiness, and film strength stability are all critical factors for gear oils.

LE Solution: Work with your local LE lubrication consultant to choose the high-performance gear oil best suited to your application. LE gear oils are designed to combat the effects of high temperatures, water, contaminants and heavy loads. These long-lasting, nonfoaming, shear stable, superior quality oils with anti-wear and/or EP additives will maximize equipment life:



- Duolec® Industrial Gear Oil (1601-1610, 1302, 1304)
- Duolec® Syn Gear Lubricant (9808-9868)
- Duolec® PAG Gear Lubricant (9705-9707)
- Monolec® Syn Gear Oil (9919 & 9923)

Contaminant Ingression

Gearboxes, pumps and reservoirs have to “breathe” when the air expands and contracts, as well as when incoming fluid displaces air. Each time a unit breathes in air, it brings with it all sorts of small debris and moisture. This can be damaging to the lubricant and to the equipment. Water-contaminated oil can lead to additive stripping, and eventually the water can cause corrosion and rust. Particulates as small as three microns (the diameter of a single human hair is 40 microns) can cause machine abrasion. All of this can lead to costly repairs.

LE Solution: Use Xclude™ Desiccant breathers to stop water and particulates from contaminating the lubricant in the first place. From the time oil enters your facility to the end of its useful life, protecting it with breathers will extend the life of the oil and the equipment, decrease downtime, and provide significant cost savings. Desiccant breathers use filter media to remove particles and a silica-gel desiccant to remove moisture from the air entering the oil.

- Xclude™ Standard Breathers
- Xclude™ High Humidity Check Value Breathers
- Xclude™ High Humidity Expansion Chamber Breathers

Lubricant Contamination

The presence of solid particulates and water deteriorates the ability of the lubricant to properly protect the equipment. When lubricating fluids become contaminated, it may be necessary to dispose of the fluids and replace with new oil. Many maintenance operators base this replacement on a routine interval-based approach.

LE Solution: Routinely filtering the oil is a simple, proven and effective way to extend the life of the oil and to protect the equipment. Understanding, achieving and maintaining the right ISO cleanliness standard for gearbox applications can extend the life of the oil by two to three times. Combined with an oil analysis effort, these condition-based activities will increase uptime and decrease costs.

- Xtract™ Portable Filter Carts
- Xtract™ Portable Drum Toppers
- Xtract™ Dedicated Panel Units
- Xamine™ Basic Industrial with PQ Oil Analysis
- Xamine™ Advanced Industrial Oil Analysis

Full Circle of Reliability

Armed with knowledge of best practices and all of the necessary tools to get the job done, your local LE lubrication consultant will help you plan and implement a world class lubrication reliability program to protect your assets.

LE Enhanced Lubricants

Xpert Services

Xpert Training

Xpert Equipment Reliability & Assessment

Xamine Oil Analysis

Xclude Contamination Exclusion

Xclude Breathers

Xtract Contamination Removal

Xtract Oil Sight Glasses

Xtract Filtration

LE's state-of-the-art manufacturing facility, technology center, warehouse and primary office is located in Wichita, KS, with regional distribution out of Knoxville, TN, and Las Vegas, NV. Additional support functions are located in Fort Worth, TX. The company's international presence includes distributors in more than 60 countries.

LE Helps Protect Your Equipment & Grow Your Bottom Line

Leaders in Lubricants Since 1951

Lubrication Engineers, Inc. is the total solutions provider for lubrication reliability. We work closely with our customers to learn about their specific equipment and lubrication needs, and then help them create a world class lubrication reliability program that provides equipment protection and enhanced profits.

We start with an onsite equipment assessment. A trained, local lubrication consultant provides a detailed report recommending lubricants, application methods, usage amounts, and drain or lube intervals.

LE's line of high-performance lubricants – manufactured in the U.S. and made of highly refined base oils and proprietary additives – far exceed the performance of conventional lubricants in a wide variety of industrial and automotive applications. In addition, your LE consultant can offer you several other best practice products and services to ensure the effectiveness of your program, including solutions for oil analysis, storage, handling and transfer, contamination exclusion, contamination removal, education and training.

Does your lubricant supplier do all of this?

- ✔ Professional, onsite equipment reliability assessment
- ✔ Comprehensive lubricant line (industrial oils, engine oils and greases)
- ✔ Web-based oil analysis, with results reviewed by experts
- ✔ Storage systems, including stackable bulk units
- ✔ Visual identification, including tags, labels, color-coding and wall charts
- ✔ Handling and transfer equipment, including portable transfer containers, clear grease guns, grease pumps and lube reels
- ✔ Single- and multi-point automatic grease lubricators and lubricating systems
- ✔ Contamination exclusion and removal tools, including oil reservoir sight glasses, desiccant breathers and filtration equipment
- ✔ Local, factory-trained specialist available 24/7

LI10022 03-17, rev. 06-21

1919 E. Tulsa • Wichita, KS 67216 • Fax: 800-228-1142
LE operates under an ISO 9001 Certified Quality System.

www.LElubricants.com • 800-537-7683