



Preparation of Gearbox Reservoirs for LE Gear Lubricants

In order to obtain the optimum performance from LE's Duolec®, Almasol®, Monolec®, Multilec® and H1 Quinplex® gear lubricants, it is necessary to properly prepare the enclosed gear reservoir.

The following procedure is recommended for gearbox preparation before filling with LE gear lubricant. These steps should be taken in every case before changing to LE gear lubricants and are especially important where foaming has been a problem or in applications involving use of LE gear oils far beyond the manufacturers' recommended drain intervals.

9-Step Gearbox Preparation

1. Drain oil presently in the box as completely as possible while the unit is still warm. This helps remove contaminants and oxidized oil which may impair performance of LE gear lubricants. If contaminated oil remains in the gearbox, foaming may occur.
2. Do not use a volatile, chlorinated solvent or solvent-type flushing compound to wash out the gearbox. Any solvent trapped in the voids of the reservoir will cause corrosion. Also, the presence of even a very small amount of solvent-type flushing compound will reduce the viscosity of a gear oil. Further, without a coating of oil for even a short time, rusting of internal parts of the gearbox can take place.
3. To properly flush the gearbox, use the LE gear lubricant that will be going into the gearbox or a light viscosity of LE's Monolec® R & O Compressor / Turbine Oil, filling to the recommended operating oil level so that oil can be safely circulated through the system. Circulate under no-load conditions for 15 minutes and drain.
4. If the used gear oil has oxidized badly with a dark color, burned smell, and is thick and slow to drain, use a light viscosity of LE's Monolec R & O Compressor / Turbine Oil. Fill to the recommended operating volume and circulate under a no load condition for 10 minutes, then drain completely and refill to the recommended operating volume, operate 15 minutes under a no load condition and drain.
5. Gear sets, motors, pumps and other internal parts of the oil reservoirs on newly installed equipment are usually treated with rust preventatives by the manufacturer before shipment. Remove such rust preventative materials before charging with operating gear oil. Use the flush procedure explained in Step 3 to remove rust preventatives, manufacturing debris, metal chips and other debris.
6. Remove and clean or replace gear oil filters if present in the system.
7. If there is a vent plug, clean it and reinstall it correctly. Or, replace with a desiccant breather if appropriate.
8. When working with enclosed gearboxes or oiling systems which do not have a drain or circulating system, the used oil and flushing oil should be removed by suction. DO NOT pressurize the gearbox to remove oil; this will result in seal damage. Some gearboxes have reinforcing ribs on the bottom; be sure to allow for them when suctioning to remove the old lubricant.
9. Recharge the gearbox reservoir with the proper LE gear lubricant. Be careful not to overfill because this can cause foaming.



Service Life of Gear Oil

Any statement regarding the service life of gear oils should include information regarding operating, environmental and mechanical conditions of the equipment. Even in the best of situations, gear and circulating oils will not last indefinitely. Therefore, from the standpoint of both service and economy, gear oil should be removed and replaced with fresh lubricant when the oil has deteriorated or when the oil has become contaminated.

When severe operating conditions are present, change intervals may need to be shortened. Examples of severe gearbox operating conditions are:

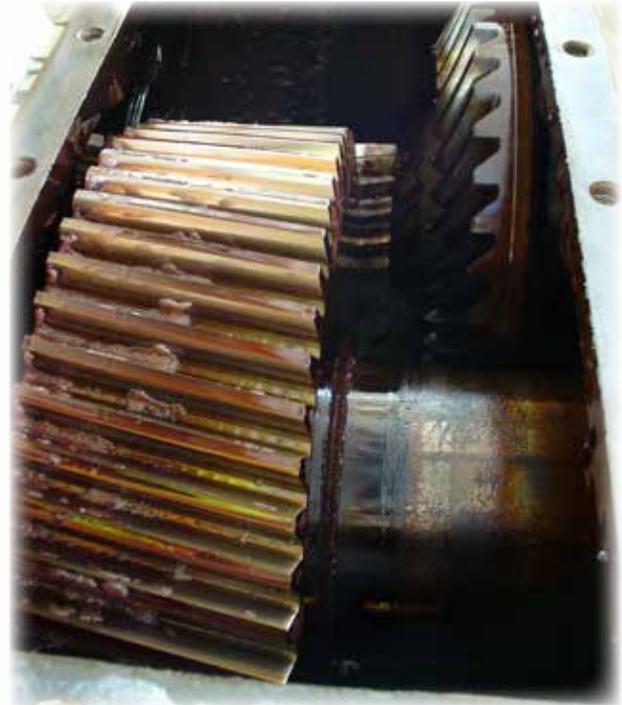
- Rapid fluctuations in operating temperatures, high speeds, heavy loads or shock loads
- Any operating environment which causes condensation inside the gear case or oil reservoir, resulting in formation of sludge and causing the gear oil to foam*
- Operation in moist or dusty environments or where chemical fumes are present; in such instances, set change intervals accordingly*

*Desiccant breathers with particle traps will greatly reduce these problems.

Oil Changes for New Gear Cases

Gear oil changes as needed are critical during the first few weeks or months of operation of gear cases. Rather than setting arbitrary change intervals, the operator should regularly monitor the condition of the oil to determine stability of the gear oil. After checking for dirt, metals, water, acid number and viscosity, the operator can determine when the oil reservoir needs cleaning.

When convoluted gears or meshing gears of different metals are encountered, oil changes and an inspection of the mechanism are essential. As these gears set themselves, bronze particles may adhere in the steel worm gear resulting in abrasive wear. Removing used lubricants and cleaning worm threads will often prevent further wear.



To obtain maximum service life with all of LE's gear lubricants, careful inspection and proper cleaning of all types of gear sets is imperative.