



## EPRI (Electric Power Research Institute) Lube Notes

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The following are Lube Notes items that could be of interest to users of MOV Long Life, MOV Extra and VSG greases as well as users of the phosphate ester based Turbofluids.

### MOV (Motor Operated Valve) Applications

**High Temperature Grease Evaluation**, NMAC Lube Notes #1, December 2006.  
*Summary: For a MOV stem application compared Mobilgrease 28, Darina SD, Rheolube 797, MOV Long Life Grade 2 and DC 44. MG 28 was rejected because of early stiffening. MOV Long Life said to retain oil better, has better oxidation stability and consistency retention.*

**Comparison of Roller Bearing Greases**, NMAC Lube Notes #3, December 2006.  
*Summary: Compared Alvania, Premium RB, Polyrex EM and MOV Long Life Grade 2. It was said that MOV Long Life will prove to be superior in antirust and that it had significantly higher weld point and load carrying ability.*

**Substitution of MOV Long Life for Mobilgrease 28 in MOV Limit Switch Gearboxes**, NMAC Lube Notes #4, December 2005. It was said that there was little to choose between the two greases. MOV LL is superior to MG28 in remaining soft after thermal exposure while MG was more oxidatively stable. MOV LL was qualified.

**Grease Compatibilities – Mobilplex 47/MOV Long Life, Mobilplex 47/Mobil-Grease XHP, Mobilplex 47/Mobilux EP**, NMAC Lube Notes #5, December 2005

**MOV Stem/Stem Nut Lubrication – Rate of Loading and Temperature Effects on Friction**, NMAC Lube Notes #7, December 2005. Twelve greases were evaluated and some did better in some tests while not others. MOV LL tented to be midrange for ROL and was somewhat higher than NEB. In terms of grease selection it was said that there would be no problem choosing MOV LL in place of Nebula.



**Grease Compatibility/Incompatibility**, NMAC Lube Notes #5, July 2004

**Compatibility of Actuator Greases: MOV Long Life vs. Unirex N2 and Mobilux EP.** NMAC Lube Notes #3, November 2003

**Bearing Grease Compatibilities: MOV Long Life vs. Mobiltemp SHC 100 and Andok B vs. Unirex N2 and Polyrex EM,** NMAC Lube Notes #4, November 2003

**Effect of Thickening on the Ability of a Grease to Lubricate,** NMAC Lube Notes #3, November 2003. *Note: This LN has the reference to use a Grade 3 as the normal change out point for Limatorque greases.*

**Easy On-Site Determination of Grease Thicknesses,** NMAC Lube Notes #4, November 2002

**Grease Compatibilities: Polyrex EM/Mobilux EP; Polyrex EM/Mobilgrease 28: MOV Long Life/Nebula EP,** NMAC Lube Notes #2, November 2001. *Summary: For MOV LL it was found to be compatible with NEP.*

**Replacing ExxonMobil Nebula EP Grease with Cor-Tek MOV Long Life – First EQ Results,** NMAC Lube Notes, November 2002. *Summary: MOV Long Life is equal to or superior to Nebula EP and was said to be a fine replacement for the now discontinued Nebula EP. The better MOV LL properties were said to allow extended grease changeout intervals, benefiting MOV actuator maintenance.*

**Cor-Tek MOV Long Life vs. Mobilgrease 28 and ExxonMobil Beacon 325 for the Limatorque Limitswitch Gearbox,** NMAC Lube Notes, November 2002. *Summary: It was said that MOV LL is much better than MG28 and B325 in heat/oxidation stability and antiwear and it does not attack copper. In short it was said to be a fine replacement for either of the competitive greases.*

**Replacements for Nebula EP Greases,** NMAC Lube Notes #3, November 2001. *Summary: It was said that the best candidates to replace the Nebula are the MOV's, calcium carbonate/sulfonate – (CCS) gelled, mineral oil-based greases. They can used in all areas of the actuator.*

**Limatorque MOV Actuator Lubrication: A Single Lubricant,** Lube Notes #3, July 1996. *Summary: This includes data on MOV Plus, a precursor to MOV Long Life. It was called a calcium carbonate sulphonate (CCS) grease.*

**Cutting Fluid Choices for Tapping Limatorque Bronze,** NMAC Lube Notes #1, July 1996

**Limatorque MOV Actuator Lubrication,** NMAC Lubes Notes #1, December 1996. *Summary has a list of the greases being used in the different SMB points. Interesting the use of pastes for the stems and not lubricants.*

**Grease Condition After 8,000+ Actuator Strokes,** NMAC Lube Notes, #1, July 1993



**Hardening of Nebula EP-Type Greases in Use**, NMAC Lube Notes #2, June 1992

**Motor-Operated Valve Stem Nut Wear**, NMAC Lube Notes #3, May 1990.

## Other Grease Applications

**New and Better Greases for GE Magne-Blast Circuit Breakers**, NMAC Lube Notes #7, November 2004. *Summary: Examined Mobilgrease 28, MOV Long Life, MOV Long Life Syn, Polyrex EM and Polyrex EP. MOV Long Life Grade 2 was found to be markedly better than MG 28 in thin film oxidation tests and the MOV grease shines in antiwear properties and looks good in corrosion tests.*

## Turbofluids and EHC Fluids

**Reducing Water Content with Dry Air Purge Systems**, Lube Notes #2, December 2016. Authored by K. Brown. *Summary: This shows some of the benefits of lower water contents and the ability to get down to a few hundred ppm easily.*

**Electrohydraulic Control Fluid Testing and Interpretation**, Lube Notes #4, December 2016. Authored by K. Brown. *Summary: Discusses the different tests, what they mean and some actions.*

**Electrohydraulic Control Servo Valve Maintenance**, Lube Notes #5, December 2016, Authored by K. Brown. *Summary: Discusses new vs. rebuilt and the importance of getting feedback in any case about the condition of the screen and of the internals.*

**New GE Specification for EHC Fluid**, Lube Notes #2, December 2014. Authored by K. Brown. *Summary: This lists the changes in the specification for new and in-service fluid and the changes to recommended condition monitoring. There are many more tests.*

**High Particle Counts in EHC Fluid**, Lube Notes #4, December 2014. Authored by K. Brown

**Turbine Oil Contaminated with Electrohydraulic Control Fluid**, Lube Notes #3, October 2009

**Fire-Resistant Turbine Lubricants**, NMAC Lube Notes #1, November 2003

**Resistivity of Phosphate Ester EHC Fluids**, NMAC Lube Notes #7, November 2000. Note: Also includes info on chlorine.

**Fluid Life in Turbine Electro-Hydraulic Control Systems**, Lube Notes #2, July 1996



## Lubricants in General

**Radiation Exposure Study on Modern Turbine Oils**, Lube Notes #2, October 2009

**Compatibility of New vs. Old GST 32 Turbine Oil**, NMAC Lube Notes #3, December 2005

**Air Release Problems with Newer Turbine-type Oils**, NMAM Lubes Notes #1, December 2005

**Lube Product Line Consolidations – Update**, NMAC Lube Notes #2, December 2005

**Importance of Testing Incoming Lubricants**, NMAC Lube Notes #4, July 2004

**Lube Survival After a LOCA**, NMAC Lube Notes #2, November 2002

**The Usefulness of Particle Counting in Oil Analysis**, NMAC Lube Notes #3, November 2002

**To Change or Not to Change (An Oil)?**, NMAC Lube Notes #6, November 2000. Authored by K. Brown. *Summary has an attempt to include all the various costs associated with an oil change. These can be 40X the cost of just the oil.*

**Checking Incoming Lubricants**, NMAC Lube Notes #1, October 1999

**Estimating Viscosities of Oil Mixtures**, NMAC Lube Notes #2, October 1999

**Lubrication Task & Antiwear (EP) Additives**, NMAC Lube Notes #3, July 1993

**Grease Compatibility/Incompatibility**, NMAC Lube Notes #5, July 1993

**Synthetic Oil-Based Lubricants**, NMAC Lube Notes #6, July 1993

**Maximizing Oil Changeout**, NMAC Lube Notes, July 1993

**Overgreasing Bearings**, NMAC Lube Notes #1, December 1991