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TECHNICAL BULLETIN

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SUBJECT: AUTOMOTIVE GEAR OILS

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UNDERSTANDING AUTOMOTIVE GEAR OILS

Hypoid gearboxes found in automobiles and heavy duty trucks require specialized lubrication. Oils designed to lubricate these components are loaded with extreme-pressure additives and are more viscous than other automotive fluids. They are relied upon to transfer a lot of power, usually run very hot, and have very long drain intervals. Consequently, choosing high quality gear oil is very important for the life of your gearbox.

GOING SYNTHETIC

While many heavy-duty applications still use mineral gear oils, synthetic gear oils are becoming the standard for passenger car axle gears and are seeing more use even in heavy duty fleet service. Synthetic gear oils show better resistance to oxidation, better flow at start-up, and better retention of viscosity at elevated temperatures. These characteristics are exceptionally important as service intervals get longer, sumps get smaller, and airflow across the axle is reduced by aerodynamics. There is also evidence that high quality, synthetic gear oils can provide modest improvements to fuel economy.

SHEAR STABILITY

As drain intervals and loadings have increased on hypoid axles, shear stability of axle oils has become increasingly important. While mineral oils are usually thickened with or mostly made of heavy paraffinic base oils, synthetic oils are typically lighter and must be thickened with polymers – some gear oils may be as much as 35% thickener. The thickeners required to satisfy the shear stability requirements are a premium in cost to those used in engine oils. Cheaper gear oils formulated with normal crankcase polymers are likely to quickly shear out of grade.

CHOOSE QUALITY

Regardless of your choice to use synthetic or mineral gear oils, be sure to follow your equipment manufacturer's guidelines for viscosity grade and service category. Many automotive axles only hold three quarts or less of oil, and spending a small premium for just three quarts of better oil may limit headaches and repair bills in the future.