

Avoid Summer Breakdowns

Another summer season is underway, and with summer comes a wide variety of recreational activities such as fishing, boating, jet skiing and ATV and dirt bike riding. Many enthusiasts use trailers to tow their equipment, and in order to avoid any inconvenient and expensive breakdowns, it is crucial to ensure proper maintenance has been performed on the tow vehicle. It is especially important not to forget about the tow vehicle's drivetrain. Nothing will ruin a weekend quicker than becoming stranded on the side of the road.

Severe duty activities such as towing heavy trailers, hauling heavy loads and off-roading place an increased level of stress on drivetrain components. Modern vehicles such as turbo diesel trucks and vehicles with V-10 engines boast more horsepower and torque than their predecessors, but differential designs have remained virtually unchanged through the years. Differentials today are subjected to severe duty service and encounter more stress and heat than was seen only a few years ago.

The extreme pressures and temperatures generated by modern vehicles increase stress on gear lubricants and can lead to a serious condition known as thermal runaway. As temperatures in the differential climb upward, gear lubricants lose viscosity and load carrying capacity. When extreme loads break the lubricant film, metal-to-metal contact occurs, increasing friction and heat. This increased friction and heat, in turn, results in further viscosity loss, which further increases friction and heat. As heat continues to spiral upward, viscosity continues to spiral downward. Thermal runaway is a vicious cycle that leads to irreparable equipment damage from extreme wear, and ultimately catastrophic gear and bearing failure.

Viscosity is the most important property of a lubricant in its defense against thermal runaway. Viscosity correlates to film thickness and film strength, which keep moving parts from contacting each other and creating increased friction, heat and wear. The higher the viscosity of a lubricant, the greater protection it provides. However, a lubricant which is too thick is detrimental because it consumes more energy and increases fuel consumption. The original equipment

manufacturer (OEM) determines which viscosity grade is optimum for the specific application.

Many gear lubes are formulated with additives called viscosity index (VI) improvers. These additives broaden a lubricant's operating temperature range and are used to ensure multi-grade viscosity performance for hot and cold temperatures. VI improvers keep lubricants from becoming too thick to flow in cold temperatures and too thin to protect in high temperatures. However, shearing forces within equipment can cause these additives to break down and lose viscosity, seriously compromising the lubricant's protection qualities.

AMSOIL Severe Gear® Synthetic Gear Lubes demonstrate superior viscosity index and shear stability properties, and they are better-equipped to protect equipment against the devastating effects of thermal runaway. Severe Gear Synthetic Gear Lubes are blended with superior high VI, shear stable synthetic base oils and an overtreatment of extreme pressure additives that effectively protect high-stress applications against friction, heat and wear; keep equipment in top working order and ensure summer trips aren't ruined by a broken-down vehicle.



% Viscosity Change from Shear Test

