

# Five Challenges (and Solutions) to Optimum ATV

ATVs and UTVs used for racing, trail riding, heavy hauling and nearly every other application share at least one trait: they pose significant challenges to the fluids that protect them. Despite spending thousands to purchase and modify their machines, some enthusiasts mistakenly see no reason for using premium fluids when performing service. AMSOIL synthetic motor oil, grease, fuel additives and other fluids, however, are formulated to meet the challenges posed by ATVs and UTVs better than lower-cost conventional products.

## 1. Extreme Engine Stress

High-rpm, hot-running ATV and UTV engines create extreme conditions that can quickly degrade inferior oils. The churning action of engine parts combined with elevated heat causes shearing forces that can tear apart, or shear, the molecular structure of the oil. Additionally, the intense pressure the oil undergoes as it is repeatedly forced through tight clearances, such as the interfaces of the piston ring/cylinder wall and cam lobe/lifter, also causes viscosity loss due to shear. Oil that has sheared out of its intended viscosity range can fail to form a protective lubricating film on critical engine parts, leading to accelerated wear.

## 2. All-Season Performance

Adding to the challenge, engine oil must balance cold-weather fluidity with high-temperature protection, particularly in models used year-round where ambient conditions vary widely. For this reason, many ATVs and UTVs require oils with a broad viscosity rating (e.g. 0W-40). Lower "W" numbers indicate the oil flows more readily at colder temperatures, improving

cold starts and allowing the oil to circulate quickly for fast engine protection. The second number indicates the oil's viscosity at operating temperature. Higher numbers indicate the oil remains thicker. Because increased viscosity relates to the oil's ability to bear load, one might assume a higher viscosity at operating temperature equals increased protection. However, using oil with an unnecessarily high viscosity can increase fluid friction, which reduces fuel efficiency. It can also increase operating temperature, hastening oil oxidation and degradation. Oil that is too thick to flow through oil galleries and tolerances designed for a specific viscosity can fail to protect the engine. Finding the optimum balance is vital to all-season performance.

The synthetic chemistry of AMSOIL Formula 4-Stroke® Power Sports Synthetic Motor Oil (AFF) provides performance conventional oils simply can't match. Conventional oils contain wax, which causes them to thicken in cold weather. They also can boil off at high temperatures, leaving behind harmful engine deposits. Formula 4-Stroke Power Sports Oil, on the other hand, does not contain wax or other impurities. It offers improved resistance to high-temperature boil-off and viscosity loss due to shear, resulting in maximum wear protection and all-season protection and performance.

## 3. Ethanol Problems

Currently, most gasoline sold in the U.S. contains up to 10 percent ethanol (E10), and government agencies and lawmakers have authorized sale of gas containing 15 percent (E15). Ethanol is susceptible to water intrusion; when water collects

in the gas tank through condensation or other means, the bond between ethanol and gasoline can break because ethanol is hygroscopic (it likes water more than it likes gasoline). This phenomenon is known as phase separation. The ethanol bonds with the water and sinks to the bottom of the fuel tank, which can create a host of problems, including the formation of gums, varnish and other insoluble debris that can plug fuel flow passages and negatively affect engine performance. When this ethanol/water mixture is pulled into the engine, it creates a lean-burn situation that increases combustion chamber temperatures and can lead to piston scuffing or catastrophic engine failure.

Treat gasoline stored in cans with AMSOIL Quickshot® (AQS), formulated to address ethanol-related problems, specifically phase separation. Quickshot contains a high concentration of potent cleaning agents that clean combustion chamber, injector and carburetor deposits for maximum performance. It is designed for use at each fill-up for best performance.

## 4. Chaincase & Gearcase Protection

To reduce costs, some enthusiasts use automatic transmission fluid or gear lube in their chaincases and gearcases. Neither fluid, however, is engineered for these applications. Automatic transmission fluid is a hydraulic fluid formulated without the extreme-pressure additives needed to provide enhanced wear protection, leaving gears and chains vulnerable to premature





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failure. Automotive gear lube is designed to lubricate hypoid gears and is generally too thick for proper chain and gear lubrication, impairing circulation and leading to wear and decreased energy efficiency.

AMSOIL Synthetic Chaincase & Gear Oil (TCC) is specifically formulated for powersports chaincase and gearcase applications. It contains extreme-pressure additives to provide an extra measure of wear protection, while it is also designed to repel water and resist foam and corrosion.

## 5. Water Washout & Increased Heat

Whether at work or play, ATVs and UTVs are commonly exposed to water, mud and ice. Frequent water exposure can wash the grease from suspension and steering components, inviting corrosion and wear. AMSOIL Synthetic Water Resistant Grease (GWR) features increased adhesion and cohesion properties compared to other greases. It resists water washout to remain in place, making it perfect for ATV and UTV applications. It is available in convenient 3-oz. cartridges (GWR3P) for use with the AMSOIL Grease Gun Kit (GLCKT), which provides the ideal package size for powersports applications.

AMSOIL Series 2000 Synthetic Racing Grease (GRG) is recommended for high-performance racing ATVs exposed to high heat and friction. It is specifically formulated for maximum friction-reduction and high-temperature performance.

Following these simple yet effective guidelines when performing maintenance can help enthusiasts get the best performance and most years out of their ATVs and UTVs. ■



## Premium AMSOIL ATV & UTV Products

### Formula 4-Stroke® Power Sports Synthetic Motor Oil

Specially formulated to provide serious protection and performance in recreational four-stroke motors, including ATVs and snowmobiles. Broad 0W-40 viscosity rating provides superior protection in both hot and cold temperature extremes.

### Quickshot®

Formulated to thoroughly clean varnish, gums and insoluble debris in two- and four-stroke gasoline-powered small engines and powersports equipment fuel systems, restoring peak performance. Effectively addresses performance issues related to ethanol, water and dirty pump gas. Stabilizes fuel between uses and during short-term storage periods. See package for treat rates.

### Synthetic Chaincase & Gear Oil

Provides superior protection and performance for enclosed chains. Ideal for snowmobiles, ATVs and general equipment. Extreme-pressure additives provide extra wear protection. Extends chain life, repels water and inhibits rust, oxidation and foam. Superior low-temperature starting, performance and protection. Includes convenient pour spout.

### Series 2000 Synthetic Racing Grease

Ultimate protection for hard-driven, high-performance vehicles. Dramatically reduces friction and wear for improved performance.

### Synthetic Water-Resistant Grease

Resists water washout and degradation. Excellent protection for boat trailer wheel bearings, outboard motors, ATVs, UTVs and other components frequently exposed to water.

