AMSOIL MAGAZINE

▸ PREFERRED CUSTOMER EDITION

FEBRUARY 2011

Wanderscheid Makes History with Fourth AMSOIL World Championship

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P.J. Wanderscheid
Team AMSOIL

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AMSOIL

The First in Synthetics®

friction

WHY YOU NEED IT:

Friction gives your tires grip and keeps your vehicle on the road. Friction also slows moving objects, like your car, truck or bike, when you apply the brake. Here, friction brings your vehicle to a stop.

WHY YOU DON'T NEED IT:

When components are continuously in contact, wear occurs, reducing the life expectancy of parts. Heat generated from friction can cause serious damage to your engine. This is why your engine needs lubricants.

Lubrication is vital to the life of your engine and serves as a protective barrier between parts in constant contact. Without it, friction would generate too much heat and engine failure would be inevitable.

BOTTOM LINE:

Keep the friction in your brake system, and out of your engine. The oil you use matters. Nothing protects your engine and extends vehicle life like AMSOIL motor oil.

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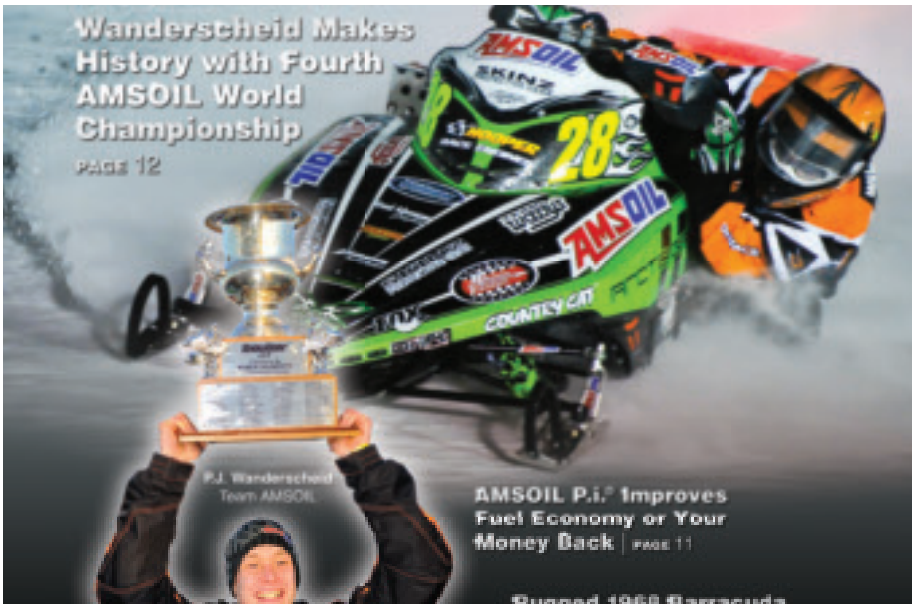

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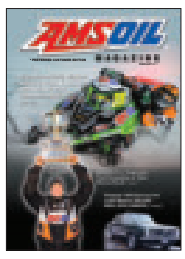


THE COVER

The AMSOIL Eagle River World Championship is arguably the most sought-after title in the snowmobile industry. Wanderscheid's record fourth title will garner plenty of extra exposure for AMSOIL.

FROM THE PRESIDENT'S DESK

I have to begin this month's column by sending out a big congratulations to Team AMSOIL snowmobile racer P. J. Wanderscheid. As you will read in this issue of your *Magazine*, P. J. became the first racer ever to capture four AMSOIL World Championship Snowmobile Derby titles. That's no small feat. And while it may be true that snowmobile racing is not front page news in the southern portion of this country, it does grab attention in the northern states and Canada. Millions of people took notice of P. J.'s win and that's fantastic brand exposure for AMSOIL, no matter how you slice it.

P. J.'s accomplishment has propelled him to legendary status in the world of snowmobile racing. The Derby championship is universally recognized as perhaps the most coveted title in the sport. The event's forty-eight year history is a timeline of snowmobile racing's most memorable moments. It draws the world's most accomplished oval ice racers, as well as legends from across the motorsports world. Indy 500 winners Bobby and Al Unser have made regular appearances at the track.

Although AMSOIL has had connections for years, the company became the title sponsor of the World Championship Snowmobile Derby in 2007. This sponsorship, along with our sponsorship of the AMSOIL Championship Snocross Series, has solidified us as a dominant force in the snowmobile market. Television for these events reaches over two million people and, along with significant on-site exposure, every magazine and major news outlet dedicated to the snowmobile industry is there to cover them. With approximately three million registered snowmobiles in North America, and that's just the tip of the iceberg, we are reaching a prime market for AMSOIL Dealers.

Equally important, snowmobile owners are primarily do-it-yourself types. Similar to motorcycle owners, they are passionate about their machines and appreciate the value of superior lubrication. Plus, they own additional equipment. Whether it's for trucks, cars, trailers, boats or any other type of lubrication demand, AMSOIL products have earned their trust.

Beyond the exposure these sponsorships provide is the role they serve in the development and testing of AMSOIL products. All of our race teams are testing grounds. The AMSOIL products they use in the demanding conditions in which they operate are the same products we offer to the public. Unlike many other companies, we don't make special, high-performance products for our race teams, and then use that as testimonial to sell the products we make available commercially. P. J. Wanderscheid wins snowmobile races with AMSOIL Dominator Synthetic 2-Cycle Racing Oil. Kevin Windham wins supercross races with AMSOIL 10W-40 Synthetic Motorcycle Oil. Scott Douglas wins off-road truck races with AMSOIL Dominator 15W-50 Synthetic Racing Oil. You get the point.

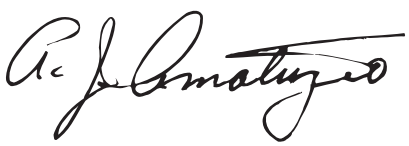
Our product testing, of course, goes way beyond our race teams. We constantly test our products in laboratory and stationary engine type settings, and fleet and field testing never ends for us. Our mission is to ensure that our products, without fail, measure up to AMSOIL standards. We know where the competition stands, and we will never fall behind the curve.

This issue of your *Magazine* features a field study that was conducted with a refuse hauling company. In short, we tested our Premium API CJ-4 Synthetic 5W-40 Diesel Oil against four other diesel oils. The conditions were extremely demanding, and the objective was to determine which oils could best maintain their viscosities and total base number (TBN) levels. Each of these features is essential in an oil's ability to extend drain intervals and maintain wear protection. The application was a 7.6L Navistar DT 466 engine, which is notorious for shearing oils out of grade.

All four of the competing oils sheared out of grade within 168 hours of operation. AMSOIL Synthetic 5W-40, on the other hand, maintained its designated viscosity after 371 hours. The AMSOIL product also maintained the highest TBN retention rate of the five oils tested. The results indicated that AMSOIL Synthetic 5W-40 Diesel Oil was the most balanced formula in the group and more capable than the others in protecting engines throughout extended oil drain intervals. You can read the details.

On a final note related to our products, we have resurrected a program that was initially introduced in August 2008. Beginning in March and running through May we will offer a money-back guarantee tied to the fuel economy benefits of our P. i. Performance Improver. We are totally confident in the performance of this product, and with fuel prices rising, the time is right to capitalize on this opportunity. You can read about that, too, in this issue.

Bottom line, consumers can trust the AMSOIL brand to deliver the same outstanding performance we have been delivering since 1972. It is the AMSOIL reputation, and we stand behind it.



A.J. "Al" Amatuzio
President and CEO, AMSOIL INC.

DO YOU KNOW THE SEVEN RESPONSIBILITIES OF A MOTOR OIL?

1. **Minimize Friction and Wear**
   The #1 function of a lubricant. Friction is detrimental to engine components and results in wear, so a lubricant must act as the barrier between moving parts.
2. **Cleanliness**
   Internal cleanliness of an engine depends on contaminants being suspended, preventing them from adhering to engine components.
3. **Cool Moving Parts**
   Engines rely on lubricants to help them run cooler by absorbing heat and moving it to a different location to be safely dissipated. The cooler the operating temps, the better your engine can perform.
4. **Prevent Contamination by Acting as a Seal**
   Acting as a seal, motor oils help minimize combustion by-products from contaminating the lubrication system. Lubricants act as a dynamic seal in locations such as the piston, piston ring and cylinder contact areas.
5. **Dampen Shock**
   In the event of mechanical shock, lubricants help cushion the blow. The lubricant film can absorb and disperse energy spikes over a broader contact area, reducing impact.
6. **Prevent Corrosion**
   Corrosion of internal components can be reduced or prevented by lubricants, by either chemically neutralizing corrosive products or setting up a barrier between the components and the corrosive material.
7. **Transfer Energy**
   At times a lubricant is required to act as an energy-transfer medium, such as in the case of hydraulic equipment or valve lifters in an automotive engine.

AMSOIL synthetic motor oils deliver the performance and protection your engine needs for each of these critical areas. Use only the best, the motor oil you can trust.

AMSOIL®
The First in Synthetics®

AMSOIL API CJ-4 DIESEL OIL OUTPERFORMS IN FIELD STUDY

With the help of Duluth, Minn.-based refuse hauling company Nordic Waste, AMSOIL put its Premium API CJ-4 Synthetic 5W-40 Diesel Oil (DEO) and four competing API CJ-4 diesel oils to the test. The objective was to prove the AMSOIL product's superior performance in Total Base Number (TBN) retention and shear stability, two characteristics that correlate to extended service life and enhanced wear protection. Results show that AMSOIL Synthetic 5W-40 demonstrated excellent TBN retention and was the only oil to remain within its specified viscosity range throughout the test interval.

Field Study Parameters

The five oils were consecutively tested in the same 2006 International 7400 rear-loading refuse hauler practicing drain intervals of 300-plus hours. Oil samples for testing were drawn every 50-75 hours. The vehicle was subjected to hauling up to 22,000 pounds of refuse up and down the steep hills of Duluth 12 hours per day. It encountered frequent stops and red-lined starts and maintained extended red-line operation during the process of unloading.

Placing further strain on each oil, the truck's 7.6L Navistar DT466 engine employs a hydraulically actuated, electronically controlled (HEUI) system that uses engine oil pressure to operate the fuel injectors. HEUI systems can raise oil pressure to as high as 3,500 psi, shearing less robust oils. Once sheared, permanent viscosity loss results, leading to increased volatility and oil consumption, deposit formation and increased engine wear.

Results - Total Base Number

Higher TBN levels well into service indicate increased levels of the additives responsible for neutralizing acids and dispersing soot. Oils that demonstrate higher TBN levels over longer periods are capable of providing increased protection throughout extended drain intervals.

As chart 1 shows, AMSOIL Synthetic 5W-40 was a top-performing oil in the area of TBN retention. It is important that the slope of the TBN trend line be gradual and span the entire life of the oil. While some oils experienced sharp declines, indicating poor performance, AMSOIL Synthetic 5W-40 maintained high TBN levels throughout the drain interval to provide effective engine protection.

Results - Shear Stability

AMSOIL Synthetic 5W-40 Diesel Oil outperformed the competing oils in the area of shear stability (chart 2). Even after 371 hours in service, it was the only oil to remain within the intended viscosity range, measuring 12.5 centistokes (cSt). In contrast, all four of the competing oils sheared out of grade before 168 hours of operation, with the Chevron and Valvoline products shearing out of grade prior to 100 hours. AMSOIL Synthetic 5W-40's increased shear stability allows for superior wear protection and long-lasting engines.

Balanced Formulation

As the test results show, today's stricter emissions regulations and advanced engine technologies make engineering

a diesel oil that balances TBN retention with shear stability a serious challenge. For example, while Valvoline Premium Blue Extreme demonstrated TBN retention on par with AMSOIL, its viscosity after 93 hours was lower than the viscosity of AMSOIL Synthetic 5W-40 after 371 hours. Similarly, Shell Rotella T6 maintained viscosity well but was the poorest-performing oil in the area of TBN retention.

AMSOIL Premium API CJ-4 Synthetic 5W-40 Diesel Oil resists viscosity loss and provides superior TBN retention throughout drain intervals up to three times original equipment manufacturer recommendations, or longer based on oil analysis. It allows operators to realize increased engine protection throughout extended drain intervals for longer-lasting engines, reduced downtime and maximum cost savings. ■

Chart 1: Total Base Number

Testing conducted June 2009 to August 2010

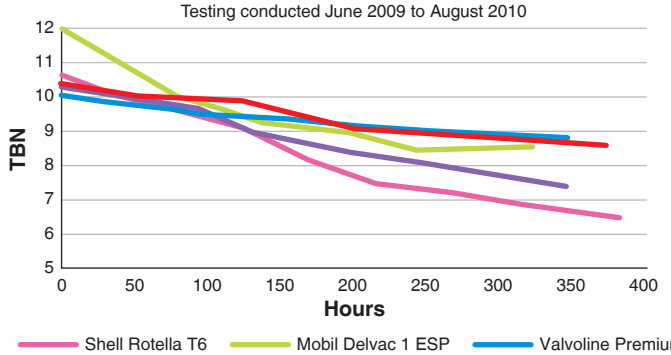
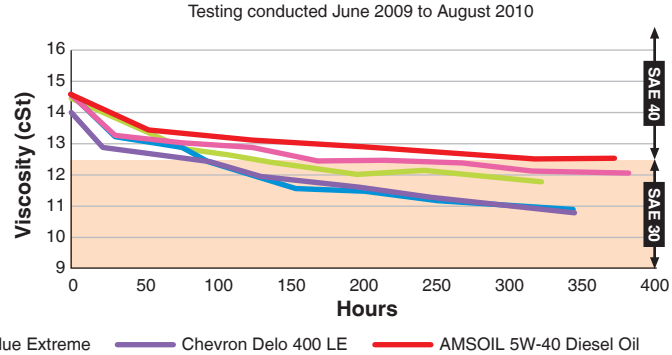


Chart 2: Viscosity @100˚C (ASTM D-445)

Testing conducted June 2009 to August 2010



Shell Rotella T6 | Mobil Delvac 1 ESP | Valvoline Premium Blue Extreme | Chevron Delo 400 LE | AMSOIL 5W-40 Diesel Oil

AMSOIL STILL LEADING THE WAY

As the market continues to evolve, it is clear that AMSOIL is ahead of the curve with innovative products that lead current trends.

When AMSOIL synthetic motor oil was introduced in 1972 it stood in stark contrast from its conventional-oil counterparts. Pioneering the use of synthetics, the concept of extended drain intervals and the practice of formulating a high-quality product up to a performance standard rather than making it "just good enough" were all new ideas then. Today, nearly every other oil manufacturer offers a line of synthetic products, and a few even offer extended-drain oils. To be sure, AMSOIL has impacted the industry. But while the other companies play catch-up, AMSOIL has continued to innovate and improve its products to ensure it remains at the forefront of the lubrication industry. In fact, current trends only reinforce the idea that AMSOIL is perfectly positioned for continued growth.

New Specifications

The new API SN, ILSAC GF-5 and dexos1™ specifications were introduced in the fall, mandating improved fuel economy, oil robustness and emissions system protection. The dexos1 and GF-5 specifications are designed to address the unique demands presented by modern turbocharged engines and engines running on ethanol fuels (E85). Because a number of GM engines with variable camshaft timing use motor oil as a hydraulic fluid, the dexos1 specification also requires increased resistance to aeration.

The main objectives of the new specifications are to improve protection for modern vehicles and squeeze as much additional fuel economy as possible out of motor oil. As the leading synthetic lubricant manufacturer in the industry, AMSOIL products were already ideal for meeting these objectives. Nonetheless, AMSOIL OE and XL Synthetic Motor Oils are API SN and ILSAC GF-5 licensed, and OE 5W-30 (OEF) and XL 5W-30 (XLF) are recommended for applications requiring the dexos1 specification. The top-tier line of AMSOIL synthetic motor oils is being repackaged to reflect the latest industry specifications.

Higher Costs

Because each new industry specification provides an increased level of protection and performance over the preceding specification, most oils require higher quality, more expensive base stocks and additives. Combined with the increased costs associated with research and development and licensing fees for the new oils, motor oil prices have steadily increased over the past few years. In fact, GF-5 oils cost about 15-20 percent more than GF-4 oils, while dexos1 oils carry an average 25-30 percent price premium.

AMSOIL offers the most cost-effective motor oils on the market. While the initial price of an oil change using an AMSOIL XL or top-tier motor oil costs more than a conventional oil change, customers dramatically reduce their annual motor oil costs by taking advantage of extended drain intervals, and save even more through improved fuel economy, reduced vehicle maintenance and extended vehicle life.

Extended Drain Intervals

While the 3,000-mile oil drain interval was the standard for many years, a single oil-drain standard based on mileage no longer applies. The industry has seen vehicle manufacturers recommend increasingly longer drain intervals over the past several years, and motor oil manufacturers have had to keep pace. In fact, Ford recommends 10,000-mile drain intervals with its 2011 vehicles, while vehicles equipped with electronic oil monitoring systems often extend drain intervals up to and even beyond the 10,000-mile mark. Of course, while many customers follow the oil change recommendations set by their vehicle's manufacturer, many continue to practice the 3,000-mile drain intervals recommended by many installers.

AMSOIL pioneered the concept of extended drain intervals back in 1972 and remains the industry leader. The company offers an oil for every type of customer, whether they follow 3,000-mile intervals, OEM-recommended intervals or extended drain intervals. OE synthetic motor oils are formulated for today's OEM-recommended oil drains; XL synthetic motor oils are formulated for 10,000-mile/six-month drain intervals, or longer when recommended in owners' manuals or indicated by electronic oil life monitoring systems, and the top-tier AMSOIL synthetic motor oils are formulated for 25,000-mile/one-year drain intervals.

Economy Shopping

People are looking to save money wherever they can in today's economy, and an increasing number of customers are motivated to seek motor oil sales or shop around for the best price. In fact, even as the popularity of synthetics continues to grow, data indicates 92 percent of synthetic motor oil customers purchase lower-priced products recommended for standard drain intervals.

AMSOIL OE synthetic motor oils are ideal for cost-conscious customers who want the benefits associated with a synthetic, but won't pay a significantly higher price than a conventional product. OE is recommended for original equipment manufacturer (OEM)-recommended drain intervals and serves as an excellent entry-level product for customers. Once they experience the benefits, they are prime candidates for moving up to the XL or top-tier line of AMSOIL synthetic motor oils to save even more through extended drain intervals. XL Synthetic Motor Oils are recommended for 10,000-mile/six-month drain intervals, while the top-tier line is recommended for 25,000-mile/one-year drain intervals.

When examining current trends in lubrication, it's easy to see how AMSOIL has led the charge. New specifications are forcing quality up, drain intervals are getting longer and consumers are searching for the most cost-effective methods of maintaining their vehicles – all hallmarks of AMSOIL products. ■

TORQUE AND HORSEPOWER

While torque and horsepower ratings are common vehicle selling points, many consumers don't fully understand what the ratings mean or the relationship between the two.

Torque

Most often measured in pound-feet (lb-ft), torque is a twisting or turning force applied to an object such as a wheel, crankshaft or nut. When tightening a nut with a wrench, for example, the level of torque placed on the nut is determined by multiplying the force applied at the end of the wrench by its length. Applying 100 pounds of force at the end of a one-foot wrench translates into 100 lb-ft of torque, while applying the same amount of force at the end of a two-foot wrench translates into 200 lb-ft of torque.

In automotive applications, torque measures the engine's ability to perform work. The torque created by displacement of engine cylinders spins the engine crankshaft, and the transmission applies this torque to the wheels of the vehicle, moving it forward. The more torque applied to the crankshaft, the more work the vehicle can do.

Horsepower

While torque measures the turning force produced by a vehicle's engine and measures the engine's ability to perform work, horsepower measures how fast the engine can perform the work. Engine horsepower ratings indicate how much power an engine can produce similar to how light bulb wattage indicates how much power the bulb will use.

Steam engine inventor James Watt coined the term "horsepower" in the 18th century for the purpose of comparing steam engine performance to the better-understood performance of horses, which were used as the power sources for everything from transportation to plowing fields and pumping water. It's believed Watt arrived at the now-standard 33,000 lb-ft per minute (550 lb-ft per second) figure for one horsepower by measuring how quickly a horse turned a gear-driven mine pump and estimating the amount of force the horse exerted to perform the work over a given time.

Torque/Horsepower Relationship

Torque and horsepower are related by the following formula:

$$\text{Horsepower} = \frac{\text{Torque} \times \text{Engine RPM}}{5252}$$

Plugging various RPM values into the equation provides an idea about the range of power an engine can produce. Because torque and RPM are divided by 5252, torque and horsepower are equal when the engine speed is equivalent to 5252 RPM, while torque is greater than horsepower below 5252 RPM and horsepower is greater than torque above 5252 RPM.

The level of horsepower an engine can deliver is directly proportional to the level of torque generated by the crankshaft, which is directly proportional to the total displacement capacity of the engine. Because there is a limitation on the maximum displacement an engine can generate, there is also a limitation on the amount of torque the engine can produce, which in turn sets a limit on the engine's maximum horsepower.

While it's been hotly debated whether torque or horsepower is more important, it just depends on the driver's priorities. A vehicle with a higher torque value can perform more work, providing an advantage for pulling trailers or hauling heavy loads, while a vehicle with a higher horsepower value performs work faster, making it better-suited for highway driving or racing. ■

‘RUGGED’ 1968 BARRACUDA LOGS NEARLY 500,000 MILES WITH AMSOIL

Editor’s Note: Much of this story first appeared in Hemming’s Classic Car, November 2010. It was written by Richard Lentinello, editor in chief, and is excerpted by permission.

Dealer Phil Garner of Hopewell Junction, New York still drives the Plymouth Barracuda he purchased new in 1968.

More remarkable, the car runs on the original engine. In August 2010 the odometer read 438,000 miles.

Garner said the reason the engine has lasted nearly a half-million miles without requiring any major work other than a valve job is because he has been using AMSOIL synthetic oil since the mid-1970s. “I understood AMSOIL was one of the best products out there,” Garner said. “It seems to be true because the inside of the old 318 (cubic inch, V-8) still looks clean, with no varnish or sludge anywhere.”

He uses AMSOIL 20W-50 Synthetic Premium Protection Motor Oil (ARO). He relies on AMSOIL Severe Gear® Synthetic 75W-140 Gear Lube (SVO) for the four-speed transmission and differential.

Garner said the car’s quality construction coupled with consistent maintenance have kept the car running smoothly.

“Not much has gone wrong with the car; it just keeps on running. I just keep after things,” he said. “I change the coolant ever year, and every 100,000 miles, I automatically rebuild the carburetor and have a local electric-motor repair shop replace the brushes in the alternator; at the same miles, I replace both the water and fuel pumps to prevent breakdowns. At about 350,000 miles, I replaced the timing chain and performed a valve job. The brake rotors have been in the car for 42 years now, but the rear drums have been changed once and the lower ball joints have been replaced once, too, although I did have to change the clutch three times.”

Tough Miles for Family Car

The car has not been coddled in its long life. Phil and his wife, Ellen, love to see the country’s beauty and started traveling in the convertible in their 20s. They’ve driven it through 49 states and every Canadian province.

The Garners like the outdoors, so along with their children they hauled a camper and boat, sometimes as much as 3,500 pounds. “I have always loved to drive the Barracuda,” Garner said. “It’s not new, and today it could use some front-end work, but the car still passes state inspection every year. The shifting is a little sloppy compared to modern cars, but it’s OK. It still handles well, and is great in the turns. I feel safe in the Barracuda; it’s a rugged car.”

Preventing rust has been the greatest challenge to preserving the car’s originality, according to Garner. He uses AMSOIL Heavy Duty Metal Protector (AMH). “It’s like a wax; it never really hardens and is great for undercoating,” he said. “I go over the car every year looking for spots that need a touch-up; special attention is given to the brake lines.”

It was treated with a rust-proofer in the 1970s, he said.

“Nowadays, I always try to keep it clean, waxed and greased, and I never drive it too hard.”

“What I like most about the car is its history of being our family car,” Garner said. “The kids were raised with the Barracuda. I love how well it runs with so many miles. Never any problems at all. We’ve taken many long trips in it, yet the Barracuda has never failed us. Never. The miles just go on and on. If a car is solid to begin with, proper care will make it last a very long time.” ■

AMSOIL Dealer Phil Garner (top photo) in 1968 when he bought his 1968 Barracuda. It continues to serve as his daily vehicle (bottom picture) with the original engine.

Viscosity is one of the most important yet misunderstood physical properties of a lubricant.

Most consumers don't understand the true nature of multi-viscosity lubricants.

Dan Peterson | VICE PRESIDENT, TECHNICAL DEVELOPMENT

Without a thorough understanding of viscosity tests and classification systems it is difficult to explain the specific reasons different applications and conditions call for different lubricants. Viscosity is defined as a fluid's resistance to flow, and some fluids have a higher viscosity than others. For example, honey is much more viscous (flows more slowly) than water.

Most vehicle owners understand their application requires a specific viscosity grade and type of oil, and that those details are usually outlined by the original equipment manufacturer (OEM) in the owner's manual. But what do these different viscosity recommendations really mean? What is the difference between 5W-30 and 10W-30 engine oil?

First, there is no difference between a 5W-30 oil and a 10W-30 oil when the engine has warmed up – the second number of a multi-viscosity oil represents the oil's thickness at operating temperature. So, a 5W-30 oil and a 10W-30 oil both have the same viscosity (resistance to flow) when the engine is running. It is the number before the dash that differentiates them. This number, known as the winter viscosity grade, tells us what the oil's thickness will be when the engine starts, when it is cold. The smaller the "W" number, the easier an engine starts in cold temperatures. So, a SAE 5W oil is less viscous and will flow more easily than a SAE 10W oil in cold temperatures at startup and during warm-up. Most engine wear occurs at this critical time because of insufficient oil flow.

There are a number of different viscosity grading and classification systems used for lubricants. One of the most common systems is the SAE J300 viscosity grading system for engine oils. This table outlines specific requirements for viscosity at different temperatures and shear conditions. So to determine the difference between 10W-30 and 5W-30 engine oil, we first need to understand two basic viscosity measurements and the shear test used to measure the viscosity stability of engine oils. The most common measurement of viscosity is *Kinematic* viscosity, which is measured at 100°C (212°F) – close to the maximum operating temperature for most passenger car and truck applications. This test measures how fast an engine oil is pulled by gravity through a glass tube heated to 100°C. The time it takes for the oil to move through the tube is converted to a viscosity measurement called centistokes (cSt). The SAE established categories of oil based on this measurement. To obtain the 30 in 5W-30, 10W-30 or any other SAE 30 weight designation, the Kinematic viscosity at 100°C must be at least 9.3 cSt and no more than 12.5 cSt.

In addition to Kinematic viscosity requirements, each viscosity classification has high-temperature/high-shear (HT/HS) requirements. The HT/HS test simulates an engine at operating temperature and under load to measure how well oils maintain thickness over time. It is determined at 150°C (302°F), and a SAE 30-grade oil has a minimum HT/HS viscosity requirement of 2.9 cSt.

So, how is the winter viscosity grade determined? This cold-temperature designation uses another viscosity measurement called *Brookfield* viscosity. Brookfield viscosity is measured in centipoise (cP) at designated temperatures for each W rating. Using the honey example, Brookfield viscosity simulates stirring a bowl of honey and measuring the amount of resistance to stirring in the bowl. Thicker honey takes more energy to stir, and honey becomes thicker the colder it gets. For a 30-weight oil to also qualify for a 10W rating, the Brookfield cranking viscosity (ASTM D-5293) cannot exceed 7,000 cP measured at -25°C (-13˚F), and the Brookfield pumping viscosity (ASTM D-4684) must be less than 60,000 cP at -30°C (-22˚F). Alternatively, in order to qualify for a 5W rating the Brookfield cranking viscosity cannot exceed 6,600 cP measured at -30°C, and the Brookfield pumping viscosity must be less than 60,000 cP at -35°C (-31˚F).

Several other viscosity classification systems are used to designate different grades of lubricants. Another common system is the SAE J306 system, which defines automotive gear, axle and manual transmission lubricant viscosities and incorporates both the SAE rating and winter viscosity requirements similar to the SAE J300 engine oils system.

Industrial fluids generally use a system designated D 2422-97, which separates different industrial fluids into different ISO viscosity categories. These categories are commonly referred to as ISO viscosity grades and run from ISO VG 2 through ISO VG 3200 (ISO stands for International Organization for Standardization, VG stands for viscosity grade). A common hydraulic fluid viscosity grade is ISO VG 46, where the mid-point Kinematic viscosity at 40°C (104°F) is 46 cSt, and the range to qualify for this viscosity category is 41.4 to 50.6 cSt. ■

AMSOIL P.i.® IMPROVES FUEL ECONOMY OR YOUR MONEY BACK

With the price of gas surpassing $3 per gallon and expected to continue increasing, motorists are once again trying to squeeze as many miles from a tankful of gas as possible. Some may turn to questionable products that tout impressive fuel economy gains but cannot live up to the marketing hype.

AMSOIL P.i. Performance Improver, on the other hand, offers proven performance. It increases fuel economy, reduces emissions and restores vehicle power and performance by dissolving and removing combustion chamber, intake valve and fuel injector deposits. In fact, field testing shows AMSOIL P.i. provides an average fuel economy improvement of 2.3 percent and up to 5.7 percent (see graph). Because of this substantiation, as well as the company's confidence in the performance benefits of P.i., AMSOIL is offering a money-back guarantee on the product's fuel economy benefits. If a customer does not see fuel economy improvement in his or her vehicle after first-time use of P.i., AMSOIL will refund the purchase price of the product. The P.i. money-back guarantee begins March 1 and is good through May 31. It is open to everyone, including Dealers, Preferred Customers, retail customers, catalog customers, commercial and retail accounts.

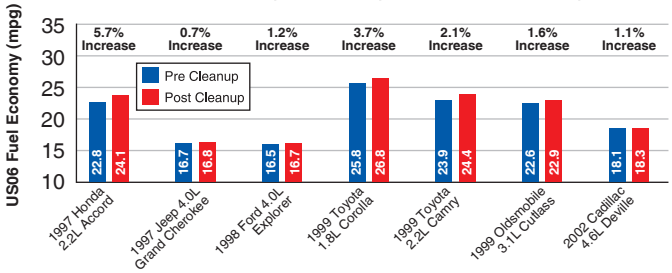
Because the most dramatic fuel economy improvement is achieved after first-time use of P.i. in a vehicle with accumulated deposits, the P.i. money-back guarantee is limited to vehicles with a minimum of 25,000 miles that have not previously been treated with P.i. and have not undergone any fuel system or fuel injector cleaning procedure. P.i. must be used with a full tank of gas, and the P.i.-treated gas must be run until the tank is near-empty before filling up again. Fuel economy measurement will then be taken on the tankful of gas following the P.i.-treated tank of gas.

Refund Process

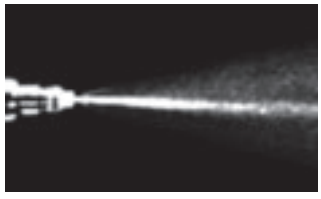
Customers are eligible for the refund if they do not see a fuel economy improvement following use of the subsequent tank of gas after P.i. treatment. If a customer has not received a fuel economy benefit and wishes to take advantage of the money-back guarantee, he or she may simply download and print the rebate form from the P.i. page on the AMSOIL corporate website at www.amsoil.com. The form contains complete qualification details and must be completely filled out and mailed with the P.i. purchase receipt to the following address:

AMSOIL INC.
P.i. Money-Back Guarantee
ATTN: Tech Services
One AMSOIL Center
Superior, WI 54880

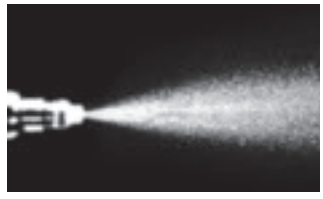
Test Method: Motored Dyno D5500 Type Road Simulation Cycle



P.i. improved fuel economy an average 2.3% and up to 5.7%.



Injector spray pattern before P.i. treatment.



Injector spray pattern after P.i. treatment.

P.i. cleans harmful deposits to maximize MPG

Intake valve before P.i. treatment.

Intake valve after P.i. treatment.

WANDERSCHEID BECOMES FIRST FOUR-TIME AMSOIL WORLD CHAMPION

The AMSOIL World Championship Snowmobile Derby took place January 13-16 at the AMSOIL Eagle River Derby Track in Eagle River, Wis. and featured one of the most exciting races in the event's 48-year history, with Team AMSOIL ice oval racer P.J. Wanderscheid coming out on top and making history in the process.

The event kicked off Thursday with practice and time trials, where Wanderscheid clocked in third fastest. Friday featured the Friday Night Thunder program, where pole position in Sunday's feature race was at stake. After winning his eight-lap heat race, Wanderscheid took the early lead in the 16-lap final and didn't look back, taking the win, securing the pole position in Sunday's feature and earning a day of rest and preparation on Saturday.

Starting Sunday with practice laps, Wanderscheid clocked in with the fastest time. The World Championship race featured a different format this year, increasing from 25 to 30 laps that were split into two sections. Drivers raced 15 laps, took a five-minute pit session, then resumed the final 15 laps with a staggered start according to how drivers finished the first 15 laps.

Upon the start, AMSOIL-backed driver Gary Moyle jumped out to the early lead with Wanderscheid close behind. Moyle led the entire 15 laps, with Wanderscheid narrowing the gap slightly on lap 13. After the pit stop, Moyle and Wanderscheid thrilled fans with an epic battle for the title as they continually exchanged the lead. Wanderscheid took the lead for good on lap 29, taking the win and going down in history as the only racer to win four AMSOIL World Championships. Moyle took second, followed by ice oval racing legend Jacques Villeneuve.

Team AMSOIL found further success on the snocross track, where AMSOIL racers swept the podium at the Friday Night Thunder Pro Stock final, with AMSOIL/Scheuring Speed Sports racer Robbie Malinoski taking the win, followed by AMSOIL/Judnick Motorsports racers Ross Martin and Mike Bauer in second and third respectively. Malinoski also took third in Friday's Pro Open final behind Justin Broberg and Brett Turcotte.

On Sunday, Martin took the Pro Stock final win, followed by Malinoski in second, Kaven Benoit in third and AMSOIL/Scheuring Speed Sports racer Darrin Mees in fourth. Sunday's Pro Open final featured an exciting battle between Martin and Turcotte, culminating with an awe-inspiring charge by Martin from the final turn to the finish line for the win. Turcotte finished second, Broberg third and Malinoski fourth.

AMSOIL Race Program Manager Jeremy Meyer (left) and CFO Dean Alexander (right) accept the White Eagle Award from AMSOIL Derby Track General Manager Todd Achterberg (center) for the company's years of support. AMSOIL recently signed on to continue sponsoring the AMSOIL World Championship Snowmobile Derby for the next three years.

Martin earned the Pro Stock and Pro Open final wins on Sunday.

Wanderscheid celebrates his historic win.

An exciting weekend of racing culminated in Wanderscheid earning his record fourth AMSOIL World Championship.

SUPERCROSS: EXPOSED

When AMSOIL signed on as the Exclusive Official Oil of Monster Energy Supercross, the company knew the sport had an exceptional fan base that would cram coliseums built for other sports such as Major League Baseball and the National Football League.

After the first two rounds of the 2011 season, it's the growing legion of fanatics that has been the most impressive stat for AMSOIL. In Anaheim, a sold-out crowd of 45,050 watched the world's best riders go bar-to-bar. In Phoenix, attendance was up 20 percent at Chase Field as 51,064 devoted supporters took in the down-to-the-wire finish. Just as important for AMSOIL exposure, those events brought almost 50,000 fans through the pit party and past the corporate AMSOIL display.

"The crowds were magnificent," said AMSOIL Race Program Manager Jeremy Meyer. "At Anaheim, it was a mad rush once the gates opened, and everyone had to walk past the AMSOIL booth to enter or leave the pits. Phoenix was also great, as the general public was allowed to walk right in front of our booth before entering the stadium."

Outfitted with a 48' Renegade toter home and a 20' Stacker trailer, AMSOIL is crisscrossing the country in 2011. At the heart of the supercross display is the opportunity to win Team AMSOIL rider Kevin Windham's bike. The bike, which will be an actual race-ridden Honda CRF 450 from the most popular rider in supercross, will be given away at the end of the year through a text-to-win campaign. K-Dub's Honda will be on display inside the AMSOIL booth at each round, and fans young and old are provided the opportunity to have their pictures taken with the #14 ride.

"The K-Dub bike is a wonderful promotion," said Meyer. "It helps generate interest in our booth to the 20,000-plus fans at each round, and it also drives new customers to amsoil.com and our social media outlets. If the first two rounds are any indication, the promotion is helping AMSOIL and its Dealers find new customers."

Along with supplying information on AMSOIL and its products, a simple child's game rounds out the display this year. The AMSOIL Airplane Challenge is generating interest and leads at a frenetic pace. At each round, fans can fold a paper airplane and throw it through a target for a chance to win a Traxxas/AMSOIL R/C truck. In Phoenix, the game was set up right next to the actual Scott Douglas AMSOIL Ford F-150, helping showcase the company's involvement with the Traxxas TORC Series presented by AMSOIL. Douglas was in the Phoenix area as part of a Traxxas display for the Barrett-Jackson Auto Auction in Scottsdale, and was an excellent draw for race fans.

As the Exclusive Official Oil of Monster Energy Supercross, AMSOIL boasts a significant presence at each round.

"Having Scott in the booth in Phoenix really tied everything together," said Meyer. "He has a lot of fans on the West Coast, and he was busy answering a lot of questions about AMSOIL. We are already looking at other places we can bring in additional AMSOIL racers to help us promote."

In February, the tour begins moving east, with races in Texas and Georgia, as well as the final stops in California. For fans who cannot attend, Monster Energy Supercross can be watched each weekend on either CBS or SPEED.

ON THE BOX

WITH **JEREMY MEYER**

Over the past few years, Team AMSOIL has truly lived up to its name by taking on a "Team" approach.

For the past four years, snocross team owner Steve Scheuring has helped AMSOIL implement a generator oil change program at the Loretta Lynn's Amateur Nationals motocross event.

In our new partnership with Monster Energy Supercross, off-road truck driver Scott Douglas not only helped bring our new toter home to the first round in Anaheim, he brought his AMSOIL Cup-winning truck to display at the second round in Phoenix. Meanwhile, offshore powerboat racer Bob Teague is helping with logistics as we store our display rig at his shop in Southern California.

Off-road truck driver Mike Oberg was on display at the AMSOIL World Championship Snowmobile Derby, even taking his truck around the ice oval for a few "practice" laps in front of the sold-out stands.

We want to thank all of the partnerships that are helping showcase AMSOIL both on, and off, the track.

AMSOIL Price Adjustment

The lubricants industry has experienced rapidly increasing base stock and additive cost increases over the past few months, and many other lubricant manufacturers have recently implemented 5 to 15 percent price increases. While AMSOIL makes every effort to maintain the lowest prices possible and has delayed raising prices for as long as possible, the ever-increasing costs of raw materials has forced AMSOIL to implement a minimal 4 to 8 percent price adjustment on select products in the U.S. effective March 1. Due to fluctuations in the exchange rate, Canadian prices will remain unchanged at this time. Even with a minimal price adjustment, AMSOIL synthetic lubricants remain the best and most cost-effective choice on the market, saving customers money through extended drain intervals, reduced wear and maintenance and increased fuel efficiency.

Holiday Closings

The Edmonton and Toronto distribution centers will be closed Monday, February 21 for Family Day.

New Laptop Bag

Contains front compartment with organization and file dividers, rear compartment with built-in laptop sleeve, front zippered pocket and quick-access corner pocket. Laptop section unfolds to lay flat on x-ray belt, increasing speed, convenience and security at airports. Holds most 15" laptops. Rear trolley handle; removable, adjustable shoulder strap and two carry handles.

Stock #	Price	Price
G2835	33.00	39.50

New Synthetics Cap

Embroidered logo and flame design. Velcro closure.

Stock #	U.S. Price	Can. Price
G2831	14.50	17.30

3-in-1 Bomber Jacket

Bomber style, weather-resistant 3-in-1 jacket incorporates durable Stormtech 100% nylon outer shell with a 100% anti-pill polyester polar fleece zip-in/zip-out lining. Full-length external draft flap, stand-up storm collar on lining and shell, relaxed-fit waistband, adjustable velcro cuffs, inside pocket and front zippered security pockets. Embroidered logos on outside shell and inner lining. Sizes S-3X.

Stock #	Size	U.S. Price	Can. Price
G2823	S	89.95	107.75
G2824	M	89.95	107.75
G2825	L	89.95	107.75
G2826	XL	89.95	107.75
G2827	2X	92.75	111.00
G2828	3X	94.15	112.75

Black and Gold Ceramic Coffee Mug

Black and gold 11 oz. ceramic coffee mug with gold AMSOIL logos on both sides. Microwave safe.

Stock #	Wt. Lbs.	U.S. Price	Can. Price
G2830	1.6	4.50	5.40

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While MyAMSOILGarage still provides easy and fast product lookups for passenger car/light-truck applications, it has now also become a complete vehicle and equipment maintenance software program.

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