

AMSOIL[®]

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MAGAZINE

AUGUST 2022



AMSOIL Sponsorships Continue to **Grow in 2022**

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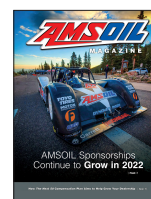
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Letters to the Editor

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THE COVER

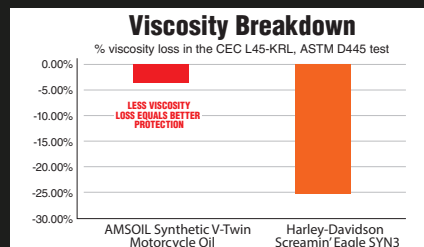
Pike's Peak International Hill Climb record-holder and founder of Chuckles Garage Scott Birdsall is among an impressive roster of sponsorships helping spread the word about AMSOIL products across North America.



EVERYTHING YOUR HARLEY NEEDS, INCLUDING BETTER PROTECTION

Riding season will soon be winding down across much of the U.S. and Canada. Make sure your customers change their oil and filters to ensure their bikes are **protected against corrosion during storage and ready to roll next spring**. AMSOIL V-Twin Oil Change Kits include everything needed to perform an AMSOIL oil change in one convenient package. To find the right kit, use the Motorcycle Product Guide at AMSOIL.com/AMSOIL.ca.

AMSOIL V-Twin Motorcycle Oil resists viscosity breakdown **6X better** than Harley-Davidson® SYN3® for **improved protection** against compensator and transmission gear wear.^{BB}



^{BB}Based on testing of AMSOIL 20W-50 Synthetic V-Twin Motorcycle Oil purchased on 3/19/19 and Harley-Davidson Screamin' Eagle SYN3 purchased on 3/19/19 in the CEC L45-KRL, ASTM D445 test. *All trademarked names and images are the property of their respective owners and may be registered marks in some countries. No affiliation or endorsement claim, express or implied, is made by their use.



AMSOIL V-Twin Oil Change Kits include...

- 4-5 quarts of AMSOIL 20W-50 Synthetic V-Twin Motorcycle Oil (MCV)
- 1 chrome or black AMSOIL Motorcycle Oil Filter (EAOM103/EAOM103C)
- 1 drain-plug O-ring

Check out the Motorcycle Product Guide at AMSOIL.com/AMSOIL.ca to find the right kit for your Harley-Davidson.*

LETTERS TO THE EDITOR

CALENDARS

Where is my new calendar? Can't AMSOIL afford it? Pathetic!

Jon Heller

AMSOIL: We haven't mailed free calendars to Dealers in about 20 years, Jon. The calendars today are much higher quality and sold to Dealers at very reasonable prices. Most Dealers give them to accounts and other high-value customers. Personalized calendars may be ordered through the AMSOIL Print Center. Non-personalized calendars (G1105) may be ordered directly from AMSOIL.

DEALER LOCATOR

Oftentimes a Dealer has to call AMSOIL Customer Service to find out if an account we want to sell to is protected or not. While the representatives are most helpful, too many Dealers aren't being responsible in uploading their accounts to the locator. As a Dealer, having this online reference is sometimes valuable in saving time rather than having to call Customer Service all the time. Is there another online database we can access to see which accounts are active and protected? This would save Dealers' time as well as Customer Service.

Andrew A. Gerber

AMSOIL: Great question, Andrew. There is no account lookup tool; however, even if there were, Dealers would still need to qualify a business before pursuing it due to several factors that can render a lookup ineffective. For example, an account could be buying as a Dealer, and would therefore not appear on a retail or commercial lookup. An account could be registered under one business name, but do business as another name. A business could have multiple locations and receive products from a different location, or an account might have multiple phone numbers and email addresses. These are just a few of the potential scenarios that make an account lookup tool ineffective and reinforce the importance of solid qualification practices for Dealers who pursue retail and commercial accounts.

CLOTHING AND PROMOTIONAL CATALOG

It would be nice if you could print the AMSOIL Clothing and Promotional Catalog (G1650) at least once a year. For example, I have several accounts that are Amish, and I need to have the catalog. I hope this is something you would consider.

Thanks,

Ralph Shelton

AMSOIL: Thank you for your suggestion, Ralph. We hope to resume bi-annual printing of the Clothing and Promotional Catalog once the current supply-chain and shipping challenges subside. In the meantime, we suggest bringing a laptop to your next meeting with your Amish accounts and visiting AMSOIL.com/AMSOIL.ca to peruse AMSOIL clothing and promotional items. We're curious about where your Amish accounts are using AMSOIL products and their experiences using them. If any are interested in providing a testimonial, you could pass it along to us at testimonials@AMSOIL.com. It could also be mailed to the AMSOIL Communications Department at 925 Tower Ave.; Superior, WI 54880.

PRICE INCREASE

Recently, I had one of my commercial accounts call me to verify his cost on a 55-gallon drum of Signature Series Max-Duty 15W-40 Synthetic Diesel Oil (DME). I called Customer Service to verify the pricing and delivery and also verified that this account was still credited to me as the Dealer. The customer called to order the very next morning and was given an almost \$200 price increase. I'm not sure this process was the best given how poorly this reflected on my service and AMSOIL as a company. All companies publish price increases ahead of a final disposition, and for AMSOIL to take that position and not let the customer enter the order at the initial quoted price, was poor business practice in my opinion.

Sincerely,

Geff Smith

AMSOIL: We apologize, Geff. That is not a good start to a new relationship, and we completely understand your displeasure. Unfortunately, the situation this spring did not allow us to provide advanced notice of the price increase. Any time we announce a price adjustment, we experience a big increase in order volumes. The severe supply-chain issues plaguing the entire industry put us in a position where a major increase in orders would have resulted in a wide array of AMSOIL products becoming unavailable for extended periods. In order to maintain a steady supply of products for Dealers, customers and accounts, we had no alternative but to eliminate the rush on orders that accompanies advanced notice of pricing changes. That was not an action we took lightly and it's something we hope to never have to do again.

PACKAGING

Maybe AMSOIL would be interested in a new way of packaging now that the cost of plastic has gone up so much. I have a quick lube account that uses cardboard boxes with a plastic liner, and have other accounts that would like it as well. Other companies are using them. It must be a cost savings?

David Green

AMSOIL: Thank you for your suggestion, David. We've taken several thorough looks at the bag-in-a-box packaging option, but due to its prohibitive cost, potential leaking/safety issues and lack of manufacturing control, we have determined it is not a good fit.

Email letters to:
letters@amsoil.com

Or, mail them to:
AMSOIL INC.
Communications Department
Attn: Letters
925 Tower Avenue
Superior, WI 54880

Letters are subject to editing for length and clarity; please include your name, address and phone number. Unsigned letters will not be published.



Matt Erickson | VP, PRODUCT DEVELOPMENT

LSPI is still causing problems

Prepare for an LSPI test for used oil.

Low-speed pre-ignition (LSPI) surfaced a few years ago and caused so much trouble that the auto industry introduced an updated oil specification, API SN PLUS, just to deal with it. Well, automaker data from the field suggests it's still a problem.

Before I dive in further, let's refresh our memories on LSPI. It's an abnormal combustion event that results in severe engine knock. It can happen when over-sprayed fuel combines with oil along the cylinder wall, creating droplets that hide in the piston crevice. Those droplets launch into the combustion chamber and ignite the fuel/air mixture too early. This creates a shock wave that collides with the upward-moving piston. Sometimes, drivers notice the engine idling roughly or knocking. In extreme cases, the force can break off chunks of the piston, destroying the engine – and causing expensive warranty claims the automakers don't want.

LSPI is a cousin of traditional engine knock, which has been around since engines were invented. But it is specific to gasoline-direct-injected engines that are usually turbocharged (T-GDI) and it normally occurs under low-speed, high-torque conditions, like when accelerating from a stop. That's a problem because most modern engines use turbocharging and direct injection to help meet tightening fuel-economy and emissions requirements.

This issue was so important that the industry introduced the API SN PLUS specification in May 2018, an amendment to the API SN specification that was current at the time. The new spec included an LSPI test in response to the rash of LSPI

issues arising in the field. Everyone agreed that it was needed to bridge the gap until the introduction of the API SP specification, which included an LSPI test.

Despite all this, some automakers are still seeing LSPI issues cropping up in the field. A recent Society of Automotive Engineers (SAE) paper indicates why. While some oils protect against LSPI when they're new and fresh out of the bottle, their ability to protect may diminish as the oil ages in service. In one test, administrators aged different API SN PLUS oils for 100 hours on a dyno. Then they subjected them to LSPI testing and found that some oils provided good LSPI protection when new, but not after they'd been aged.

The study found that the oil's formulation played a role in whether it protected against LSPI after aging. Oils with the proper balance of calcium and magnesium detergents were found to perform better after aging.

The industry is now working on an LSPI test for aged oil. All signs point toward introduction of another supplemental specification (probably API SP PLUS) that will include the new test.

This situation underscores the difficulty in formulating motor oil for today's engines. The oil must fight wear despite increased stress, resist deposits despite intense heat, maintain its viscosity, remain fluid in the cold, fight oxidation, resist the damaging effects of fuel dilution and cool hotter engines throughout longer drain intervals. Not only that, it must

protect against LSPI when new out of the bottle and continue that protection throughout the drain interval. That's a lot for a motor oil to handle, and those requirements make it increasingly difficult for formulators.

But we're up for the challenge. We were ahead of the game when LSPI first surfaced – AMSOIL synthetic motor oils achieved 100% protection against LSPI¹ – and, even though the aged-oil LSPI test is not yet fully defined, we're staying on top of it and early testing indicates we're in great shape.

Engines will only become more sophisticated, meaning they'll place greater demands on oil. Rest assured that AMSOIL synthetic motor oil will deliver premium protection against LSPI both new out of the bottle and throughout the drain interval so you can get the most out of your T-GDI engine.

¹Based on zero LSPI events in five consecutive tests of AMSOIL Signature Series, XL and OE 5W-30 Motor Oil in the LSPI engine test required by the GM dexos1 Gen 2 specification.

AMSOIL SPONSORSHIPS CONTINUE TO GROW IN 2022

Sponsorships and events help connect us with enthusiasts and generate excitement on a widescale level. They also help us grow the AMSOIL brand, which is an integral part of independent Dealer success. When AMSOIL has nationwide brand recognition, that makes it easier for Dealers to get their foot in the door and start making connections with prospects. This year we've expanded our investments in marketing and events and added a few new sponsorships. Here are a few highlights:

Destination Polaris

As we continue to tap into enthusiast markets, we've placed a special focus on side-by-sides by securing a partnership with Destination Polaris, the #1 off-road show in North America. Destination Polaris showcases all-terrain travel, racing and custom-built UTVs on cable networks throughout the United States and Canada. Starting in April, the show has been running our media campaign featuring the full-length "Run With Us" ad along with a "Brought to You By AMSOIL" billboard throughout all of season 13. This partnership has helped us broadcast the AMSOIL brand to over 15 million off-road enthusiasts who tune in to watch each week.



AMSOIL Red Bull UTV Scrambles

The Red Bull Scramble Series features two competitive classes of side-by-side racing for both professionals and amateurs across the nation. AMSOIL picked up more traction in the off-road scene when we became the Official Oil of four Red Bull Scramble Series events this year: Red Bull Mountain Scramble (Champion, Pa.), Red Bull High Desert Scramble (Nephi, Utah), Red Bull Stone Scramble (Huntsville, Tenn.)

and the Red Bull Sand Scramble (Brawley, Calif.). Each of these events garners thousands of viewers and attendees. Becoming the Official Oil gains us significant visibility with UTV enthusiasts following along throughout the year.



AMSOIL Ultimate Callout Challenge

AMSOIL continued as the title sponsor for the 2022 Ultimate Callout Challenge (UCC) in Indianapolis. UCC is a nationwide "callout" to owners and builders of some of the biggest diesel-powered hot rods in the country to come together for a three-day competition in drag race, sled pull and dyno events. Our sponsorship at UCC provides excellent exposure with diesel enthusiasts from all over the nation.



AMSOIL Championship Off-Road Series

This year marks our second consecutive year as title sponsor of the Championship Off-Road Series. The six-part series pits the best off-road drivers head-to-head in Pro 4x4, Pro 2wd and UTV classes on some of the most exciting off-road tracks in the sport – Antigo Lions Roaring Raceway, Crandon International Raceway, ERX Motor Park, Dirt City MotorPlex and Bark River International Raceway. About 1.6 million viewers tune in to watch live and re-running coverage of the AMSOIL Championship Off-Road Series, and live events attract thousands of fans.



Hot Rod Power Tour

In 2022, AMSOIL became the Official Oil of the Motor Trend Hot Rod Power Tour. This event is considered the largest traveling car show in the world, bringing thousands of vehicles and hundreds of thousands of spectators on a five-day, five-city road trip to celebrate classic cars, old-school trucks and newer hot-rod builds. This year, the tour went to the southeast of the United States, making stops in Memphis, Tenn., Lebanon, Tenn., Hoover, Ala., Pensacola, Fla. and Hampton, Ga. As the Official Oil of the power tour, we gained exposure not only with the participants and spectators, but also with the locals welcoming the Hot Rod Power Tour into their cities.

Daytona, Laconia and Sturgis

Every year, millions of riders hop on their bikes and travel from around the country to attend the nation's biggest and most iconic motorcycle rallies – Daytona Bike Week, Laconia Motorcycle Week and Sturgis Motorcycle Rally. AMSOIL remains the Official Oil of all three of these major rallies. We have a huge presence during these week-long celebrations of motorcycles and biker culture that, for many, are the pinnacle of the riding season. Our continued sponsorship of the largest motorcycle rallies in the United States throughout the years has secured our brand on the forefront of the motorcycle-enthusiast scene.

Roadkill Nights - Aug. 13

In 2022, AMSOIL became the Official Oil of Motor Trend's Roadkill Nights, a legally-sanctioned street racing event along Woodward Ave. in Detroit that kicks off a weeklong celebration of American car culture. In addition to the racing, Roadkill Nights features drift rides and demonstrations, classic and modern muscle car shows and more. Being the Official Oil of Roadkill Nights in a city filled with automotive history will provide us with great amounts of visibility and opportunities to connect with muscle-car enthusiasts. Nearly 40,000 people are expected to attend this year.

Hot Rod Drag Week - Sept. 18-23

This year, AMSOIL will be the Official Motor Oil of the 2022 Motor Trend Hot Rod Drag Week. This five-day competition has drivers drag racing along a set route between four classic drag strips: World Wide Technology Raceway (Madison, Ill.), Indianapolis Raceway Park (Indianapolis), Byron Dragway (Byron, Ill.) and Cordova Dragway (Cordova, Ill.). The winner is crowned "Fastest Street Car in America." Thousands of spectators will be following Hot Rod Drag Week again this year, meaning this new sponsorship will help the AMSOIL brand gain notable traction among classic-car enthusiasts.



Endorsements

This year, Team AMSOIL welcomed Pike's Peak International Hill Climb record-holder and founder of Chuckles Garage, Scott Birdsall. Chuckles Garage is an internationally acclaimed custom-build shop with projects featured in the likes of *Hot Rod*, *Car Craft*, *Diesel World* and *Diesel Power* magazines, along with numerous television shows. Birdsall has a large and steady following on social media, and our partnership will help extend the AMSOIL brand to reach that audience. Birdsall joins Team AMSOIL alongside our other sponsored racers and influencers, including gas-and-diesel-performance-products engineer Gale Banks, snowmobile and off-road UTV team Scheuring Speed Sports, off-road trophy truck-driver Bryce Menzies, championship rock-crawler and off-road racer Brad Lovell and more.

To keep up with all AMSOIL-sponsored racing and events throughout the year, follow the AMSOIL Inside Track at blog.AMSOIL.com.

'Million-Mile Phil' Trusts AMSOIL for His Honda* Gold Wings*

Phil Steiner proudly calls himself an "80-year-old Lima, Ohio guy." The lifelong resident of the northwest Ohio city spent 44 years working for Ford Motor Company* in a variety of departments, including machining, production and cleaning.



"I used to wash and wax the plant manager's car," said Steiner. "He liked that." It was a good fit for the longtime motorhead whose stable of vehicles includes a '57 Chevy* and a '59 Corvette.* The retired Ford worker is quick to point out he also owns a Lincoln* Towncar,* which was made by the Blue Oval.

Gold Wings Soar With AMSOIL Products

Steiner's real passion, however, is riding Honda Gold Wings. The crowned jewel of his garage is his 2015 GL 1800; its odometer reads nearly 704,000 miles (1.1 million km). Steiner also owns a 2002 Gold Wing with 554,000 miles (892,000 km) on it.

Amazingly, both bikes still have their original engines and, with the help of AMSOIL Synthetic Metric Motorcycle Oil, have required no engine work.

Lifelong Passion to Ride

Despite his current loyalty to Gold Wings, Steiner's riding career started aboard a '47 Harley-Davidson* Knucklehead.* "I

paid \$200 for it back in 1962," Steiner said. After a year, he bought a 1960 CH Sportster.* He rode it about 2,000 miles (3,200 km) roundtrip to Daytona Bike Week in Florida for four straight years. "Back then I was young and dumb," said Steiner. "Now I'm just old and dumb."

He soon upgraded to a 1968 Harley. "After 19,000 miles (30,600 km) I was putting a bottom end in it," said Steiner. "Of course, I pulled sidecar in the wintertime." Then he bought a new 1970 Harley, but was installing new valves after 25,000 miles (30,500 km) and a new chain every 8,000 miles (12,900 km).

Gold Wing Debuts in 1975

Steiner wanted a bike with a driveshaft instead of a chain, so he bought a Moto Guzzi.* "First time I took it through the car wash, it wouldn't start," he said. "I called the dealer up, and he said, 'Don't spray much water on that distributor.'" After about a year, the Honda Gold Wing debuted, beginning Steiner's love affair

with the bike. "I've been on a Gold Wing ever since," he said.

He and the dealer couldn't agree on a price for a new model, so he snapped up a used '75 with 300 miles (480 km) on it. He bought it in February and a friend had to help him pull-start the bike behind his car since the bike's starter refused to engage. "They didn't start good in the wintertime," said Steiner. In just eight months, he put on 30,000 miles (48,300 km). With each successive Gold Wing Steiner bought, he racked up more miles, breaking 200,000 miles (321,900 km) on his '85 Gold Wing and hitting nearly 270,000 miles (434,500 km) on his '91 model.

2 Million Miles on Gold Wings

Today, his garage is home to the aforementioned 2002 and 2015 Gold Wings that just keep running. Steiner figures he's ridden about 2 million miles (3.2 million km) on Gold Wings in his lifetime, earning him the nickname "Million-Mile Phil."

Phil Steiner's 2015 Honda Gold Wing recently surpassed 700,000 miles (1.1 million km) on its original engine.



After buying the 2015 Gold Wing, Steiner ran the original equipment manufacturer oil for about 5,000 miles (8,000 km) before switching to AMSOIL 10W-40 Synthetic Metric Motorcycle Oil (MCF).

Steiner loves riding so much that he sometimes rides through the night to reach his destination. "I have a good friend from Wausau, Wisconsin," he said. "I'm going to get up about 3 in the morning to go see him and I'll do a same-day deal – about 1,000 miles (1,600 km) up there." His friend has a 1975 Gold Wing with 1 million miles (1.6 million km) on it. "But he's had five motors," said Steiner.

No Engine Work Needed

Steiner's 2015 and 2002 Gold Wings are still running strong on their original engines. He didn't even change the alternator on the 2015 model until 570,000 miles (917,000 km). He also gets great mileage on his tires, with up to 50,000 miles (80,500 km) on the front tire. The mileage is so good that some other riders think he's lying about how long he uses them. "I have no reason to lie; they're just jealous because they can't get that many miles out of them," said Steiner. He doesn't push his bikes too hard, which contributes to their sparkling maintenance records. The 2015 model uses only one-quarter of a quart of oil every 400 miles (640 km). "She should be using oil at 700,000 miles," said Steiner.

The Moonshine Store in rural Illinois, famous for its Moonshine Burger, is one of Steiner's favorite destinations. "I ride 600 miles (965 km) for a hamburger," he said.

Rides 600 Miles for a Burger

Steiner doesn't take many overnight road trips anymore, but he still likes to get out and put some miles behind him. He likes to ride up to the famous Moonshine Store near Martinsville, Ill., home to the Moonshine Burger. The store once hosted a bike rally that Steiner sometimes attended. Although the rally is no more, he still likes to make the trip every now and again. "I run 600 miles (965 km) to get a hamburger," he said.

40 Straight Years of Daytona Bike Week

After 2 million miles (3.2 million km) riding Gold Wings, Steiner said there are only two or three states he's never visited. Florida is his most frequent destination. "I rode 40 years to Daytona (Bike Week) from Ohio from 1964 to 2004," he said. He never missed a year, even when the temperature plunged to -8°F (-22°C) one year as he left home. And back then he didn't have the equipment he has now to stay warm on cold rides. "I got an electric jacket, electric pants, heated insoles for my shoes, heated gloves and electric grips," he said. The bike even has a heated seat. "I'm the electric cowboy," said Steiner.

Aftermarket Oil Additive Causes Clutch Problems

Other than having some valves shimmed, the 2015 Gold Wing has required no engine work. However, he did have to replace the clutch recently after trying a popular aftermarket oil stabilizer he had sitting around his garage that Steiner figured might help reduce oil consumption. But it turned out to be more harm than good. "I noticed my clutch was slipping," he said. He'd never had clutch problems on a Honda before. Fortunately, while the bike was in the shop, Steiner was able to ride his "backup" 2002 Gold Wing. "I watch what I put in there now," he said.

Steiner wastes no words when talking about his experience using AMSOIL products. "It's done me a good job," he said. He hopes to hit 1 million miles (1.6 million km) with his 2015 Gold Wing. Steiner said he takes care of himself and walks everyday so he can continue to pursue his riding passion. He also takes care of his bikes with the help of AMSOIL Synthetic Metric Motorcycle Oil. "I just go out every day," he said. "When I'm on the road, I run gas tank to gas tank. I just like to ride."





Alex Thompson | Market Manager – Automotive B2C

How motor oil color affects performance.

(Hint: It doesn't).

One of the most resilient motor-oil myths out there is that motor oil that has turned black is unfit for service and must be changed. You can't go far on the Internet without running into a shadetree mechanic or self-described expert who repeats this myth as proven fact.

Although it makes sense on the surface, oil color is not an indication of condition; oil that has turned black may continue to provide good protection and performance. Oil analysis is the only way to tell for sure if the oil has reached the end of its service life.

So, what causes oil to turn black? And what gives it its color when it's new in the bottle?

Let's take the second question first. The oil's additives influence the final formulation's color. Some oils are naturally lighter and some are naturally darker depending on chemistry. Signature Series Synthetic Motor Oil, for example, has a slight reddish tint due to its additives.

AMSOIL 0W-20 LS-VW Synthetic European Motor Oil (EZT) has a greenish/blue color due to its unique additives that are required by Volkswagen* vehicles. Formulators can also add dye to the lubricant to change its color. Transmission fluid offers the perfect example. Red dye is added to prevent confusion with motor oil.

Some companies dye their oil presumably for marketing purposes. Royal Purple* comes to mind. They get a lot of mileage out of the unique color of their oil. LIQUI MOLY* recently introduced its MolyGen* motor oil that's

died fluorescent green. I'm not sure why you'd dye an oil the same color as some coolants, but I'll leave that discussion for another column.

Now, let's look at why motor oil darkens and sometimes turns black. As the oil circulates throughout your engine, it tends to assume the color of whatever it touches. If your engine contains carbon deposits or sludge, which are dark brown or black, the oil will slowly assume that color as its detergents and dispersants clean deposits and hold them in suspension. In this case, dark motor oil is confirmation that it's cleaning your engine.

Soot also darkens motor oil. While motorists associate soot with diesel engines, gasoline engines also produce soot.

Soot particles range from sub-micron size to 5 microns. Particles that agglomerate, or combine, can exceed 5 microns. By comparison, a human hair is about 70 microns in diameter. Full-flow filters can't remove soot particles from the oil, which contributes to the oil turning black. However, soot is too small to harm the engine since the oil's dispersants will hold soot in suspension and prevent it from adhering to metal surfaces. If particles do agglomerate, the full-flow filter can capture them.

I should mention that AMSOIL Bypass Filters, which are efficient down to 2 microns, can remove most soot, but they can't get it all, meaning oil can still appear black using bypass filtration.

Finally, natural heat cycles darken the oil. During your drive to work, your engine reaches normal operating

temperature (typically 195°F–220°F [90°C–104°C]), heating the motor oil. Then the oil cools while your car sits in the parking lot.

During lunch, the oil is heated again as you run errands. The process repeats on the way home. And the next day. And the next. This is known as "heat cycles," and heat cycles invite oxidation. Oxidation occurs when oxygen molecules interact with oil molecules and cause chemical breakdown, just like how oxygen causes a cut apple to brown or iron to rust. Some additives in motor oil are more susceptible to darkening due to heat and oxidation.

Oil analysis is the only surefire way to determine if the oil has reached the end of its service life. Chemically analyzing an oil sample reveals the condition of the oil, the presence of contaminants, fuel dilution and so on. Oil Analyzers Inc. offers testing; get more info at oaitesting.com.

Absent oil analysis, it's best to follow the oil-change recommendations in your vehicle owner's manual or on the motor oil label. The recommended service intervals for AMSOIL products are based on extensive testing and backed by thousands of data points spanning decades of real-world use.

When it comes to judging oil condition, trust the data, not your eyes. Otherwise, changing what appears to be worn-out oil could end up wasting time and money.

Commercial Training: Understanding Equipment Specifications

The AMSOIL Commercial Training Series is designed to increase Dealer success in the commercial market. The Understanding Equipment Specifications presentation provides valuable information about diesel, gasoline, transmission and grease specifications and trends.

Diesel Oil

API CK-4

Designed for current model-year and older diesel engines, API CK-4 oils offer greater protection and performance benefits over previous API diesel oil specifications.

- More protection against piston scuffing for reduced wear
- Better thermal control to resist oil thickening, aid in cooling and reduce wear
- Improved shear stability for maximum resistance to oil consumption and wear
- Enhanced aeration control, promoting oil-pump efficiency, wear protection and heat resistance
- Backward-compatible and recommended in all applications specifying API CK-4 and prior specifications

API FA-4

API FA-4 was created to further improve fuel economy and reduce emissions in diesel engines, while delivering the same enhanced protection and performance benefits of CK-4. FA-4 oils are sometimes used as factory-fill oils in large over-the-road truck fleets, but API CK-4 oils may be used for subsequent oil changes.

AMSOIL Signature Series Max-Duty Synthetic Diesel Oil (DHD, DTT, DZF, DEO, DME)

- Our most advanced formula
- 6X more engine protection¹
- Use in vehicles that require API CK-4 or prior specification

AMSOIL Heavy-Duty Synthetic Diesel Oil (ADN, ADO, ADP)

- Excellent protection and performance
- 4X more engine protection²
- Use in vehicles that require API CK-4 or prior specification

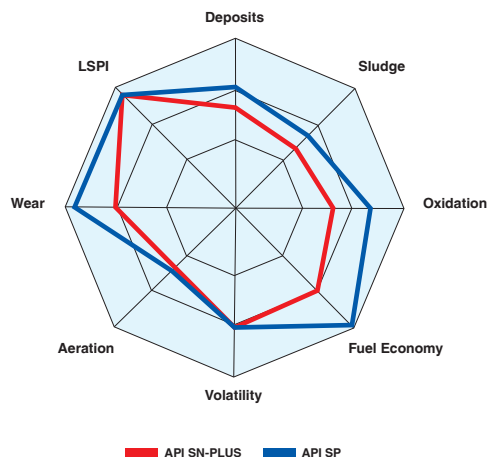
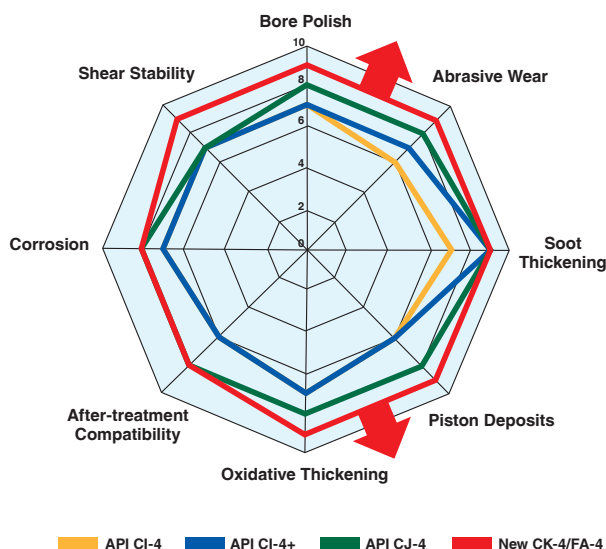
Gasoline Motor Oil

ILSAC GF-6A and GF-6B

ILSAC GF-6A and GF-6B focus on wear protection, prevention of low-speed pre-ignition (LSPI) and improved engine cleanliness. GF-6B features a more stringent fuel economy test and applies only to 0W-16 viscosity oils. Both specifications meet the industry-standard API SP specification, which is the latest specification found in owners' manuals.

API SP

- Added piston deposit prevention for fuel economy and horsepower retention
- Improved turbocharger protection to prevent turbocoking and increase longevity
- Increased wear protection for maintaining like-new performance
- Increased sludge and varnish protection for cleaner engines
- Low-speed pre-ignition (LSPI) protection, preventing severe engine damage
- Backward-compatible and recommended in all applications specifying API SP and prior specifications



Signature Series Synthetic Motor Oil (ASM, ALM, AZO, ASL, ATM, AZF, AMR)

- 75 percent more wear protection³
- Guaranteed protection for up to 25,000 miles (40,200 km) or 1 year, whichever comes first
- Achieved 100 percent protection against LSPI⁴
- Use in vehicles that require API SP or prior specification

XL Synthetic Motor Oil (XLZ, XLM, XLF, XLT, XLO)

- 64 percent more protection against oil breakdown⁵
- Extra protection that lasts up to 12,000 miles (19,300 km) or 1 year, whichever comes first
- Achieved 100 percent protection against LSPI⁴
- Use in vehicles that require API SP or prior specification

OE Synthetic Motor Oil (OES, OEZ, OEM, OEF, OET)

- 47 percent more wear protection⁶
- Protects against wear and fights sludge and deposits
- Achieved 100 percent protection against LSPI⁴
- Use in vehicles that require API SP or prior specification

Automatic Transmission Fluid

Automatic transmissions continue gaining popularity, especially as modern designs rival and surpass manual transmissions in the areas of fuel efficiency and affordability. As the global demand for mobility grows, more people are purchasing vehicles with automatic transmissions than ever before. Most current automatic transmission fluid specifications are trending toward lower-viscosity fluids that maximize fuel efficiency, while pushing the limits of ATF formulations.

North American PCMO ATF Transmission Specs		
OEM	Specification	Application
Ford*	MERCON®-V	Ford automatic transmissions, 2007 and earlier
	MERCON®-SP	5-speed Ford & 6-speed ZF-designed RWD
	MERCON®-LV	Ford automatic transmissions, 2008 and later
	DEXRON® MERCON® ULV	Ford and GM 10-speed, 2020 and newer
GM*	DEXRON®-VI	All GM transmissions 6-speed and earlier
	DEXRON®-HP	GM 8-speed transmissions
Chrysler*	ATF+4®	Chrysler 6-speed and earlier
	LifeguardFluid8	Chrysler (ZF) 8- and 9-speed

Signature Series Synthetic Automatic Transmission Fluid (ATF, ATL)

- Withstands the rigors of heavy towing, elevated temperatures and challenging terrain
- Remains fluid in sub-zero temperatures
- Provides reserve protection during heavy use and abuse

OE Synthetic Automatic Transmission Fluid (OTF, OTL)

- Protects against wear
- Resists harmful sludge
- Excellent cold-weather performance

Grease

A grease's NLGI number (measure of the grease's consistency) and base-oil viscosity ensure optimum protection and performance for an application. NLGI numbers range from 000 to 6, with NLGI #1 and #2 representing the most common greases in the market.

General Base-Oil Guidelines

- Spindle bearings use ISO 32 or ISO 46.
- Wheel bearings (medium speed) use ISO 100 to ISO 220.
- Slow, heavily-loaded bearings use ISO ≥460.

GC-LB

Some manufacturers call for greases certified through the NLGI GC-LB Performance Classification System. GC-LB signifies the grease meets the most demanding test standards for chassis components and wheel bearings. Greases that meet the GC-LB specification typically also meet most automotive OEM requirements.

AMSOIL Grease for Rotating Bearings

- AMSOIL Synthetic Multi-Purpose Grease (GLC)
- AMSOIL Synthetic Water-Resistant Grease (GWR)
- AMSOIL DOMINATOR® Synthetic Racing Grease (GRG)

AMSOIL Grease for Rotating Bearings under Heavy Impact Loads

- AMSOIL Synthetic Polymeric Truck, Chassis and Equipment (GPTR)
- AMSOIL High-Viscosity Lithium-Complex Synthetic Grease (GVC)

AMSOIL Grease for Non-Rotating Bearings and Sliding Motions

- AMSOIL Synthetic Polymeric Off-Road Grease (GPOR)



Performance Tests

The Performance Tests page at [AMSOIL.com/AMSOIL.ca](https://www.amsoil.com/AMSOIL.ca) is your source for all current test results comparing AMSOIL products to the competition and the toughest industry standards. We also publish many test results in our catalogs.

- Visit the Performance Tests section at [AMSOIL.com/AMSOIL.ca](https://www.amsoil.com/AMSOIL.ca) (Why AMSOIL>Performance Testing). Tests are available as jpeg images, making them easier to download and share.
- Share tests relevant to your prospects or customers. Share results on social media or via text/email

³Based on independent testing of 0W-20 (as worst-case representation) using the ASTM D6891 standard test. ⁴Based on zero LSPI events in five consecutive tests of AMSOIL Signature Series, XL & OE 5W-30 motor oil in the LSPI engine test as required for the GM dexos1® Gen 2 specification. ⁵Based on independent testing of AMSOIL XL 5W-30 motor oil in the GMOD engine test required for the GM dexos1 Gen2 specification. ⁶Based on max cam wear in independent testing of OE 0W-20 in the Peugeot TU3M Wear Test as required by the dexos1 Gen 2 specification.



AMSOIL RETAILER PIT LANE OIL CHANGE FEATURED IN NOLN

National Oil and Lube News (NOLN) is the leading media outlet serving oil-change and quick automotive maintenance shop owners and operators, providing technical information and knowledge from the industry, operator profiles and business ideas. AMSOIL retail account Pit Lane Oil Change landed a business profile in the March 2022 issue of *NOLN* after owner Kevin Robinson submitted photos of his shop based off another feature.

The Power of Presentation

Pit Lane Oil Change is a three-bay oil-change service center located in Richmond, Ky. The shop opened in May 2021. Its original building once sat empty for five years, and the place was in rough shape when Robinson purchased it in February 2021. But with a vision in mind and some major renovations, he turned a rundown vacancy into a sparkling business.

Robinson makes a special point to keep his facility well-maintained for his customers, who greatly appreciate it.

The waiting area and bathrooms are kept clean at all times, and picnic tables are available outside for them to enjoy the scenery. "The atmosphere is far better than any other garage in town," he said.

Prior to Pit Lane Oil Change, there was only one oil-change service provider nearby with two bays, and people searching for an oil change often complained about the wait. When Robinson opened Pit Lane Oil Change, he wanted to bring some competition by having a three-bay service center

and carrying AMSOIL products. "There are some die-hard, loyal Valvoline* customers in town, but I'm hoping to help them make the switch," Robinson said. With help from servicing AMSOIL Dealer Glen Kadelbach, Pit Lane Oil Change developed a well-stocked shop that carries products to fit all different types of customers. New patrons who were unfamiliar with AMSOIL products tell him they can feel the difference in their vehicles after getting serviced, with appreciation for better throttle response and longer oil-change intervals.

Building a Business

As a newer business in town, Pit Lane Oil Change recognizes the importance of building a loyal customer base. Employees focus on providing excellent service to leave a lasting impression. The experienced mechanics and technicians make sure to bring top-notch quality for every customer driving through the doors and provide complimentary brake inspections and windshield cleaning with every service. Robinson has a lot of faith in the products he carries because he personally uses them and shares his own testimonials with customers to show the value they're getting. "AMSOIL is cheaper in the long run; saving gas, saving on oil-change intervals and saving time," he said. Pit Lane also offers periodic coupons and discounts to give new and existing customers another incentive to stop in. They even held raffles and giveaways during a car show event in town last year to help attract people to the shop.

"The atmosphere is far better than any other garage in town."

Hope for the Future

"It's been hard opening a business during a pandemic. Timing has been rough since the price of oil has fluctuated so much in the last year," Robinson said, "But I listened to a higher calling and knew it was the right decision." They hope to continue building inventory with a full variety of products to reach even more customers. They also want to keep expanding business with European vehicles. "They need oil specifically engineered for European cars and can save a lot of money by skipping the dealership and coming straight to us," he said. Robinson noted that business has been picking up at Pit Lane Oil Change, and they're seeing many of the people they've previously serviced returning again. They continue to build their customer base by making service, accommodations and value their highest selling points.



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¹Based on testing of AMSOIL 20W-50 Synthetic V-Twin Motorcycle Oil purchased on 3/19/19 and Harley-Davidson Screamin' Eagle SYN3 purchased on 3/19/19 in the CEC L45-KRL, ASTM D445 test.

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¹Testing conducted in an independent lab using AMSOIL Signature Series 5W-30 Synthetic Motor Oil and a leading synthetic-blend 5W-30 motor oil in Ford F-150 trucks with 3.5L twin-turbo engines. ²Based on independent testing of AMSOIL Signature Series 5W-30 in the GM turbo coking test. ³Based on zero LSPI events in five consecutive tests of AMSOIL Signature Series 5W-30 Motor Oil in the LSPI engine test required by the GM dexos1 Gen 2 specification. ⁴Based on independent testing of AMSOIL Signature Series 5W-30 in the Sequence IIIH Engine Test (ASTM D8111), required by the ILSAC GF-6 and API SP specifications. ⁵vs. AMSOIL OE Motor Oil. ⁶Based on independent testing of AMSOIL Signature Series 5W-30 in the ASTM D6593 engine test for oil screen plugging as required by the API SN specification. ⁷Based on independent testing of AMSOIL Signature Series 0W-20 using the ASTM D6891 standard test. ⁸Based upon independent testing of Mobil 1 Annual Protection Full Synthetic 5W-30 and AMSOIL Signature Series 5W-30 in ASTM D2896. Oils purchased July 2020. ⁹Based upon testing of AMSOIL Signature Series 5W-30 and a national conventional brand 5W-30 in the ASTM D5293.





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