AMSOIL MAGAZINE

DEALER EDITION

OCTOBER 2019

PRESERVING HORSEPOWER & PERFORMANCE

AND DESTROYING THE COMPETITION

| PAGE 8

New 5W-30 Viscosity Joins Synthetic Small-Engine Oil Family | PAGE 9

“More AMSOIL product testing, please!”

“Can do.”

YOU ASKED FOR MORE PRODUCT TESTING… AND HERE IT IS.

In the Dealer survey we conducted in late 2017, you told us emphatically that you need more support to defend against competing brands.

The Performance Tests page at amsoil.com is your source for all current test results comparing AMSOIL products to the competition and the toughest industry standards. The information available shows hard data that differentiates AMSOIL products and shows prospects why they should make the switch to AMSOIL. We’ve also published most test results in our catalogs.

Make sure you’re using our performance tests during the sales process.

- **Visit the Performance Tests section at amsoil.com** (www.amsoil.com/performancetests.aspx) to locate AMSOIL product testing.
- **Share the tests relevant to your prospects’ or customers’ needs.** Text or email a short message with a Dealer-number transferring link to ensure you receive credit for all registrations and sales.

We all know AMSOIL is the best. Make sure your prospects know, too. Visit the Performance Tests page at amsoil.com today.

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AMSOIL MAGAZINE

Distributor Edition

OCTOBER 2019

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Back issues of *AMSOIL Magazine* are available for $1 each. Order G17D and specify the month and year.

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Printed by Arrowhead Printing
Duluth, MN USA.

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THE COVER

Nicknamed "Tomahauk" and featuring a LM75.3 engine and authentic World War II details, this custom 2010 Jeep* Wrangler* Unlimited is the creation of Hauk Designs founder and owner Kenny Hauk.

From the President

Last winter I was riding snowmobile with a group of friends in northern Wisconsin. We stopped for a break and another snowmobiler came in wearing a red AMSOIL Racing Jersey (G3537). I struck up a conversation with him and we talked about snowmobiles, riding and AMSOIL. I told him how AMSOIL sold that jersey for a while, but it had been unavailable for years. AMSOIL reintroduced the jersey after a popular contestant on China's version of "America's Got Talent" wore it on that show. Suddenly demand from China for that jersey skyrocketed. I never revealed who I was or how he basically had my name emblazoned on his chest. It was an interesting conversation and I was happy to hear an unfiltered opinion of my company and its products.

Reputation is important to me. It is earned, not given. It takes years to develop and almost nothing to destroy. Under the right circumstances, even untrue rumors can ruin solid reputations. Fortunately, AMSOIL has a rock-solid reputation, and we go above and beyond to keep it that way. For most customers, that starts with our products. AMSOIL products are the best in the world. I could not be more proud of that. We compete against the biggest companies in the world, and our products come out on top. Our products do what we say they'll do. This month we're introducing a new product, AMSOIL Upper Cylinder Lubricant. Once again, the competition isn't up to par. In fact, Sea Foam,* one of the most recognized fuel-additive brands, and Lucas,* the leading seller of upper cylinder lubricant, are ineffective. They're no good. And we're going to show you the proof.

That's no way to treat customers, and that's no way to do business. It's personal for me – it is my name on the bottle. I would not do anything to damage my reputation, and I respect your reputation. You represent AMSOIL in the field and it is your word that sells AMSOIL products. You can be confident that you are representing a company that has integrity. You can be proud to wear the AMSOIL logo every day. I know I am. Plus, you never know who will ask you about it or what type of business it could lead to. We introduced a completely new clothing line in the spring and we've got several new items coming out this fall, including the recently released snowmobile jacket.

Speaking of snowmobiling, if you haven't visited your retail accounts that carry our snowmobile products, now is the time. If you live in the south or don't have accounts that carry those products, the new Upper Cylinder Lubricant and the updated pricing information are also perfect reasons to pay your accounts a visit. We provided new printed price lists to every active commercial and retail account. A follow-up visit from you could be just what they need to spark that next order.

Alan Amatuzio
President & CEO

MAKE YOUR LIFE EASY

If you don't treat your fuel before storing seasonal equipment, you're going to have a tough time getting it started next spring. Make your life easy with Gasoline Stabilizer.

AMSOIL Gasoline Stabilizer provides corrosion protection Sea Foam* can't match, helping maintain power and performance and keeping metal looking like new even when subjected to salt water.[1]

GASOLINE STABILIZER (AST)

- **Helps** keep fuel from deteriorating
- **Protects** against varnish and gum buildup
- **Fights** ethanol corrosion

Sea Foam

AMSOIL

*All trademarked names 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. [1]Based upon independent testing of AMSOIL Gasoline Stabilizer obtained Nov. 8, 2018 and Sea Foam Motor Treatment purchased Oct. 25, 2018 in a modified NACE TM0172 using synthetic sea water per ASTM D665 part B.

LETTERS TO THE EDITOR

MPHD COLOR

I love MPHD; I use it under my car twice a year when I change my wheels seasonally for the winter and then back in the summer. When I do this I inspect for rust, and one thing about MPHD that drives me nuts is the color. It's the exact same color as rusty metal (brown). Sometimes I spray spots which are just slightly rusted, and then months later I want to see if the rust spread further, but I can't tell because it's all brown from MPHD anyway. It's also hard to tell if MPHD has worn off and needs to be reapplied, or if that's just more rust getting worse (especially when MPHD dries and starts to "flake," it's very hard to tell if it is brown rust or just dried MPHD). I understand there are manufacturing processes that might make it more expensive to be another color, but I think it would be totally worth it.

Thanks,

Anthony Sevigny

AMSOIL: *Thank you for your feedback, Anthony. Although we empathize with this predicament, we cannot change MPHD's color because the corrosion inhibitors themselves are brown. In our experience, MPHD does not flake. If rust has already formed, MPHD will not fix it. In that case you should first apply a rust neutralizer, then MPHD to prevent additional rust.*

CALENDARS

I just have some feedback about your 2019 calendars. Bottom line, I did not feel comfortable passing them around because of what was displayed in them. Next year, can you put more focus in just vehicles and products, and not having people in the pictures for each month? With all due respect, some people in the pictures appeared unkept, wearing old clothes, displaying tattoos, etc. All this is distracting. Maybe display their vehicles and the AMSOIL products they use, but leave it at that. Had I known your calendars contained these images of some of these folks, I would have stayed away from them from the beginning. No disrespect to those people; it's just distracting from the advertising point. If I'm breaking the ice with new customers, I don't want to give them these calendars because of the wrong impression they can get about AMSOIL.

Thanks,

Mario Mora

AMSOIL: *Thank you for your feedback, Mario. We're sorry to hear you weren't comfortable distributing this year's calendar. Like many of our customers, the influencers and enthusiasts featured in the calendar take pride in their vehicles and equipment and can often be found under the hood and on the garage floor, getting dirty by personally performing maintenance and making modifications. Their endorsement and use of AMSOIL products resonate with customers and prospects who are also enthusiasts and enjoy wrenching on their vehicles, and we don't believe their appearances present a distraction to the vast majority of customers and prospects. Rather, we believe their genuine belief in our products serves to further bolster our reputation with our target market. Additionally, these people have large followings with whom they share our content, further increasing value. With a fresh group of influencers/enthusiasts set to be featured in the 2020 calendar, we hope you'll consider using them to promote your business. You can always preview the calendar PDF (G1105) in the Dealer Zone before you purchase any.*

AMSOIL OPPORTUNITY

I just wanted to comment on your "From the President" message in the May *AMSOIL Magazine*. You mentioned two things that I would like to elaborate on, the first being your reference to multiple streams of income. For most people, one stream simply isn't enough. That's why AMSOIL is by far the best second stream of income I've ever seen. Becoming an AMSOIL Dealer was the best investment I have ever made.

The second and probably more important point you brought up was what would happen if you got sick or lost your job. You see, I experienced both; I was diagnosed with a rare disease in January of '15 and I lost my career as a police sergeant with the Columbus Division of Police in May of 2017, six years short of my planned retirement. I was diagnosed with Cortical Basal Ganglionic Degenerative Disease, which is about 20X worse than Parkinson's only without the tremors. This disease has about a 4-8 year life span, but so far I am defying everything my doctor has told me because I'm progressing slower than any of his other patients.

This disease has devastated my family and our retirement plans. My ability to work my business suffered dearly, but my accounts have held steady. My AMSOIL income hasn't gone up much the last three years, but it hasn't gone down either. My AMSOIL business saved my family's future, and for that I owe you and your father a huge thank you for bringing the best business opportunity to the average Joe.

I'm confined to a walker, and some days I can barely walk at all or stand for more than 5-7 minutes. AMSOIL means so much to me I've decided I'm going back in the trenches even if I have to drag this walker with me. If a Dealer ever complains that the AMSOIL business is too hard, tell them my story. It's not hard if you truly believe in it.

I have a caretaker with me every day, and she has agreed to drive me to my appointments and help me with the literature and other things I bring with me. I'm going to keep positive about this because I'm grateful your father gave me this opportunity clear back in 1996. My thanks to Jim Allen too; without him I don't think I would have ever made DJ.

Steve Tarini

AMSOIL: *Thank you for your dedication to AMSOIL, Steve. Your inspiring story certainly corroborates the points in the "From the President" column. We are sorry about the disease you are fighting, but we are glad to know your Dealership is there for you. You've got a great spirit. Don't ever stop.*

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

Small engine won't start?

Bad gas is the number-one reason, and here's how to prevent it.

Len Groom | TECHNICAL PRODUCT MANAGER, POWERSPORTS

In northern Minnesota, where I live, the temperature occasionally breaks 80°F (27°C) in the summer. When it does, it's time to fire up my Jet-Skis* and hit the lake. The last thing I want to do on a sunny summer day is mess around with equipment that refuses to start or run properly.

Bad gasoline is the number-one reason seasonal equipment starts hard or runs rough. Over time, gasoline changes, leaving behind gums, varnish and other solids that foul the fuel system and prevent gas from flowing into the combustion chamber. In severe cases, gasoline can change so dramatically that it no longer ignites.

Gasoline is predominantly a mixture of carbon and hydrogen atoms bonded together into energy-dense hydrocarbons. Like conventional base oils, it's derived from crude oil via a distillation process that uses heat, pressure and other catalysts to create different fractions. Gasoline is comprised of hydrocarbons that are lighter than those found in, for example, diesel fuel or conventional base oils. Refiners add ethanol to the formulation, typically 10 percent, but as high as 85 percent.

Time, however, takes its toll on gasoline. Exposure to heat, humidity, atmospheric pressure, oxygen and other variables degrade fuel.

In addition to gums and varnish becoming more concentrated and less soluble as lighter hydrocarbons evaporate, gas is continually oxidizing, which further contributes to varnish and other gunk. Gasoline oxidizes more quickly than motor oil and its negative effects are more immediately noticeable. That's why it's important to use high-quality gas and store it in approved containers where air infiltration is limited, like inside a ventilated garage or shed, and not in the back of your truck or under the deck.

Meanwhile, ethanol added to gasoline at the refinery can absorb water from the atmosphere, which can lead to *phase separation*, which occurs when ethanol and gas separate, much like oil and water. Ethanol that has absorbed enough moisture and has sat long enough can foul the fuel system and prevent the engine from starting.

This all sounds dire, but it's nothing treating your gasoline with AMSOIL Gasoline Stabilizer (AST) can't solve. Gasoline Stabilizer keeps fuel fresh up to 12 months. AMSOIL Quickshot® (AQS) stabilizes gasoline during short-term storage up to six months, in addition to providing potent cleaning benefits and protection against ethanol issues.

What does stabilizer do?

That explanation may suit some people, but this is Tech Talk, so let's look at the chemistry behind gasoline stabilizers.

You've probably heard terms like "free radicals" and "antioxidants" in relation to your health. A free radical is an unpaired electron, and most are unstable and highly reactive. They can either donate an electron to, or accept an electron from, other molecules. This starts a chain reaction that can lead to oxidative stress and cell damage. Left unchecked, free radicals can lead to health problems, like cardiovascular disease and cancer. To help fight free radicals, we should eat plenty of foods rich in antioxidants, which lessen their effects. Antioxidants can "donate" an electron to free radicals or trap them, effectively reducing their instability without becoming unstable themselves. Antioxidants aren't silver bullets, but they go a long way toward improving our health.

By analogy, gasoline stabilizer is an antioxidant for your gasoline. It disrupts the free-radical-induced chain reaction that causes gas to oxidize and form varnish and gums. Some stabilizer products, like Quickshot, also contain chemistry that increases solvency and breaks down existing varnish, helping clean a dirty carburetor and restore performance. As shown, Gasoline Stabilizer also fights corrosion better than Sea Foam* Motor Treatment.

Neglecting to stabilize your gas can lead to all sorts of headaches when it's time to remove your lawnmower, generator, string trimmer or Jet-Ski from storage. For best results, stabilize your gasoline all year long. That'll ensure your equipment is ready to roll when you are.

Engine start-stop technology can increase bearing wear

Yet another reason to upgrade to AMSOIL synthetic motor oil.

Matt Erickson | DIRECTOR, TECHNICAL PRODUCT MANAGEMENT

Nearly every technology shaping the auto industry can be traced to one goal: increased fuel economy. Engine start-stop technology is one more tool automakers have in their arsenals to ensure today's vehicles meet tomorrow's tightening fuel-economy regulations.

In principle, start-stop technology is simple: the engine automatically shuts off while you're idling and restarts when you take your foot off the brake. This reduces fuel wasted while idling. Automakers introduced different start-stop systems in the late '70s and early '80s; however, drivers found them awkward and unworthy of the higher vehicle price. Today's start-stop systems are less obtrusive and are available on vehicle models from most automakers.

That's not to say they're without detractors. In fact, some automakers have installed off switches that allow motorists to disable the feature in response to negative driver feedback. But, despite their pitfalls, they're likely not going anywhere. Consider these statistics:

• According to bearing manufacturer MAHLE*, **U.S. vehicles burned 3.9 billion gallons of gasoline while idling** in 2017.

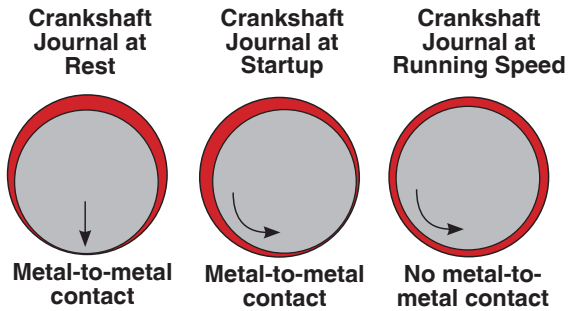
• Buick* reports that **engines with start-stop technology increase fuel economy 4-5** percent using the EPA test cycle.

Automakers leap for joy over minuscule fuel-economy gains, so you can bet they're going to stick with anything that may provide a 4-5 percent boost.

So, what does that have to do with motor oil?

Maybe you're aware that most engine wear occurs during cold starts. Well, engine wear occurs during warm starts, too, like every time an engine equipped with start-stop technology restarts.

We have to get technical to understand why.



The crankshaft spins thousands of times per minute in a running engine. As it spins, oil flows through tiny openings in the crankshaft journals and fills the spaces between the journals and main bearings. The crankshaft literally floats on an oil film and doesn't contact the bearings. We call this scenario *hydrodynamic* lubrication. In this regime, the bearings suffer little wear and last a long time.

Stopping the engine, however, reduces oil film thickness. The crankshaft settles onto the bearing surfaces rather than floats over them. The oil film thickness shrinks to about the same thickness as the surface roughness of the crankshaft. This is called *boundary* lubrication. Starting the engine allows the microscopic peaks on the metal surfaces to contact and cause wear until the oil film has been reestablished and the crankshaft is once again floating over the bearings. This is where the oil's additives play a huge role in protection.

Granted, only minimal wear may occur each time the engine is started. It's not a big concern in a properly maintained traditional engine using a good oil. But what if you greatly increase engine start-stop cycles?

Consider another statistic from MAHLE:

• **Start-stop cycles in equipped engines may triple over the engine's lifetime** compared to traditional engines.

That means three times more engine starts, three times more instances of boundary lubrication and three times more exposure to increased bearing wear.

Bearing wear can snowball out of control, too. Metal particles can break off and populate the oil. The bearing surface becomes rougher, encouraging adhesive wear in which peaks on metal surfaces grab and tear the mating surfaces. Eventually the crank journal and bearing can weld together, ruining the bearing.

This all points to a simple directive: make sure your customers with engines using start-stop technology are using AMSOIL synthetic motor oil to guard against bearing wear. Oil film thickness shrinks when engines start from a dead stop, placing even more importance on oil additives to maintain protection. Since engines equipped with start-stop technology spend so much more time under boundary lubrication, it's vital to use an oil with superior film strength and additive quality. AMSOIL Signature Series Synthetic Motor Oil delivers. It provides 75% more engine protection against horsepower loss and wear** to help protect today's advanced engines.

***Based on independent testing of AMSOIL Signature Series 0W-20, in ASTM D6891 as required by the API SN specification.*

AMSOIL UPPER CYLINDER LUBRICANT:
PRESERVING HORSEPOWER AND PERFORMANCE

Launching Oct. 4, AMSOIL Upper Cylinder Lubricant (UCL) is the latest addition to the gasoline additive lineup. It delivers more lubricity than the competition and battles ethanol-related corrosion.

Upper cylinders are one of the toughest areas of an engine to lubricate due to the intense heat of combustion and the design of today's vehicles. New AMSOIL Upper Cylinder Lubricant delivers a much-needed layer of protection to this trouble area to help fight piston-ring and cylinder wear, maximizing engine compression and horsepower. Its lubricity improvers aid in protecting fuel injectors and other fuel-system components from wear, helping ensure excellent performance and long life.

Plus, it really works. AMSOIL Upper Cylinder Lubricant delivers **18 percent more lubricity than Lucas* and 20 percent more than Sea Foam*** for better retention of horsepower and fuel economy.[1]

Inhibits Corrosion

Upper Cylinder Lubricant uses potent corrosion inhibitors to coat metal surfaces, block out moisture and stop deterioration before it starts. This is particularly important when using gasoline that contains ethanol due to its propensity to attract water and hasten corrosion. Inhibiting corrosion maximizes component life and reduces wear in the engine's top-end to guard against compression loss and maintain optimum power.

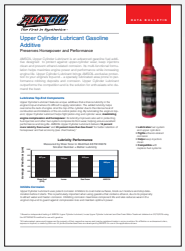
Keeps Injectors Clean

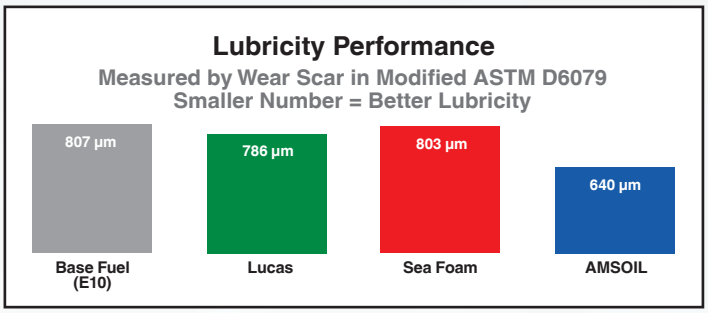
Upper Cylinder Lubricant contains detergent additives designed to maintain injector cleanliness. It's designed to work in concert with AMSOIL P.i. Performance Improver (API) to maintain injector and combustion-chamber cleanliness, retain fuel-economy and performance gains and maximize component life.

Capless-Compatible Packaging

The AMSOIL Upper Cylinder Lubricant bottle is fully compatible with capless fuel systems. Many new vehicles have replaced traditional fuel caps with capless systems. The threads on most bottles restrict them from opening the flap inside the fuel neck and also make removing the bottle difficult. Our packaging makes it easy to insert, pour and remove the bottle.

[1]Based on independent testing of AMSOIL Upper Cylinder Lubricant, Lucas Upper Cylinder Lubricant and Sea Foam Motor Treatment obtained on 02/13/2019 using the ASTM D6079 modified for use with gasoline.





Product Line Fitment	P.i. Performance Improver	Upper Cylinder Lubricant
Cleans Injectors	✔	✔
Cleans Pistons	✔	
Cleans Combustion Chamber	✔	
Cleans Valves	✔	
Fights Ethanol		✔
Lubricates		✔
Capless Compatible	✔	✔
Treat Rate	30 gallons	25 gallons
Usage Interval	Every 4,000 miles	Every tank

Winner of a SEMA Global Media Award & a Flexible Packaging Achievement Award

Cleaner. Faster. Easier.

The new easy-pack helps you access tough-to-reach fill holes. The flexible packaging makes changing fluid cleaner and faster, and eliminates the need for a pump.

Stay ahead of the curve with this revolutionary solution to challenging installations. Take advantage of the moment and introduce your customers to the unique AMSOIL easy-pack before the competition introduces their own versions.

- **Long service life**
- **Helps** extend engine life
- **Inhibits rust**
- **New** 5W-30 primarily for snowblowers & generators

NEW 5W-30 VISCOSITY JOINS SYNTHETIC SMALL-ENGINE OIL FAMILY

Available Oct. 1, new 5W-30 Synthetic Small-Engine Oil (AES) rounds out the synthetic small-engine oil family. It's recommended primarily for snowblowers and generators, bringing the excellent benefits of AMSOIL Synthetic Small-Engine Oil to applications that call for a 5W-30 viscosity oil.

Outstanding cold-flow

Cold ambient conditions and increased stress characterize snowblower operating conditions. Generators used on job sites can also run in cold weather. A 5W-30 motor oil provides improved cold-flow compared to 10W-XX motor oils. Its lower "W" viscosity means it flows more readily at startup for reliable wear protection. AMSOIL Synthetic Small-Engine Oil doesn't contain waxes inherent to conventional oils, so it doesn't thicken when the temperature drops, delivering superior protection and easier starts.

Commercial-grade formulation

Most small-engine oils we've tested are nothing more than re-labeled automotive oils, which are formulated with fuel economy in mind, not durability. That won't cut it. Compared to liquid-cooled automotive engines, small engines run hotter; operate under constant load; generate more oil-damaging contaminants; suffer from neglected maintenance; and are exposed to dirt, rain, snow and other extremes. Simply put, they're far tougher on oil that most people think.

AMSOIL Synthetic Small Engine Oil isn't merely a re-badged automotive oil. Instead, we designed it from the ground up specifically for small-engine dependability. You can rest assured your engines are protected even during periods of extended use when there's no time for scheduled maintenance. It's built to solve the problems that plague small engines, including wear, power loss, oil consumption, stuck rings and valves and harmful carbon deposits. It helps landscapers, contractors and other professionals get more work done and save money.

Reserve protection

AMSOIL Synthetic Small-Engine Oil is a long-life formulation that has repeatedly demonstrated its ability to safely exceed OEM drain intervals in the toughest conditions. Extensive severe-service testing proves its ability to provide service life of up to 200 hours/one year, whichever comes first. It provides an extra measure of protection when equipment goes longer between oil changes than is recommended by the OEM.

DATA BULLETIN

The Synthetic Small-Engine Oil Data Bulletin (G2217) has been updated to include the new 5W-30 viscosity.

NEW TECHNOLOGIES PROMPT NEW INDUSTRY STANDARDS

ILSAC GF-6 and API SP specifications coming May 1. AMSOIL is already ahead of the game.

Original equipment manufacturers (OEMs) are under pressure to improve fuel economy and reduce emissions. As a result, most new engines today use some combination of turbochargers, direct-fuel injection and variable valve timing to deliver better fuel economy and increase horsepower.

The trend of lighter engine oils to achieve these goals continues with 0W-16 viscosities emerging in the market and 0W-12 and 0W-8 expected to follow. The industry has responded to these ultra-light viscosities with two new oil specifications: ILSAC GF-6 and API SP.

We Are Already There

Our claims about using advanced technology aren't just talk, and this specification update proves it. AMSOIL synthetic motor oils already meet or exceed the new industry standards and require no change in formulation. This is not the first time we've been in this position. While the competition works on making major formulation adjustments, we just have to update our labels. The new specifications are not allowed to be displayed on labels until May 1, 2020. Expect to see updated AMSOIL labels then.

The Big Split

The International Lubricant Standardization and Approval Committee (ILSAC) recently set a new precedent in the passenger-car motor oil market by splitting its specification into two parts:

GF-6A – backward compatible, provides protection for a variety of older and newer engines

GF-6B – not backward compatible, for use in select new vehicles

Both versions focus on wear protection, prevention of low-speed pre-ignition (LSPI) and improved engine cleanliness. However, GF-6B features a more stringent fuel economy test. Engine oils can easily be identified as ILSAC GF-6A or 6B by the API emblem on the front label of the packaging. A shield will represent the GF-6B specification, while the traditional starburst will indicate a GF-6A product. Both ILSAC specifications meet the industry-standard API SP specification which is most commonly found in owners' manuals.

To learn more, visit amsoil.com/lspi.

A **SIMPLE WAY** TO FIGHT CYLINDER-LINER CAVITATION

In extreme cases, cylinder-liner cavitation in diesels can allow oil and coolant to mix. Then it's just a matter of time until engine failure. Here's what you can do to help ensure that doesn't happen.

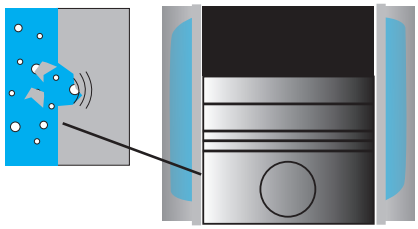
Most diesel engines are designed with replaceable cast-iron cylinder liners that are pressed into the engine block. While this doesn't apply to turbodiesel pickups, it affects heavy-duty over-the-road trucks and other diesels. The piston moves up and down inside the liner, while a jacket of coolant surrounds the outside of the liner to cool the engine.

How cylinder-liner cavitation occurs

When the engine is running, the pistons move vertically inside their liners several thousand times per minute. Meanwhile, the rotary motion of the crankshaft applies a thrust force through the connecting rods to the piston. These contradictory movements cause the pistons to hammer the liners, causing significant vibration, similar to the effect of ringing a bell. This vibration can cause air bubbles to form in the coolant surrounding the liner.

When the bubbles rupture, they direct a high-pressure stream of coolant at the liner. Like a rushing river carving away a canyon wall, the coolant can erode the liner until cavities form. Left unchecked, these cavities can keeping growing and eventually penetrate the liner, allowing oil and coolant to mix. Once that happens, it's only a matter of time before the engine fails.

Prevention is the best practice when it comes to cavitation. That task falls on the engine coolant, and there are two ways formulators typically design engine coolant to fight cavitation.



How Cylinder Liner Cavitation Occurs

Imploding bubbles direct high-pressure coolant toward the cylinder liner, creating cavities through which the coolant can enter and mix with oil, damaging the engine.

The old-fashioned way

For years, formulators have added metallic salts, like nitrites and molybdenates, to coolant that attach themselves to the liner and form a sacrificial layer. When the coolant bubbles implode, the metallic salts absorb the pressure and break off from the liner surface rather than the metal itself. Metallic salts naturally deplete over time, meaning motorists must replenish them periodically by adding a supplemental coolant additive (SCA) to the coolant reservoir, typically midway through the service interval. Unfortunately, this is often overlooked.

The better way

The trend in the coolant market – and the strategy we use at AMSOIL – is to eliminate adding an SCA by formulating coolant with organic acid technology (OAT). The chemistry of OAT coolants passivates the liner surface, which coats it in a thin, inert layer that provides protection against cavitation and corrosion. Unlike old-fashioned metallic salts, the additives in OAT coolants last much longer, meaning you don't have to replenish the system with an SCA. Modern OAT coolants also help fight problems associated with old-fashioned "green" coolants, like scaling and additive drop-out (which leads to "slime" in your coolant system) due to incompatibility issues.

Aside from using an OAT coolant, it's good practice to check your coolant level periodically. Also, make sure to check the pH and glycol levels annually. Glycol is important to the level of freeze protection and the coolant's boiling point. Over time, the water can evaporate from the system and increase glycol concentration, throwing off the coolant's balance. Perform fluid analysis once a year for best performance. We offer that service through Oil Analyzers INC. (www.oaitesting.com). We also offer antifreeze test strips (G1165).

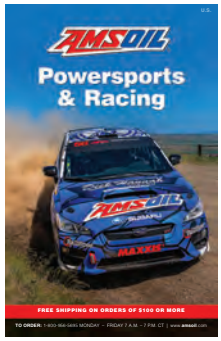
Using AMSOIL Heavy-Duty Antifreeze & Coolant (ANTHD) and taking care of your diesel's cooling system go a long way toward avoiding the financial pain of fixing an engine ruined by cylinder-liner cavitation.

- Pre-mixed 50/50 with high-purity water.
- Fully formulated: DOES NOT require the use of supplemental coolant additives (SCAs) or extenders.
- All-organic formulation is further enhanced with anti-scalant, anti-fouling and water-pump lubrication additives.
- Phosphate-, nitrate-, nitrite-, silicate-, borate and amine-free.
- Boil-over protection up to 265°F (129°C) with a 15 psi radiator cap.
- Freeze protection down to -34°F (-37°C).

Updated AMSOIL Market Catalogs

AMSOIL market catalogs with updated pricing and products introduced since spring are now available. They're an economical, professional way to display AMSOIL products to prospects and customers. Order yours today.

Automotive Catalog
- Auto enthusiasts
- Turbodiesel enthusiasts
- DIYers
- Classic car lovers
- European car owners



Powersports & Racing Catalog
- Motorcycle owners
- ATV/UTV enthusiasts
- Anglers
- Snowmobilers
- Dirt bike riders
- Racers

Retail Program Catalog
- Independent mechanics
- Quick lubes
- Transmission shops
- Tire shops
- Hardware stores
- Auto parts stores
- Powersports dealerships

Commercial Program Catalog
- Contractors
- Fleets
- Over-the-road truckers
- Heavy-duty off-road equipment operators
- Farmers/ranchers
- Landscapers

10W-30/SAE 30 Synthetic Heavy Duty Diesel Oil Discontinued

Due to diminishing sales, 10W-30/SAE 30 Synthetic Heavy Duty Diesel Oil (ACD) is discontinued and available while supplies last. Encourage customers using this product to upgrade to either Signature Series Max-Duty 10W-30 Synthetic Diesel Oil (DTT) or Heavy-Duty 10W-30 Synthetic Diesel Oil (ADN).

Signature Series Max-Duty Synthetic Diesel Oil and Heavy-Duty Synthetic Diesel Oil exceed the latest API CK-4 specification and represent a serious upgrade in protection and performance compared to oils formulated for previous API diesel oil specifications, including API CJ-4 and CI-4+.

- **More** piston-scuffing protection 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

API CK-4 diesel oils are backward-compatible, meaning they are recommended in all applications specifying API CJ-4, CI-4+ (and prior) specifications.

AMSOIL Signature Series Max-Duty Synthetic Diesel Oil
- **6X more** engine protection*
- **Reduced** oil consumption
- **Top-grade** protection for extended drain intervals

AMSOIL Heavy-Duty Synthetic Diesel Oil
- **4X more** engine protection**
- **Reduced** oil consumption
- **Outstanding** protection for OEM-recommended drain intervals

*Based on independent testing in the Detroit Diesel DD13 Scuffing Test for specification DFS 93K222 using 5W-30 as worst-case representation. **Based on independent testing in the Detroit Diesel DD13 Scuffing Test for specification DFS 93K222 using 10W-30 as worst-case representation.

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THREE POWERFUL AEROSOLS

AMSOIL Mudslinger, Engine Degreaser and Glass Cleaner deliver performance you can see immediately.

MUDSLINGER (AMS)

- **Provides** a protective layer of armor against mud, dirt and snow
- **Eases** clean-up after riding
- **Restores,** cleans and shines plastic, fiberglass and painted surfaces
- **Provides** a protective layer to counteract the damaging effects of UV rays
- **Pleasant** cherry scent

ENGINE DEGREASER (AED)

- **Removes** the toughest grease, dirt and grime
- **Leaves** no residue
- **Easy** to use
- **Powerful** stream
- **Safe** on all engine components

GLASS CLEANER (AGC)

- **Quickly** cuts through grease and grime
- **Does not drip or run**; stays where you spray it
- **Leaves** no streaks or haze
- **Ammonia-free** and safe on all glass, including tinted windows
- **Works** great on countertops, glass, mirrors and appliances

Mudslinger, Engine Degreaser and Glass Cleaner are not available in Canada.

BEFORE ENGINE DEGREASER

AFTER ENGINE DEGREASER