



MAGAZINE

NOVEMBER 2018



SIGNATURE SERIES: THE MEASURE OF PERFORMANCE

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All You Need to Know About Motor Oil Cold Flow | PAGE 10

Think differentially

THE NEW AMSOIL SEVERE GEAR® EASY-PACK



AMSOIL SEVERE GEAR 100% SYNTHETIC GEAR LUBE (SVG, SVO)

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



AMSOIL
The First in Synthetics®



Signature Series: The Measure of Performance | PAGE 8



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THE COVER

First used in the U.S. by AMSOIL, the NOACK Volatility Test is more important than ever when it comes to measuring motor oil performance. AMSOIL Signature Series passes it with flying colors.



From the President

We've been hearing a lot about the unemployment rate in the U.S. of late. The most recent statistics at the time I'm writing this show it's down to 3.9 percent nationwide. That's phenomenal! Most people believe that at rates this low, anyone who wants to work has a job. Unemployment won't remain this low forever though. Like most things, it's cyclical and, unfortunately, it will rise and people will be looking for work. Much to their good fortune, we'll be here waiting when that happens.

Many of those people will grab the AMSOIL opportunity with both hands and get to work. Others, however, will dismiss it as insufficient to replace the income they received from their previous employment. That's understandable. I'll never tell anyone that running a Dealership and making good money doing it is easy. If it were easy, everyone would do it. It takes time, patience and perseverance to build a successful Dealership. Over time, an AMSOIL Dealership delivers unlimited potential. It can truly change your life.

I like telling the story about AMSOIL Regency Gold Direct Jobbers Mike and Linda Ford in Minnesota. Mike first became a Dealer after learning about our products for his snowmobiles and motorcycle. He spent a lot of time researching the products and programs

over his first year as a Dealer, and then he attended his first AMSOIL University in 2005. That experience really made an impression on him. In 2006, Mike was laid off from the company he had been with for 10 years. He decided then and there to pursue his AMSOIL business full-time rather than look for work with another construction company.

The Fords were nervous, but they decided, committed and put in the work. Now they work together. Linda said it's hard work, but they enjoy it and it doesn't feel like work. Would Mike have made the leap into AMSOIL full-time if he didn't already have a little experience? Maybe not. Would their lives be the same if Mike hadn't made that choice? Not a chance. Their journey is not unique.

An AMSOIL Dealership has the power to change the lives of you and your family. An AMSOIL Dealership might be the best insurance policy or retirement plan ever created. When disaster strikes, an AMSOIL Dealership is there to provide income. We have many widows today earning strong incomes that simply would not be there without an AMSOIL Dealership. We also have Dealers who thought their retirement was secure with a pension or investment only to learn that the money had been squandered away by bad decisions or vanished when the market crashed. With an AMSOIL

business, you depend upon yourself and that is a whole lot more secure than depending on someone else.

I read an article recently about a 30-year-old person who racked up \$200,000 in student loan debt and is unable to get ahead because his paycheck is consumed by the payments. I wonder what his life would look like today if he spent the last 10 years building an AMSOIL business instead. Imagine if someone had given him the opportunity to avoid accumulating all that debt. You could do that for the next generation in your family.

Everybody is presented with opportunities in life. There are those in this world who recognize them and act, and those who don't. You've obviously recognized the opportunity; now you have to act. Find others and help them see the power of an AMSOIL business. Show them why it's a good idea to start now and not wait until times are tough. There are lots of things in life that are out of your control, but this is something you can do to influence your own success.

Alan Amatuzio
President & CEO

AMSOIL MARKET CATALOGS – NEW TOOLS TO INCREASE YOUR SALES

Full-sized product brochures are expensive, and you need multiple versions to cover multiple product lines. That's why we replaced them with new AMSOIL market catalogs. They **reduce your costs, allow you to show prospects and customers more products and include pricing**. Plus, they showcase the benefits of becoming a Preferred Customer or account – and P.C.s and accounts typically provide a bigger boost to your income over time. Get your market catalogs today.

Online Store: www.amsoil.com | Telephone: **1-800-777-7094** | EZ Online Order Form: my.amsoil.com



Commercial Program Catalog (G3469 U.S., G3474 Can.)

WHO'S IT FOR?

Current and prospective commercial accounts.

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

WHAT PRICING DOES IT SHOW?

Wholesale cost



Retail Program Catalog (G3520 U.S., G3521 Can.)

WHO'S IT FOR?

Current and prospective retail accounts.

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

WHAT PRICING DOES IT SHOW?

Wholesale cost and MSRP



Automotive Catalog (G3549 U.S. G3550 Can.)

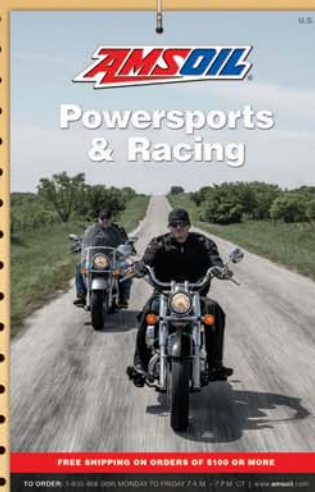
WHO'S IT FOR?

Current and prospective P.C.s and online/catalog customers.

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

WHAT PRICING DOES IT SHOW?

Online/catalog and P.C. pricing



Powersports & Racing Catalog (G3511 U.S., G3512 Can.)

WHO'S IT FOR?

Current and prospective P.C.s and online/catalog customers.

- Motorcycle owners
- ATV/UTV enthusiasts
- Anglers
- Snowmobilers
- Dirt bike riders
- Racers

WHAT PRICING DOES IT SHOW?

Online/catalog and P.C. pricing



LETTERS TO THE EDITOR

DEALER CERTIFICATION PROGRAM

I'm confused over the recent changes in the Dealer Certification Program, specifically for becoming Customer Certified, as well as changes in the Dealer Zone that supposedly make it easy to see your current status. According to the published criteria, a Dealer is required to have four newly qualified customers (excluding assigned) or two newly qualified customers and 24 active buying customers (Dealers, P.C.s or accounts). However, for the second criteria there are no asterisks indicating there are exclusions for assigned customers for either newly qualified or active buying customers. I'm assuming that the exclusion would apply to newly assigned customers, but I believe it should not apply to maintaining active buying customers, but is ambiguous.

Also, in the Dealer Zone I had a newly assigned customer on March 29 that is not appearing as a newly assigned customer. It briefly showed as pending, but now has disappeared, but clearly shows in reports. Is there a problem with the Dealer Zone algorithm for determining new customers? What exactly are the new rules for Customer Certification and what reports are available in the Dealer Zone to verify your eligibility? I understand the need to have active Dealers to refer customers to, but I believe the requirements need to be clearly articulated and reports available to Dealers so we can set goals and achieve or maintain our desired certifications.

Rick & Evelyn Gutknecht

AMSOIL: We apologize for the confusion, Rick and Evelyn. While we could simplify the program by limiting options, there are many Dealers who have different business models and are at different phases of business development who would be adversely affected. We have, however, taken steps to clarify the program since you wrote us, including new descriptions and a customer definition document in the Dealer Zone.

The chart in the upper left-hand corner of the Dealer Zone identifies your certification level. It's also a link that opens a detailed explanation of the benefits and requirements for each level of certification. Other good details are provided in AU Online in the Dealer Certification Program training.

The pending status of your customer could have been related to a payment, sales tax, address verification or other issue that has since been resolved. This new P.C. arrived at amsoil.com through a Dealer number-transferring link, so this is not an assigned customer. After looking at this customer and your other reports, there doesn't appear to be any problem with the process for determining if a Dealer is Customer Certified and eligible to be assigned customers.

MAGNUSON-MOSS ACT

It's great that you are pushing the Magnuson-Moss Act. However, what about us Canadians? Can you not come up with something for us?

Cheers,

Orv Francescone

On page 13 of the July issue you mention the Magnuson-Moss Act, but being in Canada, I'm under the opinion and have heard that it has no effect here in Canada. My question is how do I deal with warranty issues when confronted on this topic?

Rudy Hiebert

AMSOIL: Thanks for your questions, Orv and Rudy. Unfortunately, there is no equivalent consumer-protection act in Canada. Each Canadian province has its own consumer protection act, but it appears the Quebec Consumer Protection Act (Title I, Chapter III, Division I, § 52) is the only one that comes close to Magnuson-Moss. Specific provincial consumer protection laws can be accessed through www.consumerhandbook.ca/en/contacts/provincial-territorial-offices. At the national level, Canada addresses the anti-competitive aspect of product tie-in purchase requirements in the Competition Act. More information can be found at <http://www.competitionbureau.gc.ca/eic/site/cb-bc.nsf/eng/04267.html>. We are also aware of a dispute resolution mechanism known as the Canadian Motor Vehicle Arbitration Plan (CAMVAP). However, it appears it does not apply to third-party warranties or aftermarket products.

45TH ANNIVERSARY

This is a brief note to commemorate the AMSOIL 45th anniversary. I became a Lifetime Dealer in 1978 having read about

AMSOIL in *Road & Track* (probably). My dad was a physical chemist, so synthetic lubricants were not news to me, and the possibility of putting the best oil in my car in an era when rings, pistons and crankshaft bearings routinely went bad and engine blocks had to be re-bored seemed like very cheap insurance for a young man with a new 1200cc Toyota* Corolla*. It was a lot of money at the time – 125 bucks – but what an incredible bargain! I was fortunate to have Matt Koenig as my sponsor on Long Island, and when I moved to southwest Virginia in the late 80s I had Hall of Famer Ora Mae Boardman as my Direct Jobber, who was simply a lovely human being. When I moved to Calgary in 1990 for my internship, boy was I glad I was using AMSOIL when the temperatures dropped to 40 below! I'm proud to say I've never sold an ounce of AMSOIL to anyone (though I have given quarts and gallons away). It was always about me being able to put the best oil and filters I could find into my vehicles. I remember Mobil 1* coming out in imitation not too long after I signed up, and Castrol* came out with a version too. But AMSOIL has always been the top of the heap, and when we take our cars in for servicing these days the techs always take notice, even though now our Lexus* service guys would use Toyota synthetic if we would let them. So congratulations on 45 years, on Alan and Dean moving to new roles and keeping AI's vision true. Most people really don't care what goes into their cars as long as they work, and, yes, everyone's gotten better about that. But I have to say I feel proud to have started out with one of the innovators.

Sincerely,

Scott Johnson

AMSOIL: Thank you for your kind words, Scott. We appreciate your many years of loyalty.

Email letters to:
letters@amsoil.com

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Attn: Letters
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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.



Low-viscosity doesn't mean low quality

As motor oil viscosity continues to decrease, base oil and additive quality become more important.

Michael Meuli | VICE PRESIDENT, TECHNICAL DEVELOPMENT

Despite uncertainty surrounding future CAFÉ standards, fuel economy remains the biggest driver of innovation in the auto industry. One strategy for increasing fuel economy involves reducing energy lost to friction. Using lower-viscosity lubricants, which reduce pumping losses and flow easier at startup, helps automakers accomplish this goal. Just as we've become accustomed to 0W-20 oils, 0W-16 oil has entered the market and is recommended for the 2018 Toyota* Camry* and Honda* Fit*. People are wondering how much lower viscosity can go.

That's because excessively low lubricant viscosity can reduce wear protection. Some people fear the fuel-economy gains of modern low-viscosity oils aren't worth the potential loss of wear protection. You should be familiar with the relationship between lubricant viscosity and wear protection, but it bears repeating.

Motor oil must develop a durable fluid film that separates engine components so they don't rub together and wear out. As a rule of thumb, the higher the oil's viscosity, the thicker the fluid film – and the better the wear protection.

That being the case, you might think it advantageous to throw out your 0W-20 motor oil and use 15W-50 instead. That's a bad idea, and here's why.

Modern engines are built with tighter clearances between parts than their predecessors. Let's take the GM* 3.8L engines we test in our mechanical lab as an example. The clearances between the crankshaft journals and main bearings can be as low as .0007 inches. That's thinner than a sheet of paper (about .004 inches).

During operation, oil continuously flows through tiny ports in the crankshaft journals to lubricate the journal/bearing interfaces. It should form a strong, consistent oil film on which the crankshaft journals float as they spin, preventing them from touching the bearings. This is called *hydrodynamic* lubrication. Oil that's too thick for the engine, however, may not flow fast enough to fill the clearances, allowing the high spots on metal surfaces to contact. This is called *boundary* lubrication.

In this case, using a higher viscosity oil than what's recommended in your modern engine would lead to increased wear. Adding insult to injury, it would reduce fuel economy and increase operating temperatures as well.

Viscosity that's too low, however, can have the opposite effect. Since viscosity is related to film thickness, low-viscosity oil may not develop an adequate fluid film to keep metal components separated, leading to wear. If bad enough, parts will eventually weld together and destroy the engine.

You can see how modern engines have put oil formulators into a bind. How do we formulate low-viscosity oils that maximize fuel economy while also providing good wear protection in today's stressful engines?

In a word, quality.

Although oil film *thickness* is related to lubricant viscosity, film *strength* is a function of base oil and additive quality. We start with high-quality synthetic base oils that offer naturally high resistance to heat and chemical breakdown.

The challenge, however, is that lower-viscosity oils tend to be more volatile,

meaning they burn off more easily when exposed to high heat. If you ever look at a motor oil's NOACK Volatility, you'll notice volatility tends to increase as the oil viscosity decreases. This is of particular importance since most new vehicles are equipped with turbocharged engines, which generate increased heat. High volatility can lead to excessive oil consumption, which causes the oil to thicken, making it harder to pump through the engine and reducing fuel economy. Oil that has thickened can also lead to deposits and disrupt the additive balance.

That's why only synthetic base oils can be used to formulate a 0W-16 motor oil. Conventional base oils are too volatile to meet requirements of low-viscosity oil.

Additives, too, play a vital role in low-viscosity oils. We talked about boundary lubrication earlier. When in a boundary lubrication situation, protecting against metal-to-metal contact falls on the motor oil's anti-wear additives, more so than with higher viscosity oils. The additives form a sacrificial barrier on metal parts that absorbs contact and protects the metal surfaces.

Motor oil quality has always been important, but modern low-viscosity oils underscore the point. That's good news for Dealers selling the best oil on the market.

To help you reach this market, we introduced new OE 0W-16 Synthetic Motor Oil (OES) last month. We'll monitor demand for 0W-16 oils and introduce additional formulations if demand dictates.

In the meantime, brace yourself for 0W-8 motor oil, which is already being tested in Japan.

SIGNATURE SERIES: THE MEASURE OF PERFORMANCE

In the NOACK Volatility Test, Signature Series scored far below the API limit for evaporation and proved it remains where it's needed most – protecting your engine.

Nearly 35 years ago AMSOIL became the first oil manufacturer in the United States to use the NOACK Volatility Test as a measure of motor oil excellence. Today, it's the industry standard. Originally developed and used in Europe, the NOACK test was not commonly used for lubricants until AMSOIL Founder Al Amatzio pioneered its use for automotive motor oils in 1985. Previously, a lubricant's flash point was the primary way to approximate its volatility.

Oil Volatility: Feeling the Burn

Modern engines generate more heat than their predecessors. At elevated temperatures, the oil's lighter-weight molecules can volatilize, or burn-off. The more volatile a lubricant is, the lower the temperature at which the lubricant will begin to evaporate. The more it evaporates, the less oil is left to protect the engine, and frequent top-offs are required. You may have owned an automobile that mysteriously "used" motor oil.

Volatility affects more than the rate of oil consumption. When light elements in oil evaporate, the oil's viscosity increases. This thicker oil forces the engine to work harder and can result in numerous problems:

- **Reduced** performance
- **Reduced** fuel economy
- **Poor** cold-temperature starting
- **Increased** engine deposits
- **Out-of-balance** oil formulation, potentially leading to reduced protection

Another Benefit of Signature Series

If a vehicle "uses" oil it may be due to the oil's volatility. Switching to AMSOIL Signature Series Synthetic Motor Oil, which resists volatility better than other oils, can reduce oil consumption and maximize engine performance.

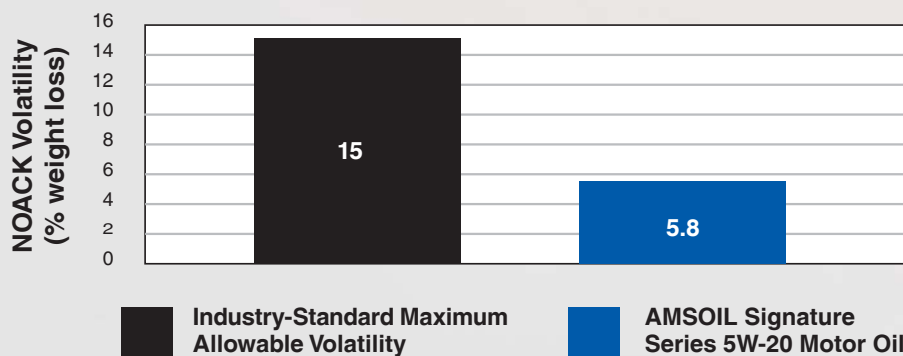


Signature Series Limits Oil Consumption

Signature Series has a uniform molecular structure that limits evaporation and keeps it where it's needed most – protecting your engine. It limits the volatility (burn-off) that occurs when oil gets hot, protecting against the harmful effects of oil thickening, additive imbalance, higher emissions and oil consumption. A lower NOACK number indicates better resistance to evaporation. Signature Series falls far below the API limit for volatility, reducing the need for frequent oil top-offs and limiting vehicle emissions.



NOACK VOLATILITY Lower number = less volatility

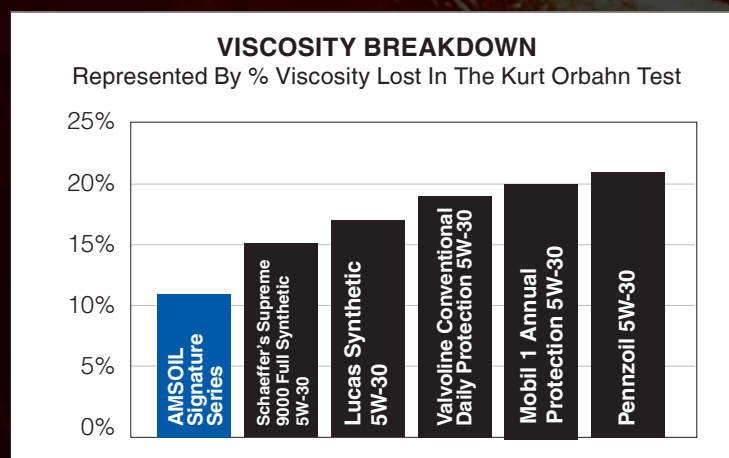


NOACK Volatility Test

In the NOACK test, an oil sample is weighed and heated to 250°C (482°F) for one hour. Dry air is passed over the sample, carrying the oil vapors that have boiled off and depositing them in a beaker. The original sample is removed and re-weighed. Any reduction in weight is reported as a percentage loss of the original weight.

Signature Series Fights Viscosity Breakdown

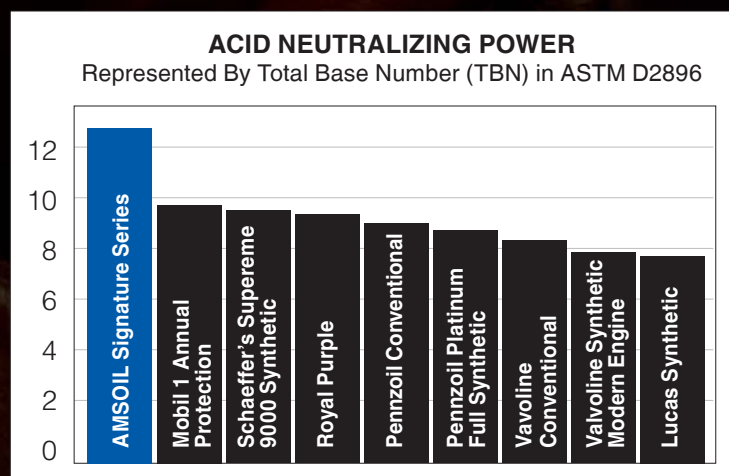
AMSOIL fights viscosity breakdown **better than the competition**^o, providing superior protection of pistons, cams and bearings.



^oBased on independent testing of AMSOIL Signature Series, Schaeffer's Supreme 9000 Full Synthetic, Lucas Synthetic, Valvoline Conventional Daily Protection, Mobil 1 Annual Protection and Pennzoil 5W-30 in the Kurt Orbahn Test. Oils purchased on 5/3/18.

Signature Series Neutralizes Acids

AMSOIL Signature Series is fortified with a heavy treatment of detergent additive and it delivers **30% more** acid neutralizing power^E than Mobil 1, and **36% more** than Royal Purple, helping engines to stay cleaner, longer.



^EBased upon independent testing of Mobil 1 Annual Protection Full Synthetic 5W-30, Royal Purple High Performance 5W-30 and AMSOIL Signature Series 5W-30 in ASTM D2896. Oils purchased 05/03/18.

WELL-BALANCED PROTECTION

Signature Series' well-balanced formula delivers exceptional protection in all areas of motor oil performance.

Signature Series Fights Wear

AMSOIL Signature Series Synthetic Motor Oil provides **75 percent more engine protection against horsepower loss and wear** than required by a leading industry standard^A, extending the life of vital components like pistons and cams.

^ABased on independent testing in the ASTM D6891 test using 0W-20 as worst-case representation.

Signature Series Guards Turbos

Signature Series protects turbochargers **72% better** than required^C by the GM dexos1[®] Gen 2 specification.

^CBased on independent testing of AMSOIL Signature Series 5W-30 in the GM turbo coking test.

Signature Series Protects Against LSPI

AMSOIL synthetic motor oils achieved 100% protection against LSPI.^B

^BBased 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.

Signature Series Cleans

AMSOIL Signature Series Synthetic Motor Oil has **50% more** detergents^D to help keep oil passages clean and promote oil circulation. It provides **90% better protection** against sludge^{DD}.

^Dvs. AMSOIL OE Motor Oil
^{DD}Based on independent testing of AMSOIL Signature Series 5W-30 in the ASTM D6333 engine test for oil screen plugging as required by the API SN PLUS specification.

ALL YOU NEED TO KNOW ABOUT MOTOR OIL COLD FLOW

Engineers agree that most engine wear occurs during cold starts. While the exact percentage depends on several factors and is difficult to define, the reasons include the following...

- A richer air/fuel mixture at startup washes oil from the cylinder walls
- Condensation forms inside the engine that causes rust and corrosion
- Cold piston rings and cylinders don't seal as well, causing combustion gases to "blow by" the rings and contaminate the oil
- Gravity causes much of the oil to fall back into the oil sump, leaving components unprotected
- Cold oil doesn't flow immediately at startup, temporarily starving the engine of oil

While all these factors are important, lack of oil due to poor cold-flow properties is the biggest culprit. Fortunately, there's something you can do about it.

"Cold" isn't just for winter

First, it's important to define a "cold" start. While true that oil thickens more in sub-zero winter weather and causes increased starting difficulty, an engine is considered "cold" after it's sat long enough to cool to ambient temperature, typically overnight. Even in warm climates, cold-start wear is a problem.

The oil inside your engine cools as it sits overnight. As it cools, its viscosity increases (it thickens). When it's time to start your vehicle in the morning, the thicker oil doesn't flow through the engine as readily as it does when it's at

operating temperature. It's during this time that vital engine parts can operate without lubrication, increasing wear.

The problem is more pronounced the colder it gets, particularly if you're using conventional motor oil.

Waxes solidify in the cold

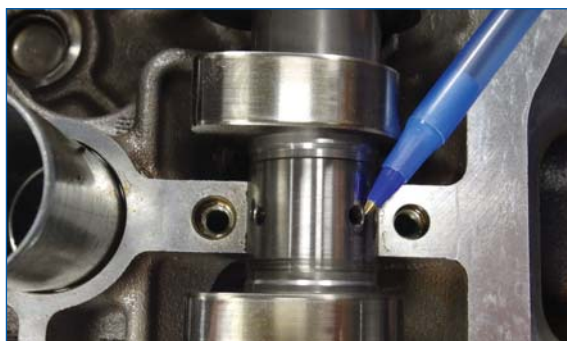
Conventional lubricants contain paraffins, or waxes, that solidify when the temperature drops. These waxes cause the oil to thicken. In the comparison shown here, we cooled a conventional oil and AMSOIL Signature Series 5W-30 Synthetic Motor Oil (ASL) to -40°F. The conventional oil on the left thickened so much it barely flowed from the beaker. If that oil were inside your engine on a cold morning, it could prevent the crankshaft from spinning fast enough to start the engine, leaving you stranded. Even if the engine started, you wouldn't be out of the woods. Thick, cold oil can fail to flow through the tiny screen openings on the oil pickup tube (see facing page),



Pour Point is the physical measurement of an oil's fluidity at cold temperatures and refers to the lowest temperature at which the oil maintains its ability to flow. Lower numbers indicate better cold-weather wear protection.

starving the engine of oil for several vital moments before the oil begins to heat up and flow throughout the engine.

In addition, thick oil can fail to flow through the tiny passages in the crankshaft to lubricate the main



Conventional oils thicken when the mercury drops. Cold, thick oil can fail to flow through the tiny oil passages throughout your engine, like the ones shown here in the camshaft, leading to accelerated wear.



OIL PICKUP TUBE SCREEN



bearings. Similar oil passages in the camshaft ensure the engine's upper end is lubricated (see facing page). The further away from the oil pump these oil passages reside, the longer it takes the oil to reach components at startup, placing your engine at increased risk of wear.

Poor lubricant cold-flow properties can also affect variable valve timing (VVT) systems. Engines equipped with VVT have solenoids with tiny openings through which the oil flows and acts as a hydraulic fluid to actuate VVT components. The solenoid pictured to the right, from a Ford® 3.5L EcoBoost® engine, contains openings .007 inches across – about the thickness of two sheets of paper. Oil that fails to flow through these tiny passages reduces VVT performance and can trigger a check-engine light.

Here's how to protect your engine

AMSOIL synthetic motor oils provide better cold-flow properties than conventional oils. Our synthetic base oils don't contain the waxes inherent to conventional oils. As a result, they demonstrate reduced pour points and provide increased fluidity during cold starts. This translates into oil that flows almost immediately through the oil pickup screen and other tiny oil passages when you start your engine, protecting it against wear.

Look at the oil's pour point to gauge its ability to flow quickly at startup, typically reported on the oil's data bulletin. Pour point is the coldest point at which an oil will flow. Lower values equal improved cold-flow and maximum wear protection. AMSOIL Signature Series 5W-30 Synthetic Motor Oil, for example, provides a pour point of -50°F (-58°C).

Pique prospects' curiosity

This type of information can help you create curiosity about AMSOIL products and lead someone from not looking for lubricants to looking for AMSOIL products. Ask pointed questions or provide useful information, such as...

- Most engine wear occurs during cold starts. Do you take steps to guard against start-up wear?
- Even in warm climates an engine is considered "cold" after it's sat overnight.
- Do you ever have trouble starting your truck on cold mornings?

Once they've shown interest, offer more technical explanation if required and offer AMSOIL synthetic motor oil as a solution to difficult cold starts and accelerated cold-start wear.

VARIABLE VALVE TIMING SOLENOID

Variable-valve-timing components, like this solenoid, contain oil passages as small as .007 inches, about the thickness of two sheets of paper. Cold, thick oil incapable of passing through the openings can reduce performance and even trigger a check-engine light.



DEEP CLEAN:

P.I. PERFORMANCE IMPROVER GASOLINE ADDITIVE

P.i. Performance Improver Gasoline Additive (API) now features a new label, formula and capless-compatible bottle. The popular deep-cleaning gasoline additive continues to restore your engine's power and performance and increase fuel economy.



Maximum Fuel Economy

AMSOIL P.i. is a potent gasoline performance improver featuring concentrated detergents that aggressively clean stubborn, power-robbing deposits from injectors, valves and combustion chambers. It reduces emissions and increases fuel economy up to 5.7 percent. P.i. cleans your entire fuel system in one tank of gasoline and restores engine power and performance.

Deposit Clean-up

GDI injectors are located inside the intense heat and pressure environment of the combustion chamber, making them particularly vulnerable to deposits. Even small amounts of deposits can lead to decreased power and fuel economy. P.i. features improved cleaning power to remove stubborn deposits and keep GDI injectors functioning as they should.

Going Capless

Many new vehicles have replaced traditional fuel caps with capless systems. While adding some convenience at the gas pump, the feature can make using fuel additive bottles a challenge. The threads on most bottles are easily hung up and make treating fuel and removing the bottle difficult. The new P.i. bottle is fully compatible with capless fuel systems.

Formulation Change? Yes. The basic P.i. formula and benefits are the same, but we've added to them with new chemistry to better target deposits in direct-injection engines.

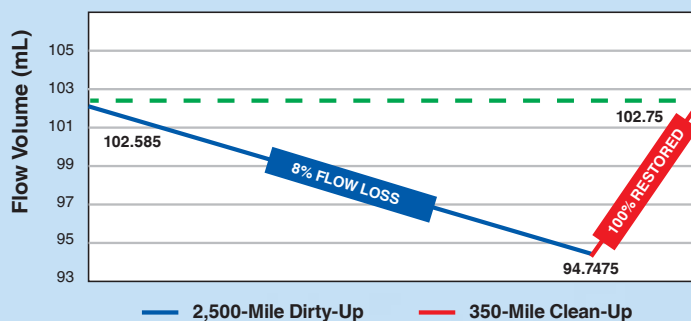
New Stock Number? No

New Treat Rate? Yes. Treats up to 30 gallons. Add entire bottle to tank at fill-up.

Pricing Change? No

- **Restores** power and performance
- **Reduces** need for costly higher-octane fuel
- **Reduces** noise from carbon rap and pre-ignition
- **Controls** pre-ignition "knock"
- **Maintains** the engine efficiency, fuel economy and power of new vehicles
- **Capless** compatible

GDI Injector Flow Restoration



P.i. restored fuel injectors to a 100 percent flow rate after one tank of fuel.

Knocking Out Pre-Ignition

Most cars have "knock" sensors that adjust spark timing to prevent knock. Although audible knock is controlled, power is lost from retarded timing. Higher octane fuels can be used to help prevent knock, an effect called "octane requirement increase." As a vehicle ages, more-expensive, higher-octane fuel is needed to keep it operating at peak performance. By cleaning combustion chamber deposits, knock is controlled, power is restored and costly higher octane fuel is no longer necessary.

NO MATTER THE SLED, AMSOIL HAS YOU COVERED



- **Prevents** piston scuffing
- **Fights** exhaust power valve deposits
- **Outstanding** cold-flow (-69°F)

TARGET MARKET

- Hardcore enthusiasts
- Owners of powerful new sleds that require extra protection, including those with Ski-Doo® E-TEC® and Arctic Cat® C-TEC® engines
- Snowmobile dealerships and other shops that cater to snowmobilers

- **Easy** start
- **Low** smoke
- **Excellent** wear protection

TARGET MARKET

- Retailers
- Occasional riders
- Those who desire the convenience of using one oil for snow and marine applications
- Vintage sled owners
- Cost-conscious customers

- **Maximizes** power
- **Burns** cleanly
- **Outstanding** piston & bearing protection

TARGET MARKET

- Racers
- Competition sleds
- Heavily modified engines

Online Store: www.amsoil.com | Telephone: 1-800-777-7094 | EZ Online Order Form: my.amsoil.com

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November Close-Out

The last day to process November orders in the U.S. and Canada is the close of business on Friday, Nov. 30. Individual telephone and walk-in orders will be processed if initiated by the close of business. Internet and fax orders will be accepted until 3 p.m. Central Time on that day. All orders received after these times will be processed for the following month. Volume transfers for November business will be accepted until 3 p.m. Central Time on Thursday, Dec. 6. All transfers received after this time will be returned.

Holiday Closings

The Edmonton Distribution Center will be closed Monday, Nov. 12 for Remembrance Day. The AMSOIL corporate headquarters and U.S. distribution centers will be closed Thursday, Nov. 22 for Thanksgiving Day.

Cold-Temperature Storage Recommendations

Cold-temperature storage can be detrimental to the performance of some AMSOIL products. Follow these recommendations to avoid potential problems:

Lubricants: Store at temperatures at least 10°F above the lubricant's pour point.

Grease: Store in a dry environment at temperatures above freezing (32°F).

Gasoline Additives, Engine and Transmission Flush:

No adverse issues with cold-temperature storage.

Diesel Injector Clean, Diesel Cetane Boost, Diesel Recovery:

No adverse issues with cold-temperature storage.

Diesel Cold Flow, Diesel All-In-One: Store at temperatures above 0°F.

Brake Fluid: Do not store at temperatures below -40°F for longer than two weeks.

Heavy-Duty Metal Protector, Metal Protector, Chain Lube, Power Foam, Fogging Oil, Silicone Spray, Spray Grease, Heavy-Duty Degreaser, Brake and Parts Cleaner, Firearm Lubricant, Firearm Cleaner, Mudslinger, Engine Degreaser:

No adverse issues with cold-temperature storage. We recommend allowing products to warm to room temperature before use.

Miracle Wash®, Glass Cleaner:

Store at temperatures above freezing (32°F).

Antifreeze and Engine Coolant:

Will not freeze. No adverse issues with cold-temperature storage.

Coolant Boost: Store above 32°F.

Slip Lock®: No adverse issues with cold-temperature storage. If product separates, heat to room temperature and shake well before use.

AMSOIL EA® OIL FILTERS: YOUR EFFICIENT CHOICE

To provide your customers with more high-efficiency filter options, we have expanded our Ea Oil Filter line to include seven new cartridge-style filters.

Ea Oil Filters (EAO, EA15K) provide a perfect pairing for the superior protection and performance provided by AMSOIL synthetic motor oils.

Absolute Efficiency

The exclusive technology used in Ea Oil Filters provides filtering efficiency of 98.7 percent at 20 microns. Ea Oil Filters are among the most efficient filters available for auto/light-truck applications.

Maximum Capacity

Ea Oil Filters have greater capacity than competing filter brands, providing confidence the oil filter will provide filtered oil to the engine over the course of the drain interval.

Improved Flow

The synthetic media in Ea Oil Filters allows maximum efficiency without restricting flow. This provides exceptional cold-start performance and ensures consistent oil flow to the engine.

Extended Service Intervals

When used in conjunction with AMSOIL synthetic motor oils, Ea Oil Filters are guaranteed for extended service life:

- Ea Filters designated with product code EA15K are recommended for 15,000 miles/one year, whichever comes first, in normal or severe service.
- Ea Filters designated with product code EAO are recommended for 25,000 miles/one year, whichever comes first, in normal service or 15,000 miles/one year, whichever comes first, in severe service.



Expanded Ea Oil Filter Line

Stock # General Applications

| | |
|---------|---|
| EA15K16 | Volkswagen* (98-06) w/1.9L, 2.0L diesel |
| EA15K19 | Chrysler*, Dodge*, Jeep*, Ram* (14-19) |
| EA15K35 | Various GM*, Saturn* (09-19) |
| EA15K37 | Various Dodge, Chrysler, Jeep w/3.6L Pentastar* engine (11-13), VW* Routan* (11-12) |
| EA15K39 | Chrysler Crossfire* SRT-6* (05-07), Various Mercedes* (05-15), Sprinter* vans (07-09) |
| EA15K43 | Ford* Edge*, Fusion*, F150*, Lincoln* (15-19) |
| EA15K54 | Various BMW* models (05-19) |

Ea Oil Filters

| Stock # | Units | Pkg./Size | Comm. Credits | U.S. Wholesale | U.S. P.C. | U.S. MSRP | U.S. Catalog | Can. Wholesale | Can. P.C. | Can. MSRP |
|---------|-------|------------|---------------|----------------|-----------|-----------|--------------|----------------|-----------|-----------|
| EA15K16 | EA | 1 Filter | 9.10 | 14.00 | 14.70 | 18.50 | 18.65 | 18.65 | 19.60 | 24.70 |
| EA15K16 | CA | 12 Filters | 109.06 | 156.24 | 164.10 | 205.50 | 207.15 | 208.65 | 219.10 | 274.35 |
| EA15K19 | EA | 1 Filter | 9.10 | 14.00 | 14.70 | 18.50 | 18.95 | 18.65 | 19.60 | 24.70 |
| EA15K19 | CA | 12 Filters | 109.06 | 156.24 | 164.10 | 205.50 | 210.90 | 208.65 | 219.10 | 274.35 |
| EA15K35 | EA | 1 Filter | 9.10 | 14.00 | 14.70 | 18.50 | 18.60 | 18.65 | 19.60 | 24.70 |
| EA15K35 | CA | 12 Filters | 109.06 | 156.24 | 164.10 | 205.50 | 206.20 | 208.65 | 219.10 | 274.35 |
| EA15K37 | EA | 1 Filter | 7.80 | 12.00 | 12.60 | 15.85 | 15.95 | 16.00 | 16.80 | 21.15 |
| EA15K37 | CA | 12 Filters | 93.48 | 133.92 | 140.65 | 176.15 | 177.00 | 178.80 | 187.75 | 236.40 |
| EA15K39 | EA | 1 Filter | 12.35 | 19.00 | 19.95 | 25.10 | 25.20 | 25.15 | 26.45 | 33.30 |
| EA15K39 | CA | 12 Filters | 148.00 | 212.04 | 222.65 | 278.85 | 279.85 | 280.80 | 294.85 | 369.00 |
| EA15K43 | EA | 1 Filter | 10.40 | 16.00 | 16.80 | 21.15 | 21.25 | 21.15 | 22.25 | 28.00 |
| EA15K43 | CA | 12 Filters | 124.63 | 178.56 | 187.50 | 234.85 | 235.65 | 237.00 | 248.85 | 311.60 |
| EA15K54 | EA | 1 Filter | 11.70 | 18.00 | 18.90 | 23.80 | 23.90 | 23.80 | 25.00 | 31.50 |
| EA15K54 | CA | 12 Filters | 140.21 | 200.88 | 210.95 | 264.20 | 265.30 | 265.80 | 279.10 | 349.20 |



New 2019 Calendars Available Now

Each month of the new 2019 AMSOIL calendar features one AMSOIL-sponsored racer, builder or influencer and the products he uses.

Calendars personalized with your contact information are available from the AMSOIL Print Center in the Dealer Zone (Marketing Your Business > AMSOIL Print Center).

Non-personalized calendars are also available and may be personalized by adding your business card. Simply insert your business card in the slotted area and your contact info is visible for a full 12 months. No minimum-quantity orders required.

AMSOIL Print Center Pricing* - Personalized

| | |
|----------------------------|-------------|
| 1 - 49 calendars | \$2.62 each |
| 50 - 99 calendars | \$2.19 each |
| 100 - 249 calendars | \$1.84 each |
| 250 - 499 calendars | \$1.80 each |
| 500+ calendars | \$1.48 each |

* Shipping 1-5 calendars \$5, 6-25 calendars \$9, 26-75 calendars \$15, 76+ calendars FREE.

AMSOIL Pricing** - Non-Personalized

| Stock # | Qty. | U.S. | Can. |
|----------|------|-------|-------|
| G1105-EA | 1 | 1.75 | 2.35 |
| G1105-CA | 10 | 15.00 | 20.00 |

**Calendars subject to shipping charges.

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November 2018

THREE POWERFUL NEW 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 on all glass, including tinted windows
- **Ammonia-free** and safe on countertops, glass, mirrors and appliances

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

BEFORE ENGINE DEGREASER



AFTER ENGINE DEGREASER



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