

AMSOIL

MAGAZINE

JANUARY 2022



AMSOIL VS. THE COMPETITION

Ask AMSOIL: What is Fuel Dilution (and Why is it Bad)?



DISTRIBUTOR
EDITION
 JANUARY 2022



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 Printed by Arrowhead Printing
 Duluth, MN USA.

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THE COVER

Industry testing reveals the superior protection properties of AMSOIL synthetic motor oils.



POWERFUL PROTECTION



LETTERS TO THE EDITOR

COMMISSION CREDITS

I have been an AMSOIL Dealer for so long I can remember back to when the commission credits for some products were 70% or more of the cost of that product. Now I am seeing where the commission credits offered on some products are less than half the cost. With every price increase the commission credit percentage of the cost goes lower and lower, which means we have to order and sell more product to earn the same commissions as we did years ago. However, with each price increase, I am seeing customers make adjustments in their purchasing habits, like purchasing another brand of oil filter offering 20,000-mile service instead of the AMSOIL filter which costs twice as much, making them harder to sell. Why are the commission credits not keeping pace with the cost of product on a percentage basis?

Thank you,

Erroll Ivery

AMSOIL: Thank you for sharing your concern, Erroll. Commission credits are not a fixed percentage of product price. If they were, prices would have to increase even more whenever there's a price increase, making AMSOIL products less competitive and harder to sell. Although commission credits are not fixed to product price, they have traditionally increased when prices increase, resulting in higher earnings for Dealers. In addition, the requirements to earn higher commission percentages have not changed for decades, allowing Dealers to earn more because a lower volume is required to qualify at higher percentages on the Commission Schedule – you have to sell far fewer cases of oil to make Direct Jobber than you did years ago. The compound effect is AMSOIL products remain competitively priced and Dealers earn more. This helps offset some of the difficulties related to price increases. At the end of the day, in order to earn more commissions, the keys have always been to generate more new customers, increase sales to existing customers and sponsor/train Dealers who build their own successful Dealerships.

TELEPHONE ORDERING HOURS

I have been a Dealer for about 16 years. Sixteen years ago, I paid attention to

telephone ordering because I knew that corporate closed early (at least for us in the west). Fast forward to now. Nothing changed except more people, more cars, more equipment and better technology. Several times I have tried to place an order before corporate closes. I have called by 4:00 or 4:30 (Pacific Time) only to be put on hold for, the last time, 11 minutes and 10 seconds. Why is this still an issue? Just because everyone in the Midwest closes its doors and runs home at 5 p.m. doesn't mean the rest of the world closes too.

Before you suggest using the online or fax ordering, I do use online ordering when I don't care if I get the order in five days. But most of the time I need the order within two days; the only way that happens is when I talk to someone and the order is instantly processed. Otherwise, it takes two or more hours to process and ends up getting processed sometime later, which could be the next day if I order late.

I know I am not the only one frustrated with this because I have other accounts call me to complain. I wonder how many of my catalogs I have placed out only to have a potential customer call at 5 or 5:30 Pacific Time and be told to call back during business hours. This means getting out of bed at 5 a.m. to be sure to get someone during business hours. So, they may think, "I'll just call on Saturday." That's not an option either. I will say I am not a bean counter and don't have the complete company picture, but maybe the extra revenue generated by having the ordering lines open longer would pay the salary and benefits for having the extra staff.

I am not one to put someone out in Wisconsin and force them to stay up to maybe 10 or 11, so maybe one or two positions in the Las Vegas Distribution Center and in Portland or Anchorage? I would really like to see 24/7 telephone ordering, but that is just crazy dreaming at this point.

Well, thanks for letting me vent. Fantastic job everyone, especially those behind the scenes making sure I get my order as quickly as possible.

Mike Anderson

AMSOIL: Thank you for your letter and all your efforts over the past 16 years, Mike. First, we apologize for your

experience. Please know that we do not want anyone to wait on hold for any amount of time, let alone 11 minutes. We have faced some staffing struggles lately and we are working hard to rectify the issue to prevent you and others from waiting on hold. We are open until 7 p.m. Central now to better serve our Dealers, customers and accounts in the West, and we are considering additional improvements to better serve you and others in your region. We do want to highlight that online orders are processed automatically, and ordering online is just as fast as ordering by phone. In fact, ordering online after business hours and on weekends results in even faster service because orders are at the top of the list for picking, packing and shipping at the beginning of the next business day.

LAWN MOWERS

I have talked to some grass-cutting guys and service centers that sell and service mowers. They are all using the Kawasaki* synthetic-blend oil. They were shown some testing of the Kawasaki oil and liked its lower cost (\$4.50 qt). Could we possibly get some comparison testing of both oils for extended drains? Even after telling them about the Small-Engine Oil's 200-hour drain interval I did not make any sales.

Thanks,

David Robertson

AMSOIL: Thanks for your suggestion, David. We will take it under consideration. In the meantime, we suggest opening with the benefits presented by SABER® Professional Synthetic 2-Stroke Oil. If you show how it can improve their operation, they may be more likely to give it a try. After they experience the benefits, they will be more open to trying other AMSOIL products.

Email letters to:
letters@amsoil.com

Or, mail them to:
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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.



Len Groom | MARKET MANAGER, POWERSPORTS & POWER EQUIPMENT

Visit the Polaris,* Ski-Doo* or Arctic Cat* website and I bet you'll see a shot of their latest sled carving up a mountainside with a headline that reads something like, "Our Most Powerful Sled Ever." With each new model year, engineers find a way to coax a couple more horsepower out of their engines.

The cumulative effect is that today's sleds produce more power than some cars on the road. A typical 850 cc two-stroke snowmobile engine, like the Rotax* E-TEC* available in Ski-Doo sleds or the Polaris 850 Patriot,* makes about 165 horsepower. That'll whip your helmet back.

Four-stroke snowmobile engines are even more impressive. Ski-Doo's Rotax 900 ACE Turbo R produces 180 hp. If that isn't enough to satisfy your power cravings, the Arctic Cat C-TEC4* turbocharged 998 cc engine used in the ZR 9000 Thundercat* puts down more than 200 hp, making it the fastest production snowmobile, according to Arctic Cat.

For perspective, consider that the 1.8L engine found in a 2022 Toyota* Corolla* produces just 139 hp. But, what good is all that power if the oil can't handle it?

No rider who drops close to \$20,000 on a new sled wants it to lose power due to stuck piston rings or balky exhaust power valves. The emotional connection between sled and rider offers a great entry point when talking to prospects about AMSOIL synthetic snowmobile oil.

Oil can be the weak link that breaks that connection. Engines rarely blow up in a catastrophic fireworks display due to low-quality oil. Instead, an oil's poor performance works slowly and

Modern sleds raise the bar for snowmobile oil performance

AMSOIL products help maintain the connection between sled and rider.

insidiously. Increased heat and pressure can lead to piston scuffing and deposits in the piston-ring lands, on the spark plugs and on the exhaust power valves in two-stroke engines. Stuck rings allow pressurized gases to escape the combustion chamber, reducing power.

In two-strokes, exhaust-power-valve deposits can cause the valves to stick, which reduces throttle response at low rpm and limits top-end power.

When formulating AMSOIL synthetic snowmobile oils, we consider the toughest conditions of today's most powerful sleds and tailor them to exceed requirements. For two-stroke sleds, INTERCEPTOR® Synthetic 2-Stroke Oil (AIT) is our best overall oil. Its synthetic base oils provide excellent lubricity, which means it provides excellent protection against piston scuffing and wear.

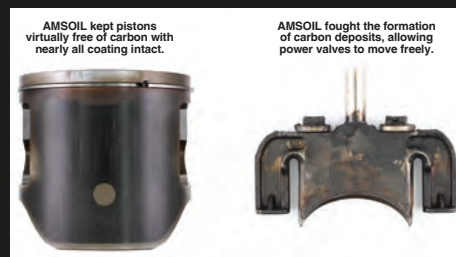
Its clean-burning base oils and powerful high-temperature detergents fight power-robbing deposits. Maintaining cleanliness maximizes the life and functionality of pistons, rings, power valves and other components. This helps riders get the most power out of their sleds while reducing maintenance.

Check out INTERCEPTOR's performance in a rental sled abused in the Canadian Rockies for an entire riding season. Share our testing video on social media and your website. Find it at [YouTube.com/AMSOILINC](https://www.youtube.com/AMSOILINC) by searching "Grizzly Lodge."

INTERCEPTOR performs so well, we back it with our Runs on Freedom®

AMSOIL Fights Wear

AMSOIL INTERCEPTOR® Synthetic 2-Stroke Oil delivered **outstanding wear protection and cleanliness** in a rental sled throughout 1,617 miles (2,602 km) of abuse.^{CC}



Limited Snowmobile Warranty. It covers repairs in current-model-year and newer sleds that use INTERCEPTOR exclusively for up to two years or 5,000 miles/8,000 km, whichever comes first. For details, visit [AMSOIL.com/rofwarranty](https://www.amsoil.com/rofwarranty) (AMSOIL.ca/rofwarranty in Canada).

In four-stroke sleds, we offer AMSOIL Formula 4-Stroke® Powersports Synthetic Motor Oil (AFF). It provides exceptional wear protection, engine cleanliness and cold-flow to protect powerful four-stroke sleds. It's also anti-rust fortified for protection during storage. By fighting wear, it maximizes engine compression to help preserve all that horsepower riders crave.

No matter the sled, we make an AMSOIL synthetic snowmobile oil that provides exceptional protection. Use this to your advantage this winter to sell more oil.

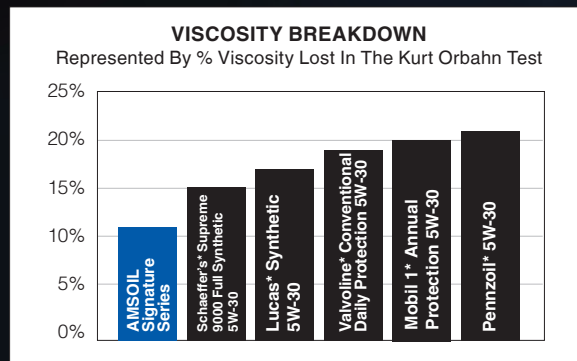
^{CC}Based upon use of a new 2019 Polaris* RMK* 850 as a rental sled at Grizzly Lodge December 2018 - February 2019.

AMSOIL VS. THE COMPETITION

Industry testing shows how AMSOIL motor oil stacks up against competitors like Mobil 1.* The results speak for themselves.

Signature Series Fights Viscosity Breakdown

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



^oBased upon independent testing of Mobil 1 Annual Protection Full Synthetic 5W-30, Schaeffer's Supreme 9000 5W-30, Lucas Synthetic 5W-30, Valvoline Conventional Daily Protection 5W-30, Pennzoil 5W-30 and AMSOIL Signature Series 5W-30 in the Kurt Orbahn test. Oils purchased on 05/03/18.

SHEAR RESISTENCE

Shear (often called mechanical shear) occurs when one layer of oil moves in the opposite direction of another layer of the same oil. One example occurs between the piston and cylinder wall. These two oil films move in opposite directions under intense heat and pressure. This scenario can shear, or tear apart, the molecules of viscosity-improver additives, which are used to extend the viscosity range of the base oil. If the oil loses viscosity due to shear, it can fail to provide the required level of wear protection. Think of the force transferred through the piston, rod and crank to the thin oil film protecting the bearing. There's not much room for error.

AMSOIL uses naturally shear-resistant base oils combined with top-tier, shear-stable viscosity improvers. AMSOIL synthetic motor oil withstands extreme heat and shearing forces, exceeding industry standards and outperforming competing brands. In fact, Signature Series fights viscosity breakdown 46% better than Mobil 1. It stands up to the devastating effects of high-horsepower, modern engines for maximum protection.

COMBATING VOLATILITY

Signature Series also does a better job resisting volatility, which refers to an oil's tendency to evaporate in the presence of extreme heat. Powerful forced-induction engines modified to shred the pavement make intense heat, which can cause inferior oils to break down, creating harmful engine deposits that reduce performance.

Here again, AMSOIL comes out on top, fighting volatility 38% better than Mobil 1.

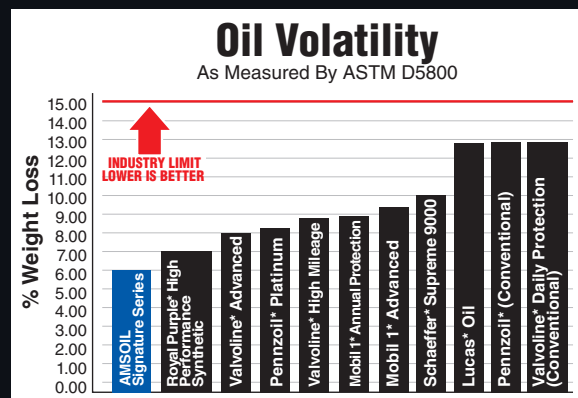
AMSOIL Helps Keep Engines Cleaner

AMSOIL Signature Series is fortified with a heavy treatment of detergent additives, delivering **28% more acid-neutralizing power than Mobil 1** and helping engines stay cleaner, longer.^{LL}

^{LL}Based 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.

Signature Series Helps Keep Valves Clean

AMSOIL fights volatility^U **38% better** than Mobil 1[®] and **17% better** than Royal Purple,^{*} helping reduce oil consumption and keep valves clean.



^UBased on independent testing of AMSOIL Signature Series Synthetic 5W-20, Mobil 1[®] Advanced Synthetic 5W-20, Royal Purple[®] High Performance Synthetic 5W-20, Valvoline[®] Advanced, Pennzoil[®] Platinum[®] Valvoline[®] High Mileage, Mobil 1[®] Annual Protection, Schaeffer's[®] Supreme 9000, Lucas[®] Oil, Pennzoil[®] (conventional) and Valvoline[®] Daily Protection (conventional) in ASTM D5800. Oils purchased October/November 2018.

ENGINE CLEANLINESS

A clean engine is a more efficient, longer-lasting engine. An oil's total base number (TBN) is a measure of its ability to neutralize harmful acids that lead to engine deposits. When we pit AMSOIL against Mobil 1 in TBN testing, AMSOIL delivers 28% more acid-neutralizing power to help your engine stay cleaner, longer.

For the best engine protection, the results are clear: AMSOIL comes out on top.

KEEPING IT CLEAR

The US Federal Trade Commission has set regulations regarding the use of product and opportunity claims for businesses. It's important to follow these guidelines to help protect the AMSOIL brand and opportunity.

Remember...

Don't Misrepresent The Brand/Products

- AMSOIL products have the performance testing to back them up, and we encourage you to share these results to demonstrate the outstanding quality of our products.
- The performance claims published by AMSOIL INC. have been through thorough engineering and legal review. Be sure to only use official product claims published directly by AMSOIL INC.
- For a variety of reasons, claims expire after a period of time. Check that you're using the most up-to-date information by visiting [AMSOIL.com/performance-tests/](https://www.amsoil.com/performance-tests/)



ASK AMSOIL:

WHAT IS FUEL DILUTION (AND WHY IS IT BAD)?

Fuel dilution occurs when gasoline or diesel fuel infiltrates your engine's crankcase and dilutes, or "waters down," the motor oil. Technically, "oil dilution" is a more fitting term, but "fuel dilution" is industry-standard terminology.

What causes fuel dilution?

Several factors can lead to fuel dilution:

- Dirty or leaking fuel injectors
- Excessive idle time
- Incomplete combustion
- Low engine temperatures
- Frequent short trips
- Worn piston rings/excessive blow-by

Applications prone to fuel dilution

Police fleets, fire trucks and other emergency vehicles are especially prone to fuel dilution. Common conditions include short bursts of driving and long periods of idling. Vehicles allowed to idle for long periods of time, like when warming the interior on a cold winter morning, are susceptible to fuel dilution.

Urban delivery trucks can suffer from fuel dilution given the constant stop-and-go conditions that prevent the oil from warming enough to evaporate any accumulated fuel.

Gasoline direct injection (GDI) can be another cause. GDI technology locates the fuel injectors directly in the cylinder as opposed to the manifold. This arrangement allows for greater control over the injection event, allowing engineers to fine-tune engines for greater efficiency and power.

One side effect, however, is fuel dilution. As fuel is sprayed into the combustion chamber, it can wash past the piston rings and down the cylinder walls into the oil sump.

How much is too much?

In a perfect world, we prefer no fuel mixes with the motor oil. But life has a

way of interfering with perfection. With that in mind, the following cautionary limits are acceptable provided motor oil viscosity has not significantly changed. Fuel dilution that surpasses these guidelines requires attention:

- Up to 2.4% in gas engines
- Up to 3.4% in diesel engines

Fuel Dilution:

The process of gasoline or diesel fuel infiltrating the crankcase and "watering down," or diluting, the motor oil.

Why is fuel dilution a problem?

- Fuel dilution reduces oil viscosity, which interferes with the formation of a durable lubricating film, inviting wear. It also negatively affects the oil's ability to function as a hydraulic fluid, which is critical in engines with variable valve timing.
- Fuel can wash oil from the cylinder wall, causing higher rates of ring, piston and cylinder wear.
- Reduced effectiveness of detergency additives limits the oil's ability to guard against deposits.
- Increased oil volatility results in higher oil consumption, requiring more frequent top-offs.
- Accelerated oxidation reduces the oil's service life and requires more frequent oil changes.

What if I suspect fuel dilution?

First, ensure there's really a problem. Although it's possible to smell fuel in a motor oil sample, oil analysis is the most accurate method of determining the severity of fuel dilution. If the oil analysis report reveals abnormal fuel dilution, the next step is to determine the cause.

There's an old adage when troubleshooting: start with the easiest and least expensive fix. In this case, try a fuel-system cleaner, such as P.i.[®] Performance Improver (API) or Diesel Injector Clean (ADFP).

Sometimes a piece of debris can lodge in an injector tip and prevent it from closing, allowing fuel to trickle into the cylinder and wash into the crankcase. A fuel-system cleaner may be all that's required to solve the problem.

If that doesn't work, a bad injector could be at fault, meaning it's likely time to visit a mechanic.

Preventing fuel dilution is best. But these limits are acceptable provided oil viscosity hasn't significantly changed:

2.4% GAS
3.4% DIESEL

Oil Analyzers INC.

Adjust driving conditions

Sometimes, driving conditions are to blame for fuel dilution. In this case, there isn't much you can do except change how you drive, if possible.

- Reduce idling time as much as possible.
- Mix in longer trips to ensure the engine reaches operating temperature for several minutes.
- Use a high-quality oil that resists wear.

This is where you can step in to help your customers protect against the negative effects of fuel dilution.

Using a high-quality synthetic motor oil protects against wear. Although oil film thickness is related to viscosity – and excessive fuel dilution reduces viscosity regardless of oil quality – film strength is a function of base oil and additive quality. AMSOIL synthetic motor oils use top-grade base oils and additives to help protect components from wear.

Encourage motorists to use AMSOIL synthetic motor oil to maximize engine life if they suspect fuel dilution. Suggest they draw an oil sample and have it analyzed through Oil Analyzers to precisely identify the scope of the problem. It's a great way to provide a value-added service. Get more information at oiltesting.com.

Finally, change oil according to the proper recommendations. Vehicles prone to fuel dilution typically operate under severe service, so follow the severe-service guidelines in the owner's manual or on the motor oil label.

Excessive idling to warm the vehicle on cold mornings can contribute to fuel dilution.

PRO TIP:
Use **DOMINATOR® Coolant Boost** to help vehicles warm up an average of 54% faster.



Using premium oil with tenacious film strength is vital to maximizing protection in vehicles prone to fuel dilution. A premium fuel additive also helps remove debris that can cause injectors to leak fuel into the cylinders. AMSOIL delivers on both fronts.

ENGINE OPERATION BASICS

PART 1: COMBUSTION AND COMPONENTS

The job of the engine is to transform fuel into energy. In internal combustion engines, energy is created by burning a fuel-air mixture under pressure inside the cylinder, and it's converted into movement by the engine's pistons, connecting rods and crankshaft. However, the design and function of components varies depending on the primary purpose of the vehicle, fuel type and other considerations. Let's start with the basics of combustion and engine design.

Four functions of combustion

Engines must perform four essential functions to operate properly and efficiently: intake, compression, power and exhaust. The intake function involves drawing a mixture of air and fuel into the combustion chamber. The compression function compresses the mixture. The power function involves igniting the mixture and harnessing the power of that reaction. The exhaust function expels the burned gases from the engine.

Piston and piston rings

The piston moves up and down, or reciprocates, inside the engine's cylinder. In doing so, it helps complete the four functions of combustion, creating a vacuum that draws the fuel-air mixture into the combustion chamber (intake), compressing the mixture (compression), igniting it (power) and expelling the burned byproducts (exhaust).

The area above the piston is referred to as the cylinder or combustion chamber. Air and fuel are compressed and ignited in the cylinder. Piston rings below the piston crown form a seal against the cylinder walls to prevent fuel from leaking out of the combustion chamber and help prevent most of the combustion byproducts from leaking past the piston rings and contaminating the oil in the crankcase. The piston rings also help cool the piston by dispersing oil along the cylinder wall and transferring heat.

Connecting rods and wrist pins

Connecting rods connect the piston to the crankshaft. A wrist pin is used to attach the piston to the connecting rod, allowing them to pivot as they reciprocate. Both the undercrown and wrist pin are exposed to extreme stress as they bear the force from the reciprocating pistons, most notably when

the piston is driven down by the force of combustion.

Crankshaft

The crankshaft converts the pistons' reciprocating action into rotary movement that is transferred to the transmission. In a typical consumer vehicle, the crankshaft is attached to the transmission via clutch (manual) or torque converter (automatic). In a lawnmower, the crankshaft is attached directly to the cutting blades.

Seals at the ends of the crankshaft prevent oil from leaking out of the engine. Seals in two-stroke engines have the added challenge of operating under the forces of positive and negative pressure created by the reciprocating piston. Four-stroke engine seals do not operate under such pressure.

ENGINE BLOCK DESIGNS

Inline engine

Inline engines arrange pistons in a single row. The inline engine block is a common layout found in various automotive and powersports applications, including snowmobiles, personal watercraft and motorcycles.

V-style engine

V-style engines have two rows of cylinders offset from each other so that they form a V shape. The v-style engine is a common automotive engine design. The large-bore motorcycle market also commonly uses this design.

Opposed engine

Cylinders lie flat and are arranged perpendicular to either side of the crankshaft in opposed engines. Porsche* and Subaru* use the opposed engine block design in automotive applications, while Kohler* and Briggs & Stratton* are well-known for using opposed engines in lawnmower applications.

Rotary engine

Known as the Wankel engine, rotary engines use a triangular rotor instead of pistons to produce power. Triangular rotors rotate inside a specialized chamber; one cycle consists of intake,

compression, power and exhaust functions. Because power comes from the revolving rotor instead of the reciprocating pistons, it operates smoothly with very little vibration. The rotary engine is found mainly in automobile applications, including the Mazda* RX7 and RX8.

Engines must perform four essential functions to operate properly and efficiently: **intake, compression, power and exhaust.**

Bearings

The engine's main bearings support the crankshaft. Depending on the engine design, roller bearings or plain bearings may be used.

Roller bearings (anti-friction bearings) are used in two-stroke applications because a dedicated lubricant source is not available. Roller bearings contain moving elements and may also be referred to as roller-element bearings.

Plain bearings are fixed, non-moving bearings that provide support to the rotating crankshaft in four-stroke applications. They are designed to provide low-friction resistance and require a dedicated, pressurized lubrication source to provide an adequate fluid barrier between metal components.



Valvetrain and valve timing

The engine's valvetrain is responsible for opening and closing the cylinder valves at the correct time during the combustion process. It consists of valves, valve-spring assemblies, camshaft(s), lifters, push rods and rocker arms.

The valves are used to either deliver the fuel-air mixture to the cylinder or allow



exhaust gases to escape. Older vehicles used one valve for each function; however, newer vehicles use as many as two intake and two exhaust valves per cylinder.

The intake valve delivers the fuel-air mixture into the combustion chamber. The exhaust valve releases the exhaust gases from the cylinder.

Each valve has a valve seal that is responsible for keeping oil out of the combustion chamber. Valve seals that malfunction can cause oil to enter the cylinder and burn during combustion, resulting in excess oil consumption.

Camshaft

The camshaft contains eccentrics and journals that control valve timing. Eccentrics are mechanical lobes that transfer reciprocating motion between mechanical components. Each eccentric controls one valve. For example, a four-cylinder engine that has two valves per cylinder will use a camshaft with eight eccentrics.

The shape of the eccentrics controls the finely tuned movement and timing of the valvetrain, including how far the valves lift, how long they stay lifted and when these movements occur relative to the position of the pistons.

The two main types of camshafts are flat-tappet and roller. The tappet, or lifter, on the flat-tappet camshaft is flat, and requires oil to separate its surface from the cam lobe. Flat-tappet camshafts produce high friction and high temperatures because the surfaces rapidly slide against each other. The oil film is the only barrier that prevents the lifter and the cam lobe from welding together.

Friction between the two components can eventually wear the flat-tappet cam down and affect valve operation. Engine power and efficiency will decline if the flat-tappet cams cannot lift the valves enough to adequately charge the chamber for ignition or release exhaust fumes.

The roller camshaft uses wheels, or rollers, to reduce tappet wear. The rolling element reduces virtually all friction between the tappet and cam lobe, helping extend camshaft life. Roller camshafts are generally preferred to flat-tappet camshafts because they significantly reduce wear and can enhance engine performance.

To be continued. Next time we will take a deeper dive into gasoline and diesel four-stroke and two-stroke engine designs.

Toyota* Tacoma* Nears 635,000 Miles With AMSOIL

Few Floridians know the state's turnpikes and highways better than Gary Smith of Orlando. The retired auto-parts courier canvassed much of the state during his career, driving from Jacksonville to Pensacola to Miami and most places in between. In fact, with the help of AMSOIL products, he's put nearly 635,000 miles (1,022,000 km) and counting on his 2011 Toyota Tacoma, with no oil-related problems.

"You have to see this!"

Smith recently took the truck to Fuller's Automotive, in Orlando, to repair a leaking spark-plug-tube seal that had begun allowing oil into the spark-plug hole. When Jim Fuller, who owned the shop from its 1976 inception until he recently sold it, removed the valve cover, he couldn't believe the cleanliness of the engine and knew he had to show Smith.

"That's why I got my camera out and started taking pictures," he said. "I said, 'You have to see this; no one will believe it.'"

Virtually no deposits or wear

As the images show, the valvetrain area is clean and void of any signs of deposits or heavy varnish, which you'd expect to see in an engine with so many miles. The common wear points, like the camshaft, timing chain and sprockets, show virtually no wear.



"If you look closely at those cam lobes, there's hardly any sign of wear," said Fuller. "Usually, you have a distinct wear line on the lobes after that many miles, but I didn't see that there." The condition of the timing chain and sprockets also impressed the longtime mechanic. "If you take a close-up view of those sprockets, you can see there are no pointed tips on them," he said. "Chains wear quicker than about anything in there."

XL Synthetic Motor Oil since day one

Smith has been servicing his Tacoma at Fuller's Automotive since he bought it

new in 2011. He started using AMSOIL XL 0W-20 Synthetic Motor Oil (XLZ) with the first oil change and hasn't looked back. He changes oil about every 7,500 miles (12,000 km).

Unfortunately, an accident involving his previous truck forced him to buy the Tacoma. His original truck at that time had 450,000 miles (724,200 km) on it and also used AMSOIL synthetic motor oil. "I was really unhappy because I wanted to get a lot of miles out of it," said Smith, who has his sights set on 1 million miles (1.6 million km) with his Tacoma.

“Usually, you have a distinct wear line on the lobes after that many miles, but **I didn’t see that there.**”

On the road again...and again

Smith began delivering auto parts to transmission shops around Orlando in 2005. As he proved himself, his area expanded until he was driving roughly 600 miles each day, five days per week. “I drove night runs,” he said. “I used to drive to Miami, Tallahassee, everywhere. There was less traffic on the road [driving at night].”

“I haven’t had any problems at all, oil-related,” he said. “It’s always run very, very nicely. It sounded good. It drove good. It still does to this day; it’s in great shape.”

Following his 2018 retirement, Smith no longer drives as much as he used to, but he still loves to get behind the wheel and hit the road whenever he can.

AMSOIL for life

“I’m very proud of the mileage and that I’ve taken so good care of it,” said Smith. And a big part of that has been thanks to AMSOIL XL Synthetic Motor Oil and the excellent service Jim Fuller, who’s been an AMSOIL Dealer since the 1980s, has provided all these years.

“That’s the best oil you can get,” Smith said. “Every time I drive my truck, there’s that little sticker up in the window, and it tells me when I need an oil change. I look at that number and I look at the mileage, and I know when I get the oil changed, everything is going to be good – AMSOIL is the best.”



The timing chain and sprockets show virtually no wear despite the high mileage.



The valvetrain area is clean and void of excessive deposits or varnish, demonstrating the oil’s excellent protection.

WHY BUY AMSOIL Synthetic Diesel Oil?

**DO YOU WANT
EXTRA ENGINE
PROTECTION?**



Independent testing shows **AMSOIL Heavy-Duty Synthetic Diesel Oil delivers 4X more protection against wear.**¹ For even greater protection, **Signature Series Max-Duty Synthetic Diesel Oil provides 6X more protection against wear.**²

**DO YOU TOW
OR HAUL?**



Signature Series Max-Duty delivers up to **60% better turbo cleanliness,**³ effectively withstanding the extra demands you place on the turbo when hauling heavy loads or updating the tune for maximum horsepower.

**DO YOU STORE
YOUR VEHICLES
OR EQUIPMENT?**



Signature Series Max-Duty provides up to **2X better rust protection.**⁴

**DO YOU
DRIVE IN HOT
TEMPERATURES?**



AMSOIL synthetic diesel oils **retain their protective viscosities for added engine protection in extreme temperature conditions.**

**DO YOU
DRIVE IN COLD
TEMPERATURES?**



AMSOIL synthetic diesel oils stay fluid in sub-zero temperatures for **easier starting, improved oil flow and reduced wear.**

Signature Series 0W-40 has a broad viscosity range that offers **4X better cold-cranking ability** than a 15W-40.

**DO YOU
OWN A
HIGH-MILEAGE
VEHICLE?**



Heavy-Duty Synthetic Diesel Oil provides up to **66% less** oil consumption, while Signature Series Max-Duty provides up to **76% less** oil consumption.⁵



¹Based on independent testing in the Detroit Diesel DD13 Scuffing Test for specification DFS 93K222 using 10W-30 as worst-case representation. ²Based on independent testing in the Detroit Diesel DD13 Scuffing Test for specification DFS 93K222 using 5W-30 as worst-case representation. ³Based on specification standards of CAT C13 2nd Ring Top Land Carbon testing. ⁴Based on industry standard testing using the NIMMA FC-W Rust Test. ⁵Than required by the API CK-4 standard in the Caterpillar-1N oil consumption test.

January Close-Out

The last day to process January orders in the U.S. and Canada is the close of business on Monday, Jan. 31. 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 January business will be accepted until 3 p.m. Central Time on Friday, Feb. 4. All transfers received after this time will be returned.

Dealer Work Shirt

Two-pocket shirt with concealed-button front pocket to protect vehicle finishes. Constructed of 65/35 polyester/cotton soil-release and moisture-management fabric.

Stock# G3599 S-XXX
 U.S. Price: 36.00
 CAN Price: 47.00



BACK SIDE

"Property Of" Sweatshirt

Constructed of 50/50 cotton/polyester blend.

Available while supplies last

Stock# G3694 S-XXX
 U.S. Price: 26.00
 CAN Price: 35.00



New Toronto Distribution Center

The Toronto Distribution Center re-opened at its new location Wednesday, Dec. 29.

New address:

350 Traders Blvd E Mississauga, ON L4Z 1W7



WINTER OFFERS THE PERFECT TIME TO APPROACH LANDSCAPERS

Professional landscapers make some of our best prospects. Across much of North America, business slows in the winter, marking the ideal time to approach landscapers and start a conversation about how AMSOIL products can help them maximize equipment life and profitability.

AMSOIL SABER® Professional Synthetic 2-Stroke Oil (ATP) is a great place to start. It offers a nearly immediate performance improvement in handheld two-stroke equipment, including string trimmers, chainsaws and backpack blowers. The SABER Handout (G3564) is an excellent sales tool for landscapers. It shows images of STIHL* string trimmer parts

following a 600-hour field trial with a professional landscaping company. SABER Professional prevented power-robbing carbon, helping the company extend trimmer life. Mixed at 100:1, SABER Professional also saved the company more than 50 percent on oil. Use the SABER Handout along with the Commercial Program Catalog (G3469, G3474

Can.) to start a conversation with prospects this winter. You may just land a new customer in time for spring landscaping season. View the Commercial Products Dealer Sales Brief in the Dealer Zone for insights on signing up landscapers and other commercial-account prospects.



Commercial Program Catalog

WHO'S IT FOR?

Current and prospective commercial accounts

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

WHAT PRICING DOES IT SHOW?

Wholesale cost

U.S. Commercial Program Catalog

Stock #	Units	Pkg./Size	U.S. Dealer
G3469	EA	1 U.S. catalog	0.90
G3469	CA	100 U.S. catalogs	85.00
G3469	PK	300 U.S. catalogs	240.00

Can. Commercial Program Catalog

Stock #	Units	Pkg./Size	Can. Dealer
G3474	EA	1 Can. catalog	1.25
G3474	CA	100 Can. catalogs	114.00
G3474	PK	300 Can. catalogs	322.40

SABER Handout

The SABER Handout fits perfectly inside the Commercial Program Catalog or works great on its own.

Stock #	Units	Pkg./Size	U.S. Dealer	Can. Dealer
G3564	EA	10 handouts	2.00	2.70



New 2022 Calendars Available Now

Each month of the new 2022 AMSOIL calendar highlights a popular race series or motorsports event in which we're involved, such as Sturgis and the AMSOIL Championship Off-Road series.

Calendars personalized with your contact information are available from the AMSOIL Print Center in the Dealer Zone at my.AMSOIL.com by clicking the Print Center icon under Quick Links.

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.

AMSOIL Print Center Pricing* – Personalized

11 - 49 calendars	\$3.27 each
50 - 99 calendars	\$2.82 each
100 - 249 calendars	\$2.45 each
250 - 499 calendars	\$2.41 each
500+ calendars	\$2.08 each

*Free shipping in the U.S.

AMSOIL Pricing** – Non-Personalized

Stock #	Qty.	U.S.	Can.
G1105-EA	1	1.75	2.46
G1105-CA	10	15.00	21.00

**Calendars subject to shipping charges.



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Published 12 times annually

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AMSOIL

ISO 9001/ISO 14001 REGISTERED



WE HONOR



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Minimum 10%
Post-Consumer Fiber

