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Monthly

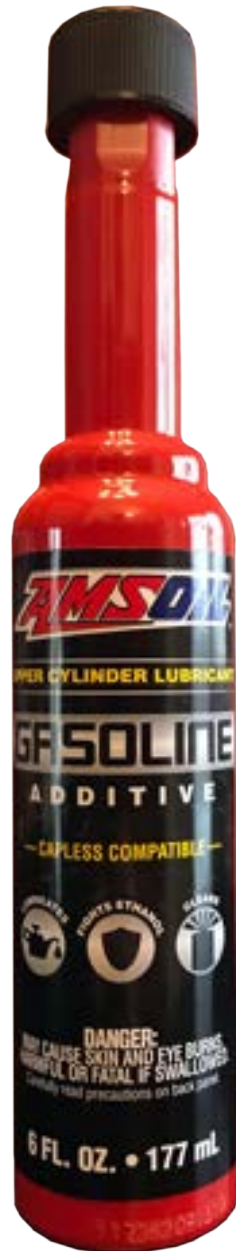
November 2019 - Issue #99

in partnership with Insane Oil of Omaha

Your Amsoil Information News Source

Amsoil Monthly Highlight: Upper Cylinder Lubricant

Your engine's top-end is sparsely lubricated and prone to the development of performance-robbing deposits. It's also highly susceptible to corrosion, an issue compounded by the prevalence of ethanol in today's fuel. [AMSOIL Upper Cylinder Lubricant](#) is designed to solve those issues. Its AMSOIL-exclusive, powerful formulation helps maximize engine power and performance while increasing engine life. And unlike competing fuel additives, [AMSOIL Upper Cylinder Lubricant](#) works.



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Congratulations:

New Preferred Customers

Jack Niemann
Raymond, NE

John Vancleaf
Lincoln, NE

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Tuscon, AZ

Jerry Mayfield
Lincoln, NE

Paul Thomson
Lincoln, NE

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Burbank, CA

Phil Delhay
Beatrice, NE

New Catalog Customers

Dee Zhen
Darien, IL

Anthony Huynh
Santa Rosa, CA

AMSOIL
The First in Synthetics®

Upper Cylinder Lubricant...Snake Oil or Frankincense

I would consider myself to be fairly knowledgeable when it comes to preventative maintenance on vehicles and equipment, but I am also a skeptic when it comes to the "latest and greatest" products that companies develop and tell me I should be using as preventative maintenance measures in my vehicles and equipment.

Amsoil recently introduced a new product called "[Upper Cylinder Lubricant](#)", however the concept of developing and utilizing a product to lubricate the "Upper Cylinder" can be traced back to the 1930s and even earlier if you really do some digging. It is widely known that the harshest, most degradative conditions with vehicles and equipment occur inside the cylinder where combustion occurs.

Naturally, when Amsoil introduced their version of [Upper Cylinder Lubricant](#) I wanted to understand the necessity and importance, or lack there, of such a product before I shared this new product with others.

Although there has been clear research on lubricating the Upper Cylinder dating back to the 1930s, I ask the question "Why now?" Why do we all of a sudden need this product now? I have been driving my 2001 Ford F150 for almost 10 years now and using [Amsoil P.I. Performance Improver](#) once every 4 months. Isn't [Amsoil P.I.](#) suppose to maintain, or even fix, all that stuff that the gasoline touches?

Although each of those questions have merit, we need to get a clearer picture of what the purpose of these different products are and how they affect our engine.

The burning of air/fuel inside the engine create particulate matter and other deposits. New engine designs (specifically gasoline direct-injection) can create environmental variables 30-40 times worse than the older, port fuel injector, technology. The primary purpose of [Amsoil P.I. Performance Improver](#) is to clean. [Amsoil P.I. Performance Improver](#) cleans fuel injectors and removes fuel injector deposits, it cleans fuel valve stems, faces and seats, it cleans combustion chamber deposits, and some research has also indicated that it will aid in keeping your fuel tank, fuel pump, and fuel lines clean as the nature of the product is to eat away particulate matter and other deposits. Further research indicates that after [Amsoil P.I. Performance Improver](#) exits the combustion chamber it will aid in keeping the exhaust system clean. More specifically, it works to reduce buildup on your vehicle's oxygen sensors and catalytic converter.

In essence, the purpose of [Amsoil P.I. Performance Improver](#) is to clean.

This brings us back to [Amsoil Upper Cylinder Lubricant](#). The primary purpose of [Amsoil Upper Cylinder Lubricant](#) is to lubricate, not clean...although [Amsoil Upper Cylinder Lubricant](#) does contain detergent additives designed



to maintain injector cleanliness, the primary purpose is to lubricate.

We are at the point in this conversation that we have circled back to our first question. Why now? Why do we all of a sudden need this product now?

Unfortunately, there is no super simple answer beyond, "you just do" and I would hope that is not a sufficient answer for you, as it wasn't for me.

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continued...Upper Cylinder Lubricant

In 1921, the DuPont Corporation found that Tetraethyllead (TEL), also known as leaded gasoline, was an effective antiknock agent. It was also noted that it helped with wear and tear on valve seats and other components within the upper cylinder area of the engine.

This great discovery was ranked right up there with asbestos and self-luminous radium paint. Unfortunately, after a bunch of people died and kids were found to have lead poisoning, it was determined that leaded gas is not good for people. In fact, at the time researcher Clair Cameron Patterson believed that everyone was to some degree poisoned by TEL in gasoline. This ultimately led, to the government phaseout of leaded gasoline beginning in 1976.

One problem that accrued from the phase-out of leaded gas was how to combat engine knock, wear and tear on the valve seats and how to lubricate the other components within the upper cylinder are of the engine that lead did such a great job of combating.

Some of this was accomplished through the use of more advanced technologies with the refinement of gasoline. Some of this was accomplished with research into metallurgy and the integration of new metal alloys into the engine component design. Other advances were focused on piston-ring and cylinder design and for the most part, the outcome was adequate.

A couple years ago ([September 2017 - Issue #73](#)) we first learned about Low Speed Pre-Ignition (LSPI) and in that article I discussed CAFE requirements and vehicle manufacturers trying to get better fuel economy. I used the analogy of vehicle manufacturers needing to increase fuel economy and having a "deck of cards" with each card being a different method or idea for increasing fuel economy. This idea of lubricating the upper cylinder is very similar. Vehicle manufacturer, gasoline companies, oil refineries and everyone else began tweaking things to remedy the internal engine issues caused by having no lead in their gasoline and for the most part, working together, they did a pretty good job at addressing the majority of the problems and everything was pretty much okay for a bunch of years.

Each time new regulations were set forth by the government or new advances in technology were introduced, manufacturers did a good job of meeting the chal-

lenges associated with those. And then we were introduced to an interesting cocktail of Ethanol Fuels, Gas Direct Injection technologies, and the integration of Turbos and everyone was and is again trying to fine tune all these inventions to play nicely together. And this is where we start looking at the Upper Cylinder components again and realizing that although things were working okay, they might not have been working as well as we initially thought, or at the very least there was room for improvement.

A common question is as follows:

"Why would I want to lubricate the upper part of the cylinder?"

The correct answer is, "Why would you not want to?"

The fact is that your cylinders and virtually all the components within the upper cylinder area are made of metal.

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continued...Upper Cylinder Lubricant

When you turn your engine off, invariably you will always have multiple valves that remain in the open or partially open position. This means moisture rich air will enter the upper portion of the cylinder. To make matters worse, Ethanol fuel pulls moisture out of the air, thus the residual fuel within the upper cylinder is enabling moisture to come in contact with the metal surfaces.

process, but inevitably it will occur.

Even if you don't let your vehicle sit for extended periods of time, the flash corrosion process begins occurring on a microscopic level. When you return to your vehicle and start the engine, the piston rings begin scrubbing the corrosion and sending it down the exhaust causing premature wear

of the cylinder walls and piston rings. By introducing Upper Cylinder Lubricant through the fuel system, you put an oil film on all components from the fuel tank through the exhaust valve.

This process reminds me of using [Amsoil Engine Fogging Oil](#) for my lawn mower before it goes into storage. The main difference is that with fogging oil you are introducing the oil through the fuel system almost to the point that you kill the engine due to the volume of oil you are introducing into the engine, you then remove the spark plug and introduce more oil to the upper cylinder. This works great for long term storage. In your vehicle, it may only be parked for a few minutes to a few days. Having no lubricant coating the metal surfaces excites the corrosive environment at hand.

Next newsletter I will talk more about [Amsoil Upper Cylinder Lubricant](#) because as I said earlier... there isn't a simple answer.



Metal that is not coated in oil has a tendency to rust and corrode. This process is accelerated as an engine cools. In an engine there is a process called "flash corrosion", which is rapid corrosion that instantly occurs when metals are exposed to corrosive environments. This can be easily seen by leaving a wet cast-iron pan out to dry by air, it will rust. In your engine, this is occurring as well. Vehicle manufacturers have developed methods for passivation to help prevent or slow down this

