## Your Amsoil Information News Source

# Winter Maintenance

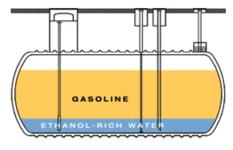
Preventative maintenance is key to (1) ensuring your vehicle will last a long time and (2) vital during the winter months.

Last month we took a look at Winter preventative maintenance as it related to the Electrical System and the Cooling System. This month we will talk a little bit about the Lubricating System and the Fuel System.

In your fuel tank there is fuel. That should be a given but if your fuel tank is only half full of gasoline, what is in the other half? The answer...air. Logically speaking, if you have any container that is half full of liquid, the other half is composed of air. Air itself doesn't pose immediate catastrophic issues. The problem is the moisture that is in the air. Moisture within the air, that is inside of your fuel tank can condense. Think of those cold beverages that you have in the fridge. When the temperature inside the container remains the same as the temperature outside, the container is "dry." If you take that cold beverage out of your fridge and set it on the counter, where there is a temperature difference, the container will begin to form condensation on the outside.



To further complicate this issue, Ethanol is hygroscopic. This means that if you use Ethanol based fuels in your gas tank, the Ethanol will absorb the moisture in the air forming Ethanol-Water pockets at the bottom of your fuel tank.



This process is called Phase Separation and has the potential to be catastrophic to your engine components. Aside from the notion that water can freeze and block fuel lines there is a bigger issue.

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# continued...Winter Maintenance

Small amounts of moisture that work its way into the fuel-injection systems can damage engine components severely.

As a vehicle owner, there are a few simple things that can be done to combat the detrimental effects of moisture in your fuel system. First off, if you typically run fuel that has Ethanol, research indicates that you can, every so often, run a tank of regular or super unleaded gasoline to help keep moisture out of the fuel system. Logically, I don't personally see how that will help if you have been running Ethanol for a while and have moisture in your tank. I suppose it will help "flush" it out, which just means that it is pushing the water through your fuel system. Other research states that the solution is to "just keep your tank filled" and this makes sense because if your tank is full, then there is less room for moisture rich air. However, what doesn't make sense is trying to always keep your tank filled up. I don't know anyone that fills their tank every time they drive somewhere.



A better method is to begin by adding a bottle of Amsoil Performance Improver the next time you fill up at the gas station. Run that tank of gas until it gets to about 1/8 of a tank. This will clean out the entire fuel system. Thereafter, each time you fill up, add a bottle of Amsoil Upper Cylinder Lubricant to the tank, which is specifically designed to keep injectors clean and fight issues related to corrosion from moisture in the tank. More on this later this year.

### **Lubricating System**

Lubricating oil increases in viscosity (thickness) as temperatures drop. Multi-viscosity oils, such as SAE 5W-30 and SAE 10W-30, are designed to flow and lubricate engine parts in both cold and hot weather. Your owner's manual will tell you the specific viscosity of oil that should be used in your engine. Additionally, many vehicles will have the viscosity listed on the oil fill cap.



Hopefully, this is knowledge that you already knew, and the person servicing your vehicle put in the correct viscosity of oil. As a vehicle owner, use of the incorrect viscosity may actually affect your warranty and even cause devastating effects to your engine.

As a prudent vehicle owner you should also be knowledgable when your oil and filter was replaced last. I run Amsoil Signature Series Motor Oil which allows for extended oil drain intervals. I only change my oil once per year in May. Most oils on the market do not last for an entire year and if you don't follow the drain interval specifications, it can damage your engine.



Motor oil brands aren't all created the same either. I run Amsoil because it has the best protection for my application. Eight years of my own oil analytic research has proven this time and time again. We will talk more about this later this year also.

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# continued...Winter Maintenance



I previously talked about how your fuel tank has both gasoline and moisture rich air inside of it. The same principle applies for your oil pan (see image above). Inside your lubricating system you have an oil pan that holds the majority of the oil. When your engine is turned on, there is a pump that picks up the oil sitting in the pan and pumps it through various locations inside your engine. Most engines will hold around 5 quarts of oil. This means there is a large portion of the oil pan that is just full of air. Air, as we previously talked about, has moisture in it.

Moisture condenses in your oil pan just as it does in your fuel tank. On a cold day, moisture will condense quicker than it does on a hot day. That moisture then drips down into your oil which leads to the formation of acids and sludge. Some research also indicates that short trips in cold weather will cause the fuel system to provide a rich mixture that can wash lubricant from the cylinder walls and dilute the oil supply.

Two of the items that are routinely tested when performing oil analytics are Fuel Dilution and Water Contamination (see below). If you are not running a high quality engine oil that has the strength and longevity to do its job all winter long, researchers recommend changing your oil more frequently.

The lubricating system differs from the fuel system in that you can't just "fill up" the oil all the way to the top to reduce the amount of moisture rich air in your oil pan. This practice will actually destroy your engine almost as fast as if you had no oil at all. Envision yourself in the Gulf, wading out in the ocean. Pretend that the water is up to your neck. Now try to run. This is what is happening inside an engine with too much oil. The engine works ten times harder to do anything.

Since we can't fill the oil all the way up, we need to ensure that we are running high quality oil that can continue to fight any contaminants that are introduced into the system.



	Sample Information							Contaminants		
Sample #	Date Sampled	Date Received	3 Lube Time	3 Unit Time	Lube Change	Lube Added	Filter Change	Fuel Dilution	Soot %Vol	lov %
BL	06-Apr-2016	08-Apr-2016	0	0	Unk	0	Unk			<.1 - FTIR
3	08-jun-2016	14-Jun-2016	6000	118000	Yes	1	Yes	<1 - Estimate	<.1	<.1 - FTIR
4	31-May-2017	07-Jun-2017	6700	125338	Yes	1	Yes	<1 - Estimate	<.1	<.1 - FTIR
5	06-jun-2018	27-Jun-2018	7742	133080	Yes	1	Yes	<1 - Estimate	<.1	<.1 - FTIR
6	17-May-2019	21-May-2019	6464	139544	Yes	1	Yes	<1 - Estimate	<.1	<.1 - FTIR
7	12-May-2020	19-May-2020	5413	144957	Yes	1	Yes	<1 - Estimate	<.1	<.1 - FTIR

# **Shop Talk...**

with Dr. Jonathan D. Olson, EdD (Independent Amsoil Dealer #10458)

Last month I mentioned how you can take your vehicle in to most auto parts stores and they will check your battery for free. This is true, and is a service that most auto parts stores provide.

Here are the top ten preventative maintenance items that most auto parts stores will do for free.

- 1. Check/Replace Air Filter (you have to buy the new air filter)
- 2. Check all Fluids (oil, tranny, coolant, brake, power steering, etc.)
- 3. Check Tire Pressure and Tire Wear
- 4. Check the alternator for functionality.
- 5. Replace the Serpentine Belts (you have to buy the new belt and it must be easy to access)
- 6. Check cooling system functionality. Check cooling system and heater hoses.
- 7. Check your brakes (without removal of tires)
- 8. Check/Replace Windshield Wiper Blades (you have to buy the new wiper blades)
- 9. Check/Replace the Battery (you have to buy the new battery)
- 10. Check/Replace head lamps, tail lights and other lights (you have to buy the new bulbs)

# **Altrum Minute - What is Altrum?**

ALTRUM is a division of AM-SOIL INC. that was established in 1985. Altrum offers high quality nutritional supplements designed to maximize health and nutrition. Since 1972, Amsoil has been known for excellence in their products. This same excellence is mirrored in the Altrum division.

Amsoil founder, Al Amatuzio, believed that good nutrition and a healthy lifestyle are vital to success. His drive for enhanced nutritional products and insistence on all natural, high-quality ingredients remain the driving force behind the ALTRUM Division.

You can check out the full line of Altrum products at:

## **Altrum Products Online**



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# Congratulations to NEW Amsoil Opportunists and Enthusiasts!

## **Congratulations:**

### **New Preferred Customers**

Kenneth Morris Richmond, KY

Matthew Zeltner Chetek, WI

Stan Gatchenko Lincoln, NE

> Steve Smith Kent, WA

Cristian Vazquez Hoffman Estates, IL

# **Congratulations:**

## **New Catalog Customers**

Patrick Blair Killeen, TX

Garrett Allison Angelton, TX

John Callahan Greenwood Village, CO

