

Olson Marketing

# Monthly

January 2021 - Issue #125

in partnership with Insane Oil of Omaha

Your Amsoil Information News Source

## Product Highlight: Performance Improver

**AMSOIL P.i.** is a potent, deep-cleaning gasoline performance improver featuring concentrated detergents that aggressively clean stubborn, power-robbing deposits from injectors, valves and combustion chambers. P.i. cleans your entire fuel system and restores up to 14% horsepower in one tank of gasoline. The P.i. bottle is fully compatible with the capless fuel systems of modern vehicles for easy application.

### Recommendations

- For use in gasoline powered cars and trucks.
- Treats up to 30 Gallons. Add entire bottle to tank at fill-up.
- For best results, clean your fuel system with P.i. every 4,000 miles.
- For large gas tanks, treat with two bottles of P.i. Using more than two bottles per treatment is not recommended.
- Safe for use with catalytic converters, oxygen sensors, oxygenated gas and up to 15% ethanol blended gas.
- Do not use with diesel or E85 fuel or two-stroke engines.



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### Dealer Contact

#### Lincoln - Olson Marketing

Don & Peg Olson  
ZO Referral# 4901  
402-310-6414

<http://om.shopamsoil.com>  
[lubedealerdon@gmail.com](mailto:lubedealerdon@gmail.com)

#### Omaha - Insane Oil

Dr. Jonathan D. & Stacey L. Olson  
ZO Referral# 10458  
402-990-7940 (text or call)

<http://insaneoil.com>  
[info@insaneoil.com](mailto:info@insaneoil.com)

# Case Closed...2008 Hyundai Elantra

## Fuel Efficiency Issues

Last year, in the [March 2021](#) Newsletter, I began a discussion regarding the very poor gas mileage I had been calculating in our Hyundai Elantra. We had purchased this vehicle brand new, from the dealership, in 2008. Throughout its life I have run Amsoil products and kept up with the preventative maintenance. It has consistently averaged about 28 miles per gallon throughout its life up until October 2019. At that point in time the fuel economy began to plummet. Below, I have included the chart that I shared last March. The chart begins in August 2019 and runs through February 2021. The first plummeting line I thought was attributed to an oxygen sensor failure because after I replaced both the [Upstream Oxygen Sensor](#) and

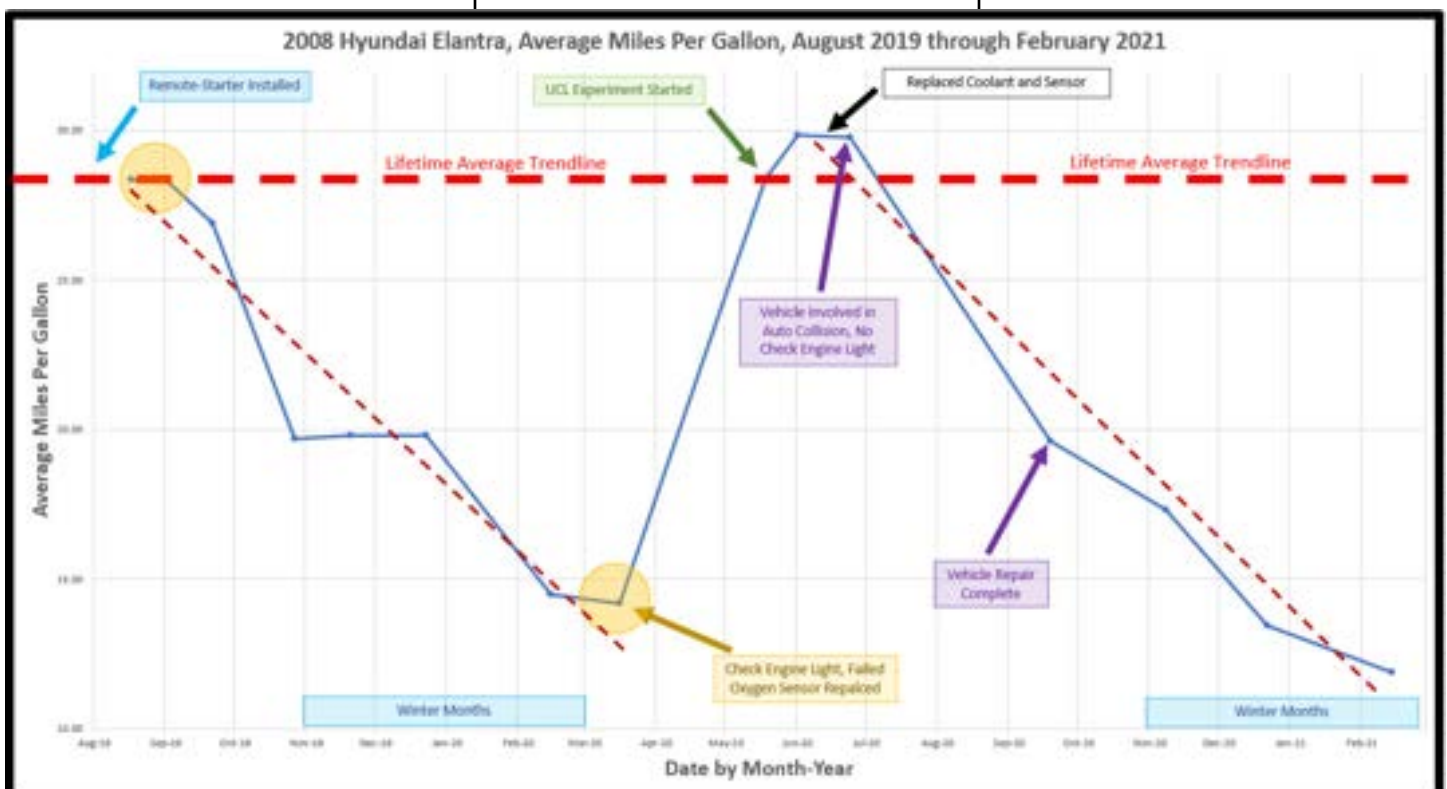
the [Downstream Oxygen Sensor](#), fuel economy immediately soared. Not soon after, it began to plummet again. I was certain the plummeting fuel economy was an indicator of need for an upcoming repair, as my previous analysis of the data had determined when the Oxygen Sensors were failing. All signs pointed to a failing part. In addition, the second plummeting line began with an auto collision involving the vehicle. At that time I was near pulling my hair out sifting through diagnostics and troubleshooting procedures in an attempt to figure out if the supposed failing part was due to the collision, which appeared evident.

It has been a year since I first made this assumption which has

provided an additional year of data and the results are fairly exciting, although for some reason my wife did not share my same level of excitement.

To preface the results, I have long since logged all fuel data each time I fill up our vehicles. At the end of each year, I compile all data for each vehicle into a spreadsheet for which I can then create charts to analyze and make informed decisions about the health of the engine. This process usually gives me a fairly clear picture...unless there isn't enough data to formulate a clear picture, as I found out after adding the 2021 data.

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# continued...Case Closed...2008 Hyundai Elantra Fuel Efficiency Issues

Results:

The chart below includes data six months prior to last year's chart and 12 months after last year's chart. Adding an additional 18 months of data helped clarify this issue and close this case.

The yellow dashed line indicates the lifetime average fuel economy before the anomalies began in September 2019. This average is about 28 miles per gallon.

The highlighted red areas show four steep declines in fuel economy. These areas also correlate to a specific driver and route driven.

The highlighted green areas indicate abnormal routes driven.

Prior to September 2019, my wife used this vehicle as her daily driver. She would drive 10 miles (25 minutes) to work each day and another 10 miles (25 minutes) home. On the weekends, this same vehicle would be driven all over town to run errands.

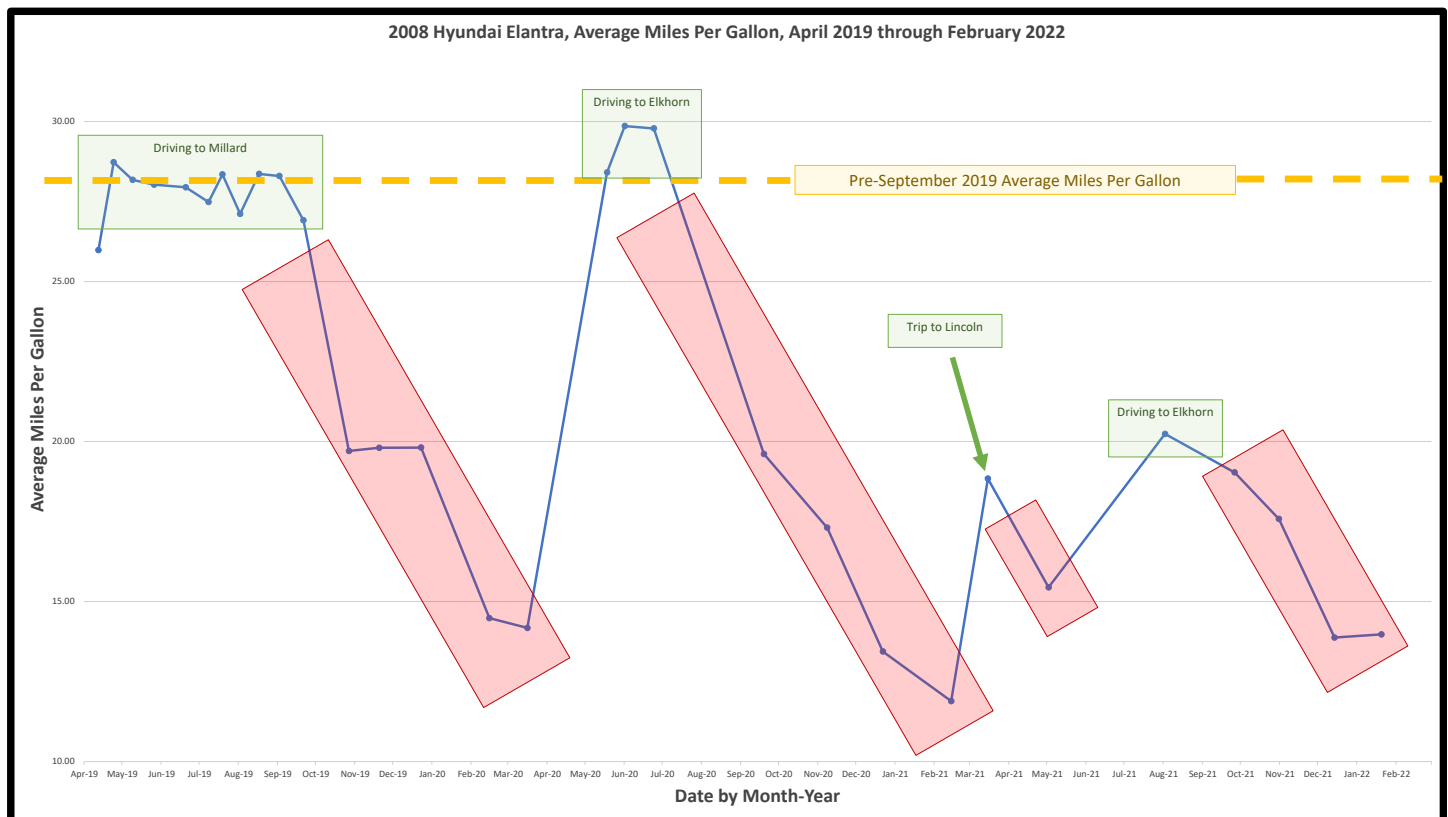
In February 2019 (when the Elantra was about 10 years old), we purchased a new 2019 Jeep Compass. With my wife driving her new vehicle, I would frequently drive the Elantra almost an identical distance and time each day to work rather than driving my truck. This continued until September of 2019 when my Son turned 16 years old. At that time he began driving the Elantra to and from school and to and from work. His

commute, for work and school, totals four miles each day. From September 2019 to March 2020 (seven months total), the Elantra only accrued 1,247 miles.

It was at that point that Covid occurred and the schools shut down, thus effectively eliminating his any driving in the Elantra.

That summer I began working from a different location and used the Elantra to commute 19 miles (25 minutes) each way. This is indicated by the second green highlighted area. When the summer ended and schools reopened, my son began driving the Elantra

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# continued...Case Closed...2008 Hyundai Elantra

## Fuel Efficiency Issues

again. Thus beginning the second red highlighted decline. He drove the Elantra throughout the entire school year having a commute of 4 miles total per day. From August 2020 through March 2021 the Elantra only accrued 656 miles.

In April 2021, my son and I went to a college visit in Lincoln, a 96 mile round trip. Immediately, the fuel economy went from 13 to 19 miles per gallon. I thought that was interesting at the time but I needed some additional information.

After school ended in May 2021, I again used the Elantra to travel to work a few times. During this time, fuel economy jumped from 16 miles per gallon to 21 miles per gallon.

As school again started in August 2021, the fuel economy has started to decline (4th red box).

Thus, there is a direct correlation between driving short trips and

fuel economy. After reviewing all of the data (to this point in time), the oxygen sensor failure had an insignificant impact on the fuel economy, and the auto collision also had an insignificant impact.

In the [September 2021](#) issue of the Newsletter, I shared the results from the Oil Analysis on the Elantra (shown at bottom). It was determined that there is a critical level of fuel dilution in the oil. The culprit for the critical level is the frequent short trips.

This notion brings up several key points.

1. It reaffirms the concept that the little old lady that only drives her car to church on Sundays is worse than the guy that drives from here to Chicago in one trip, as far as the engine is concerned.

2. Regular short trips, not allowing the engine to fully heat up, will lead to reduced fuel efficiency.

3. Regular short trips, not allowing the engine to fully heat up, will lead to elevated fuel dilution levels in the oil.

4. Elevated fuel dilution within the oil will lead to premature failure of the engine bearings as well as aggressive wear of high-pressure points such as the valve train and piston rings/cylinder walls.

5. Elevated fuel dilution within the oil can lead to an increase in oxidation of the engine oil. Increases in oxidation will create a variety of harmful by-products which cause oil thickening and will lead to equipment failure due to inadequate lubrication.

Thus, as noted in the [September 2021](#) newsletter. Vehicles that have routine frequent short trips may be better suited for Amsoil OE as extended oil drains with Amsoil XL and Signature Series may lead to a harmful engine situation with the fuel dilution issues.

Sample #	Wear Metals (ppm)										Contaminant			Multi-Source Metals (ppm)					Additive Metals (ppm)					
	Iron	Chromium	Nickel	Aluminum	Copper	Lead	Tin	Cadmium	Silver	Vanadium	Silicon	Sodium	Potassium	Titanium	Molybdenum	Antimony	Manganese	Lithium	Boron	Magnesium	Calcium	Barium	Phosphorus	Zinc
1	12	1	0	1	10	0	1	0	0	0	17	1	0	0	79	0	1	0	185	846	1132	0	662	752

Sample #	Sample Information					Contaminants					Fluid Properties					
	Date Sampled	Date Received	Lube Time mi	Unit Time mi	Lube Change	Lube Added gal	Filter Change	Fuel Dilution %	Soot %	Water %	Viscosity 40°C cSt	Viscosity 100 °C cSt	Acid Number mg KOH / g	Base No. D4739 mg KOH / g	Oxidation abs / cm	Nitration abs / 0.1mm
1	19-Sep-2021	24-Sep-2021	1193	101902	Yes	0	Yes	>5 - GC	<.1	<.1 - FTIR		7.3		3.03	13	10



# Vehicle Filters

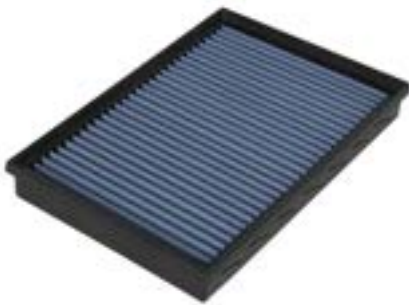
By Don Olson, ZO #4901

There are four filters you should be aware of for your vehicle.

## 1. Oil Filter



## 2. Air Filter



## 3. Cabin Filter



## 4. Fuel Filter



Filters are installed in your vehicle to keep the air or fluids clean. So, cleanliness is very important. You must change your filters on a regular basis to keep contaminants in the system from causing problems.

The following reasons will help you understand the necessity of keeping all your vehicle filters clean:

1. You will get better performance from your vehicle. The Engine compartment filter keeps the air flowing at a constant rate and keeps the air clean so you do not get contaminants in your engine that will cause problems with your engine. You want the air into the engine clean, so the mixture of fuel and air supports maximum power from your engine.

2. You will save fuel with a clean filter due to decreased fuel consumption with the proper air/fuel mixture in the combustion chamber.

3. A clean filter will keep your vehicle from emitting unburned gas in the combustion chamber which gives you blackish smoke from your tailpipe. Smoking tailpipes are a bad sign for your engine.

A clogged filter can cause problems and affect performance as a loss of power, dirty smoke, that annoying oil light illuminating or worse, engine failure.

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# continued...Vehicle Filters

By Don Olson, ZO #4901

Most of you know the need for regularly changing your oil filter (each time you change oil) at the manufacturer's recommended oil change intervals, (or extended oil change intervals with premium AMSOIL products). A good quality oil filter is essential to filter out the contaminants that occur in the internal combustion engine.

A good quality oil filter maintains adequate oil flow throughout the engine and removes particles (dirt, metallic particles, oxidized oil and other contaminants found in the engine.) A good oil filter will hold all contaminants between oil changes and will not get clogged causing engine problems.

You need to change your oil filter at every oil change according to manufacturer's recommendations or extended drain intervals per AMSOIL criteria. This will give you reduced engine wear and fresh oil throughout the life of the vehicle.

Vehicles have a fuel filter to filter the fuel before it reaches the engine. There are contaminants in your fuel (dust, rust and grit and other minute contaminants.) Removing these particles protects your fuel injectors and is key in maintaining the performance and longevity of your vehicle engine. As the fuel filter collects contaminants you may notice reduce flow which weakens engine performance (gas starvation) causing the fuel pump to work harder

which may show up in harder starts, poor acceleration, or stalling. Dirt and contaminants in the fuel can cause abrasive action, speed up wear and tear, damage expensive parts and even cause the fuel pump and injectors to fail.

**Cabin Filter.** Not all vehicles have cabin filters. They are necessary to filter the air coming into the vehicle cabin. This can cause strange smelling air, moldy air, and low air flow through your ventilation system. Find out early if your vehicle has a cabin filter. If it does, ensure you change it periodically.

Here is how often I change my vehicle filters:

Oil Filter – Every Oil Change

Air Filter – Every Year

Fuel Filter – About every 100,000 miles

Cabin Filter – At least every other year.

Using AMSOIL Signature Series and AMSOIL oil filter, I use my birthday month to do my maintenance once a year.

See your AMSOIL Dealer for more information or other lubrication questions.



## Congratulations to NEW Amsoil Opportunists and Enthusiasts!

### Congratulations:

#### New Dealer

Richard Neuin  
Plattsmouth, NE

Andre Bienvenu  
Grand Island, NE

### Congratulations:

#### New Catalog Customers

David McIntosh  
Las Cruces, NM

Jonathan Durham  
Corinth, VT

### Congratulations:

#### New Preferred Customers

Audley Rice  
Sun City, AZ

Suthan Gounder  
Queens Village, NY

Bryan Parks  
Lincoln, NE

Jerry Philippi  
Lincoln, NE

Scott Crimm  
Moss Point, MS