DEPARTMENT OF ECOLOGY
State of Washington

Exhaust Notes

VOLUME 1 NO. 2 – PUBLICATION NUMBER 10-02-005 FALL2010

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In This Issue

We hope you thought the first issue of Exhaust Notes was informative. We would like to know how many of you are reading this newsletter. We did not have the ability to track subscribers at first, so those of you who subscribed early weren't counted. To re-subscribe please see the instructions in the sidebar on page 2.

Those in the Vancouver area might want to check out an upcoming recertification training opportunity. See page 2. You can also read about an outstanding shop that has provided quality emission repairs since 1993.

We hope you enjoy this summer edition of Exhaust Notes. Those who work in full-service shops will find helpful information about filling out your gas analyzer forms.

If your OBD customers have had difficulty with those pesky "readiness" issues, see the article on page 3.

Your emission repairs keep our air clean. Did you know you can help prevent pollution on land and water as well? Read about lead wheel weights on page 7.

As AES technicians, you know that idling your engine is unnecessary and wasteful in most circumstances. But we could all use a reminder, and information in the article on page 6 may be useful to share with your customers who leave their vehicles running outside your shop. The eco-driving tips, also on page 7, can help your customers save money.

More Emission Testers Possible

The current contract for the operating emission test stations expires on June 30, 2012. Starting July 1, 2012, Ecology may authorize additional businesses, including automotive repair businesses, to test vehicles.

Ecology is currently revising the Emission Check rule. General Administration (GA) is preparing a Request for Proposals for a new contract.

To minimize testing costs, dynamometer tests and gas cap tests will be discontinued.

There will be no restrictions on the test fee at non-contractor testing businesses. The test fee will stay $15 at the Ecology contractor's test sites.

Additional information will be available next year after GA has awarded a contract for the testing to begin in June 2012.

For more information about the Emission Check rule revision, go to http://www.ecy.wa.gov/laws-rules/activity/wac173422A.html

Tests to be discontinued July 1, 2012

Dynamometer tests will no longer be performed. Vehicles that are not OBD-equipped will get two-speed idle (TSI) tests.

Gas cap tests will no longer be performed .Most vehicles now have OBD systems designed to detect gas cap leaks.

Kudos to Our Technicians and Shops

The Emission Check Program would like to commend a shop and its AES technicians for their service to the program.

Where: Precision Tune
6420 4th Plain Blvd.
Vancouver, WA

Who: Calvin Poisson (owner), Joseph Perry and Ryan Harvey (AES Technicians)

What: Retail gasoline

Thank you Calvin, Joseph, and Ryan for your dedicated customer service and doing your part to help Washington breathe cleaner air.

Help us with our count!

We hope you are enjoying *Exhaust Notes*. We subscribers we have. Since we did not have the ability to count subscribers until recently, not everyone was counted. Please re-subscribe on the RSS feed page here: http://feeds.feedburner.com/ApplusWashingtonStateEmissionTesting-testWebsite?format=xml

As always, we welcome your comments and suggestions. Contact the editor at melanie.forster@ecy.wa.gov

Training

Is your certification about to expire? If so, the following recertification training will help you stay in the Emission Check Program.

Vancouver area:

Date: October 5, 2010
Instructor: Milt Stoddard
Location: To be determined. If you are interested in attending this training, contact Milt Stoddard at 360-798-8224 or by email at cmiltons@msn.com

If you are outside the Vancouver area and need training, please contact the trainers listed on page 2 in the Spring 2010 issue of *Exhaust Notes:*

www.emissiontestwa.com/EmissionRSS/1002004-1.pdf

Stay current on your AES authorization by taking an Ecology-authorized training every two years.

Contributors

The editor wishes to thank Michael Bergman, Art Betts, Fritz Merkl, Kerry Swayne, Tom Jones, Rachael O'Malley, and John Raymond for their contributions to this issue of *Exhaust Notes*.

OBD Testing and "Readiness"

Have you ever had a customer complain about being turned away at an emission check station due to the car not being "ready?" Of course you know this is due to the vehicle having failed to complete its drive cycle.

Your customer may not know that an OBDII drive cycle is a series of vehicle operating conditions that sets the non-continuous monitors to ready. Continuous monitors constantly test their assigned emission components while the vehicle is running. Non-continuous monitors, on the other hand, detect problems only at certain driving conditions.

You should avoid clearing all diagnostic trouble codes (DTCs) by using an OBD scan tool or by disconnecting the battery unless absolutely necessary.

To pass an OBD test, 1996 to 2000 model vehicles must have all but two monitors ready. 2001 and newer vehicles can have only one monitor not ready. A vehicle with a DTC commanding the malfunction indicator light (MIL), commonly called the check engine light, on will fail a test regardless of the number of monitors not ready.

Why are OBDII systems so complex? OBD systems have two goals:

- To alert drivers that emission control components are beginning to fail by causing the MIL to light up; and
- To help technicians diagnose and repair failing emission control components.

The second goal proved more elusive than the first. The complexity of today's emission control systems requires many codes for different system components and failures.

Most frustrating, the drive cycle varies depending on make, model, and year of the vehicle. Drive cycles usually require variations in speed, engine temperature, and fuel level. Some drive cycles are so complex, some drivers will never have their vehicles "ready" to test even after driving thousands of miles. You can see an example of a drive cycle on New York's Vehicle Inspection Program website: www.nyvip.us/interior/readiness.htm.

Have your customer check the vehicle owner's manual or the vehicle manufacturer's website to find the appropriate drive cycle.

If the specific drive cycle is unavailable, an OBD readiness detector may help your customer. These devices, about the size of a cell phone, plug into the OBD connector. They beep and display a green light when all monitors are ready.

For a modest investment, you could equip your shop with readiness checkers to loan to your customers. Customer satisfaction and return business could make this a worthwhile investment. See the following for more information:

AES Wave
www.aeswave.com/Products/Product.asp?i=705

ScanTool.net

www.scantool.net/ready-or-not-test-tool.html

If your shop does pre-purchase inspections, an OBD readiness detector may help a customer avoid buying a "lemon." Before purchasing a used vehicle, a prospective buyer can use one of these devices to determine whether a seller has deliberately cleared codes to avoid having the MIL on.

Monitor checkers are shown next to a cell phone for size comparison. They are available at two test stations in King County—Auburn and North Seattle.

A readiness monitor may also help a customer who inadvertently clears codes. For example, a customer who runs down the battery by leaving vehicle lights on might benefit from knowing when monitors are ready before taking the vehicle to a test station.

Getting enough monitors "ready" may take days or even weeks. This may cause a problem for the customer who waits until the vehicle tabs are about to expire before having the vehicle tested. If possible, encourage your customers to take their vehicles to the test station at least a couple weeks prior to license expiration. Because an emission test is valid for 365 days, your customer can have a vehicle tested at a time that is most convenient. This will give the customer plenty of time to resolve any problems.

If your customer continues to have difficulty with the emissions test due to "readiness," contact Ecology staff (page 8).

Just a Few Reminders

Check* Exhaust Notes *regularly for explanations of some of the most frustrating OBD codes. If there's a troublesome code you would like future issues to address, contact emission check staff on page 8.

Appropriate Repairs for OBD Failures

In the early years of the Emission Check Program, appropriate repair meant doing repair for carbon monoxide (CO) and hydrocarbon (HC) failures. Along comes On-Board Diagnostic II with Diagnostic Trouble Codes, Malfunction Indicator Light/Check Engine Light and a changing meaning of "appropriate" repairs.

Appropriate repair: First, read the Vehicle Inspection Report (VIR) to see how the vehicle was tested and what caused the failure. Before diagnosing or repairing a failed vehicle, make sure:

- Your customer gives you the VIR. If someone else does the repair order write-up, make sure that person receives the VIR.
- The VIR is for the correct vehicle and the current test cycle.

The bottom third of the VIR will reveal the test result. Next to this result will be the test type—TSI, ASM, or OBDII. If the vehicle failed a TSI or ASM test, you will address the HC and/or CO problems. **Note:** some OBDII vehicles may get tailpipe tests for reasons like traction control or transmission issues or a TSB related to testing, etc.

Regardless of the type of test, address the failure identified by the test. With an OBDII test failure the question is still "Why?"

OBDII: Below the VIR Test Results box, look for the Overall OBDII Results' box. To the right are the Readiness Result and Fault Code Result boxes. Below these are the MIL information boxes. If the vehicle failed for MIL but has no DTC and the MIL On (Engine Off) box is NO, the bulb or circuit may be at fault. This is a valid failure. DTCs in the Fault Codes box at the bottom of the VIR mean that something else is causing the problem.

So what is appropriate? Direct the diagnosis/repair to the generic codes (P0XXX, P2XXX, P3XXX) . If the only codes are manufacturer specific (P1XXX), and the MIL is not commanded on and the gas cap passed, the customer needs see the test station manager. P1XXX codes may expand or amplify the generic codes but do **not** fail the vehicle. If you have questions contact Ecology staff (page 8).

Paperwork Tips

As an AES in the Emission Check Program, you know that your customer cannot receive a waiver unless you sign the VIR. It is also important to sign the VIR, even if the diagnosis or repair amount is less than $150.

Two diagnoses that add up to $150 or more can qualify a vehicle for a waiver. If two different AESs performed the diagnoses, both need to sign the VIR. Space is limited on the form. Signing below the signature line is acceptable. Bottom line: If you perform the emission work or diagnosis, you sign.

In the case of an OBDII failure, you need to include a detailed diagnosis on the repair order. It is not sufficient to note only the code that caused the vehicle to fail. For example, a catalytic converter or O2 code does not necessarily indicate a bad cat or O2 sensor. It is your job to find the cause of the failure, and that means a thorough diagnosis. The emission test station cannot issue a waiver without it.

We also spend a lot of time trying to decipher illegible or poorly copied documents. We often need to photocopy or fax VIRs, repair orders and supporting documents. So please replace your ink cartridges and toner when needed, and make sure your handwriting is legible.

Recall Information

Federal regulations require motor vehicle manufacturers to report to EPA all recalls that effect emission-related components or systems. Here is a partial list of model year 2000 to 2005 recalls. Check the EPA website for recalls if you are repairing an unfamiliar model: www.epa.gov/otaq/recall.htm

2001-2004 BMW, almost all models: Defective coils.

The Fix: Replace Bremi coils with Bosch coils.

2004 Chevrolet Malibu : OBD system becomes disabled above 25-35 MPH due to an invalid rough road input to the PCM.

The Fix: Reprograming the CPU.

2005 Daimler/Chrysler: Ram, Dakota Ram, Jeep Liberty, G/ Jeep Cherokee, Jeep Wrangler, PT Cruiser, Dodge SRT-4 / OBD Fuel System Monitor was inadvertently disabled.

The Fix: Reprogram with correct software.

2001-2003 C/K Truck, CHEV, GMC: Internal corrosion on the contacts inside the distributor and rotor may cause the emission system to fail. Condensation from an AC line located above the distributor may drip onto the unit and cause the corrosion. Spark may be routed to the wrong cylinder. The OBD system will detect the misfire and turn MIL on.

The Fix: Install a foam sleeve on the AC line to prevent condensation buildup.

2001-2002 KIA Optima: During the vehicle production period from 9/9/2000 through 8/17/2000, improperly manufactured Crankshaft Position Sensors were installed in some Optima models equipped with 2.5 and 2.7L v-6 engines. The cases of these components did not meet dimensional specifications. Epoxy flowed between the gaps within the cases and contacted the printed circuit board resulting in cracking of the circuit board capacitor.

The Fix: Replace of the Crankshaft Position Sensor.

2005 Pontiac Sunfire, Chevrolet Malibu, Chevrolet Uplander, Chevrolet Equinox, Pontiac Montana SV6, Grand Prix, Pontiac G6, Buick Terraza, Buick LaCrosse, Chevy Silverado, GMC Sierra and 2006 G6: Some Engine Control Modules (ECM) or Powertrain Control Modules (PCM) may have damaged integrated circuits (IC). This may cause the EGR system to malfunction or cause the fuel pump to turn off, or the turbo system to malfunction. This will illuminate a MIL light.

The Fix : Replace suspect control modules.

2004 Mazda 6: Faulty PCM programming disables the malfunction logic of periodic deterioration. This affects the oxygen sensor monitor function of OBDll. The MIL will not turn on. Trouble code data will not be stored.

The Fix: Reprogram the PCM to the correct specifications.

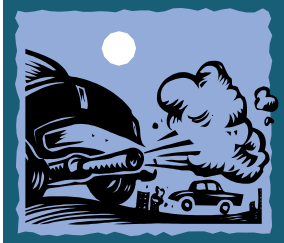
Mercedes-Benz 1999-2001 ML320, ML430: Under hood catalyst cans may develop cracks along the weld seams between the inlet funnel and the can body. This is due to tolerance deviations during the welding process. Engine noise is increased, and MIL may light up.

The Fix: Catalysts should be inspected/replaced free of charge.

Nissan 2003-4 Sentra: The catalytic converter deteriorates faster than anticipated, turning on the MIL.

The Fix: The catalytic converter will be replaced with the 2005 MY Sentra catalytic converter. The engine control module should be programmed to match the new catalytic converter.

Customer Education



Your customers could be wasting fuel and putting excess wear on their vehicles.

Occasionally, *Exhaust Notes* features information to help your customers take better care of their cars and the environment. Feel free to print these articles and post or distribute at your shop.

Common Idling Myths Debunked

Ask many drivers why they idle their vehicles, and you'll likely get a simple answer: to warm up the engine before they drive away. It's one of the most commonly-held myths about driving. But it costs money and wears out the vehicle's engine. It also generates unnecessary greenhouse gas emissions that contribute to climate change.

Contrary to popular belief, idling isn't an effective way to warm up your vehicle, even in cold weather. The best way to warm it up is to drive it. In fact, with today's engines, you don't need more than 30 seconds of idling on winter days before you start to drive.

The notion that idling is good for your vehicle is outdated – in fact, it hasn't been the right thing to do since the advent of electronic engines. The truth is that excessive idling can damage the engine. An idling engine isn't operating at its peak temperature, which means that fuel doesn't undergo complete combustion. This leaves fuel residues that can condense on cylinder walls, where they can contaminate oil and damage parts of the engine.

Besides, what's often forgotten is that idling warms only the engine – not the wheel bearings, steering, suspension, transmission, and tires. These parts also need to be warmed up and the only way to do that is to drive the vehicle.

Some motorists are concerned that continually shutting off and restarting the vehicle is hard on the engine. But studies show that frequent restarting has little impact on engine parts such as the battery and starter motor. The wear on components that restarting the engine causes adds about $10 a year to the cost of driving – money that you'll likely recover several times over in fuel savings from reduced idling.

So, when should you turn off the engine? Believe it or not, more than 30 seconds of idling uses more fuel than restarting the engine. As a rule of thumb, if you're going to stop for 30 seconds or more – except in traffic – turn the engine off.

Keep this in mind while waiting for the drive-up teller to cash your check or while waiting for your order at the fast-food drive-through window. You'll save money. And your vehicle won't produce harmful emissions of carbon dioxide, the principal greenhouse gas that contributes to climate change.

This California Energy Commission webpage refutes the starter damage myth:

www.consumerenergycenter.org/myths/idling.html

This article was written by Michael Bergman of Ecology's Hazardous Waste and Toxics Reduction Program.

Eco-driving

Here's some welcome news for drivers who would like to buy a more fuel efficient car but are short on cash. Changing your driving habits can improve your fuel economy up to 33%—no matter what you drive!

You know that proper vehicle maintenance can make a big difference in fuel economy and reducing pollution. What you do behind the wheel can also make a big impact. "Eco-driving" is also safer and reduces wear on your vehicle.

Here are some ways to get the most out of your vehicle:

- Drive more smoothly— avoid harsh braking and accelerating.
- Observe the speed limit.
- Look ahead and anticipate in advance when to slow down or stop.
- If you drive a standard transmission, shift to a higher gear as soon as possible
- If you drive an automatic, use your overdrive gears.
- Remove racks and boxes when you're not using them., and avoid carrying excess cargo.
- Use air conditioning at higher speeds (>40mph), and roll down windows at lower speeds.

For more eco-driving tips see:

http://www.fueleconomy.gov/

http://www.ecodrivingusa.com/

Get the Lead Out

Lead wheel weights with damage from traffic. The bits of worn lead can wash into our waterways.

Automotive technicians now have another tool to help improve our environment and public health. Surprisingly, something as simple as wheel weights can make a big difference. Why all the fuss about wheel weights? Most are made of lead, a well-known poison.

What is lead?

Lead occurs naturally in the environment, and humans have used it for centuries. In fact, some historians say extensive use of this metal contributed to the fall of the Roman Empire. Lead has many desirable qualities. It is cheap, dense, and easy to shape, making it an ideal material for wheel weights—almost.

What's wrong with lead?

Unfortunately, lead is one of the most toxic metals on Earth. It harms wildlife and humans, especially children. Lead harms our nervous system, heart and blood vessels, kidneys, immune system, gastrointestinal system, and our reproductive system. Acute poisoning is rare, but lower level, chronic exposure causes significant damage. In children, this may mean lower IQ, learning disabilities, and behavior problems. In adults, lead exposure can lead to high blood pressure.

Phasing out the use of lead in gasoline and house paint has made a big difference, but we can do more. Many wheel weights are still made of lead. Lead wheel weights are often overlooked in scrapped vehicles and left to contaminate the environment.

Worse yet, many wheel weights simply fall off our vehicles—approximately 40 metric tons worth in Washington, according to Ecology's research. On roadways, these get crushed by traffic. Bits of worn lead wash into our waterways where they harm fish and other wildlife. Vehicle manufacturers use coated steel or zinc wheel weights. Unfortunately, most wheels get lead weights when tires are replaced or rebalanced.

Beginning in 2011, anyone who replaces or rebalances tires must use non-lead wheel weights. But why wait until then when aftermarket lead-free wheel weights are already available? Check out the following resources.

www.leadfreewheels.org/sources.shtml

www.ecy.wa.gov/programs/swfa/pbt/weights.html

For information about the Roman Empire and other lead "fun facts" go to:

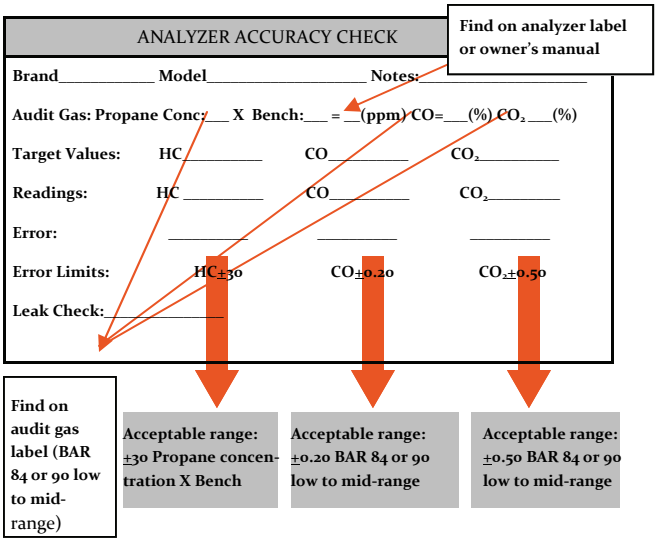
www.epa.gov/history/topics/perspect/lead.htm

Gas Analyzer Accuracy Check Tips

If you work at a full-service shop, you know you need to check your gas analyzer monthly. This means another task to add to your to-do list and another form to fill out.

Although it may seem like a hassle, gas analyzer checks are essential to make sure your equipment is working properly. This makes your life easier by accurately verifying the effectiveness of your repairs

Ecology staff fill out a Shop Technical Assistance Report when they check your gas analyzer log. Here's a sample Analyzer Accuracy Check portion of the Shop Technical Assistance Report. Keep this form in mind when you do your monthly gas analyzer checks.



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If you need this publication in another format, please contact the Air Quality Program at 360-407-6800. If you have a hearing loss, call 711 for Washington Relay Service. If you have a speech disability, call 877-833-6341.

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DEPARTMENT OF ECOLOGY State of Washington

Emission Check You're on the Road to Cleaner Air.