



Gateway Air Repair

A Newsletter for the Vehicle Repair Industry

Volume 8 Number 6

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The Key to a Maddening Repair Often Hangs on a Simple Thread

By Paul Davis, Program Manager for the Massachusetts Department of Environmental Protection Enhanced Emissions & Safety Test. This article originally appeared in the December 2005 issue of "Inspection Update," a publication of the Massachusetts Department of Environmental Protection. It is reprinted by permission.

A used car dealer phoned the Massachusetts Department of Environmental Protection (MassDEP) with a problem: he was unable to get a Ford Windstar "ready" for its on-board diagnostic (OBD) inspection. While recounting his tribulations, the used car dealer happened to mention that he had driven the vehicle for a while then pulled it up to a workstation for a diagnostic scan, at which point he found that all but two of the monitors were ready. Because the Windstar was older and allowed to have two monitors not ready, he thought the vehicle would pass. But, since we were having this discussion, I waited for the other shoe to drop.

After completing the diagnostic scan, the dealer turned off the vehicle so he could talk with the inspector. When they rescanned the vehicle to document their progress, all of its monitors had returned to "not ready." The inspector was baffled and the dealer was stumped, to say the least.

I offered that it sounded like there was a problem maintaining electricity to the powertrain control module (PCM): the vehicle was behaving as if the battery were being disconnected every time it was turned off. I could hear the proverbial gears turning on the other end of the phone and he returned to the Windstar readiness challenge with renewed vigor.

About a week later, I received a call from the dealer with good news: He had found and corrected the problem. He indicated that the PCM gets power from two sources: one was when the ignition is on, the other when it is off. After our discussion, he tested for power at the PCM and found none. After a lot of looking, he found a break in the wire that was supposed to maintain power when the vehicle is off. As soon as that was repaired, the vehicle was soon ready and passed its inspection. Moral of the story: Difficult problems sometimes have the simplest solutions.

Editor's Note: The Gateway Clean Air Program turns off all 1996 and newer vehicles at least once prior to OBDII testing. This is done to verify the MIL illuminates at "Key On, Engine Off". A MIL that fails to illuminate in this instance cannot let a motorist know there's a problem in the OBDII system later.

Vehicles for which the non-continuous monitors were "Ready" at the shop but which receive a "Reject" test result with none of the non-continuous monitors set to "Ready" at the GCAP station may have a problem similar to what the Massachusetts dealer mentioned in the above article. Verifying the PCM has power even when the vehicle is turned off should be the first step taken in instances where this occurs.

New Draft OBD Rule Available for Review and Comment

The Department of Natural Resources' Air Pollution Control Program is releasing a draft of a new state rule for the upcoming decentralized OBD vehicle emissions inspection program. The draft rule, 10 CSR 10-5.381 On-Board Diagnostics Motor Vehicle Emissions Inspection, is available for review and printing from the following Web page: <http://www.dnr.mo.gov/env/apcp/RulesDev.htm>. Everyone will have 60 days from the date the rule is posted to provide comments to the department's Air Program. The department encourages you to review the draft rule and provide your comments to the draft rule so that we may address any issues raised as soon as possible. After the comment period closes, there will be another chance in Spring 2007 to comment when the Missouri Air Conservation Commission holds its public hearing.



CONTINUING EDUCATION

Please remember, all MRRT's are required to take four hours of Department of Natural Resources approved continuing education in 2006 to maintain their MRRT status in 2007. Changes to the MRRT/MQRT program will not go into effect until September, 2007, at the earliest. See page 6 and 7 for more information about department approved training opportunities.

Don't forget about the \$50 training voucher that was provided to all repair technicians with MRRT status as of Jan. 1, 2006. The shop employing the MRRT must submit these vouchers to receive reimbursement for emission related training taken in 2006. Send the completed voucher and a copy of the training certificate to:

The Missouri Department of Natural Resources
Air Pollution Control Program
7545 S. Lindbergh, Suite 210
St. Louis, MO 63125.

If you lost the voucher, please contact the department at **(314) 406-2115** to obtain a reprint.

Vehicle Tampering

Source: Minnesota Pollution Control Agency Newsletter

Emissions from the millions of vehicles on the road have combined to make the automobile the single greatest air polluter in many cities across the country. Motor vehicle emissions account for nearly two-thirds of the carbon monoxide (CO), one-third of the hydrocarbons (HC) and almost one-half of the nitrogen oxides (NOx) in our nation's air.

Equipment to reduce these levels of harmful automobile emissions are included on most 1975 or newer vehicles. To protect our health, the Clean Air Act does not allow individuals to remove or alter this pollution-control equipment.

WHAT EXACTLY IS TAMPERING?

Tampering is when someone removes, disconnects, alters, damages or in any way renders ineffective any pollution-control device installed on a motor vehicle engine.

For example, a tampered vehicle may:

- Be missing such devices as a properly operating catalytic converter, air pump or exhaust gas recirculation (EGR) valves.
- Contain an emission control design that is different from the vehicle manufacturer's specifications.
- Have disconnected vacuum lines.

- Contain a knowingly-installed replacement part not equivalent in design and function to the original part. (This does not mean you have to use replacement parts sold by the vehicle manufacturer or its franchised dealer).
- Have a part not originally certified for the vehicle (for example, dual carburetors are installed to replace a single carburetor).
- Installing an engine not certified by the manufacturer as meeting emission standards for that vehicle.
- Making modifications to the OBDII system – computer, components, programming – that compromises its ability to evaluate the system and so control fuel trim.

WHAT DOES THE LAW SAY ABOUT TAMPERING?

The 1990 amendments to the federal Clean Air Act do not allow anyone to tamper with a vehicle's emission controls unless the individual is making necessary changes or repairs. In addition, most of the 50 states have similar prohibitions about automotive tampering.

WHY DO PEOPLE TAMPER WITH VEHICLES?

Some people still believe that tampering with a car's emission controls will improve vehicle performance. Others simply don't realize the importance of repairing or replacing pollution-control devices.

OBD-II TEASERS?

Q: Does Mode 6 give us a window into monitor test results for the non-continuous monitors before they become codes?

A: Yes. These monitors include: oxygen sensor, catalyst, air, thermostat, PCV, EGR and EVAP.

Q: Does Mode 6 data identify the components (CIDs) and test results (TIDs) for each component tested?

A: Yes, but this data may be eliminated when the ignition is switched off. Be sure to gather any data from the test drive before switching the ignition off.

Q: Do scan tools that support Mode 6 display test results on a PASS/FAIL basis or as numeric test data that must be compared to test standards to determine PASS/FAIL results?

A: Either. Test results can be displayed either on a PASS/FAIL basis. Numeric test data must be compared to test standards to determine PASS/FAIL results.

Q: Do all vehicles maintain CID and TID data at key off?

A: No. Some vehicles reset CID and TID data at key off, so make sure you gather any data generated on a test drive before switching the ignition off.

Q: Is it true oxygen sensor test data may be displayed in Mode 5 or Mode 6 and it lists test values for the sensor range, reflexes and voltages?

A: Yes. The data is not live but informs you how the sensors performed on the last recorded tests.

HERE ARE SOME COMMONLY-HELD MYTHS ABOUT AUTOMOTIVE TAMPERING:

Myth: Adjusting my car to something other than the manufacturer's specifications will improve its gas mileage.

Fact: Changing the manufacturer's recommended settings for the engine may actually reduce fuel efficiency. Today's automakers design cars to meet the best possible balance between performance, mileage and low emissions. Tuning your car to the manufacturer's specifications will maximize the engine's performance and save fuel.

Myth: Pollution controls on cars don't work and have little effect on improving air quality.

Fact: Vehicles with proper emission controls are largely responsible for reducing smog, carbon monoxide and nitrogen oxide pollutants in urban areas. Vehicles with proper emission-control devices can reduce their emissions by 90 percent.

Myth: Tampering would not affect my car's warranty.

Fact: Under the Clean Air Act, car manufacturers are required to provide a warranty covering emission-control devices for five years or 50,000 miles, whichever comes first. However, when a car's emission controls have been tampered with, the manufacturer may suggest the car has not been properly maintained and refuse to honor the vehicle's warranty.

Myth: There is no punishment for tampering with my car's emission-control device.

Fact: Federal and state laws do not allow tampering with emission-control equipment. Violation of these laws could result in stiff fines and/or imprisonment.

HOW CAN CAR OWNERS HELP PROTECT OUR AIR?

Emission-control devices installed on motor vehicles and engines are there to protect your health by reducing air pollution. You can help this equipment keep our air clean by following these general guidelines:

- When buying a used vehicle, ask the seller to demonstrate that all the pollution-control equipment is present and working.
- Keep your vehicle's emission control intact and operating effectively.
- Never deviate from the manufacturer's specifications for your car's engine.
- Help your vehicle's pollution-control equipment remain effective by following a regular maintenance and repair schedule.

Help is Just a Phone Call (or Click) Away

NASTF Updates Summary of OEM Service Web Site Access Charges

Arlington, VA. NASTF announced today an updated listing on its Web site which summarizes the OEM service Web site access charges. All automakers have service Web sites which make service information available online. This includes service manuals, technical service bulletins, training materials, reprogramming information and other related information.

The access charges for the OEM service Web sites vary by manufacturer. To view the summary of access charges, go to www.nastf.org and click on "Summary of OEM Service Web site Access Charges". Most automakers currently offer subscription rates for information on all their models based on daily, monthly or yearly access. Some offer other options, such as, on a per-document basis, single-model basis, etc.

Notable changes in the new listing are:

1. Acura and Honda have significantly reduced their annual subscription rates.
2. Audi and Volkswagen have adopted 72-hour, monthly and annual subscription rates in conjunction with their recently launched updated OEM service web sites.
3. Kia's access is now free of charge.

Links to all the OEM service Web sites are available at www.nastf.org. Go to the site and then click on "OEM Service Web sites".



The following resources are presented for informational purposes only and are not necessarily official productions of the Missouri Department of Natural Resources or the Gateway Clean Air Program. No one affiliated with the Gateway Clean Air Program is responsible for the content or accuracy of any unofficial site listed below:

EMISSIONS TESTING INFORMATION

- www.gatewaycleanair.com
- Gateway Clean Air Program repair industry hotline: 1-888-748-0377
- Gateway Clean Air Program general information hotline: 1-888-748-1247
- Missouri Department of Natural Resources: (314) 416-2115 – Information about Missouri Recognized/Qualified Repair Technicians (MRRT/MQRT) status and technical assistance

EMISSIONS REPAIR INFORMATION

Assistance Finding Emissions Parts:

- HELP Smog Parts: 1-800-544-4357
- Brown Recycling: 1-800-367-9271 – For information on certified used catalytic converters
- www.tomco-inc.com or (314) 815-6944

EMISSIONS-RELATED HEALTH AND SAFETY INFORMATION

- www.lungusa.org
- www.envirosafeshop.com

INDUSTRY SUPPORT

- www.iatn.com
- www.asecert.com
- www.acc-online.org
- www.sae.org
- www.theautomotivetechshop.com
- www.carcarecouncil.org

OBDII INFORMATION

- www.obdclearinghouse.com
- www.obdiicsu.com
- www.obdii.com
- www.autotap.com
- bob@servicemycar.com (for free OBDII software)



TRAINING AND RESOURCES

- www.theautochannel.com
- www.aspireinc.com or 1-800-247-1099
- www.caat.org
- www.ccar-greenlink.org
- www.automotivetestsolutions.com
- www.secondchancegarage.com
- www.autoed.com
- www.beyondparts.com
- www.fuelline.com
- www.fedworld.gov/pub/auto/auto.htm
- www.aera.org
- www.apra.org
- www.autoshop101.com
- www.toolsforeducation.com
- www.bergwall.com
- www.diagnostichotline.com
- www.learntofixcars.com
- www.asetestprep.com
- www.asecert.org
- www.allexperts.com
- www.asld.com
- www.smogfree.com
- www.car-sound.com
- www.mad-mechanic.com
- www.carleysoftware.com
- www.aecc.be



SPECIAL DELIVERY

If you would like to receive the Gateway Air Repair at your home instead of your workplace, please complete the information sheet on the back of this issue. Check the new address box and mail to:

Gateway Air Repair Editor
PO Box 1034
St. Charles, MO 63302.

Or, e-mail information directly to:
gretchen.harman@esph.com

Area Trainers

Are you currently offering automotive repair training in the St. Louis area? If so, please contact the Gateway Clean Air Program to be included in future issues of the Gateway Air Repair. Please include a detailed description of your course, including topics covered, dates, costs and location. Notices may be sent to the Gateway Air Repair editor by e-mail or fax at: **GCAP@esph.com** or **(314) 739-2901**.

If the training is emissions-related and you would like it evaluated as a continuing education course offered to all Missouri Recognized Repair Technicians, please contact the Missouri Department of Natural Resources at **(314) 416-2115**.



Articles Wanted

The Gateway Clean Air Program wants to continue to bring readers pertinent repair information. If you have an idea for an article, or have a topic you would like discussed in a future issue, please contact the Gateway Air Repair editor by fax at **(314) 739-2901**.

Gateway Air Repair

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- E-mail: **GCAP@esph.com**
- Phone: **(314) 739-8500**
- Fax: **(314) 739-2901**

Send all address changes, mailing requests and letters to the Gateway Air Repair editor at:

Gateway Air Repair
PO Box 1034
St. Charles, MO 63302-1034



Training and Special Events

The following is a list of known training available in the St. Louis area. This information is for reference only and is neither endorsed nor sponsored by the Gateway Clean Air Program. To find out what training is currently being offered, please contact any of the training providers listed below. Training providers that accept the \$50 MRRT Training Voucher are noted. Please contact trainers to confirm dates, course costs and to arrange payment.

CARQUEST

The trainer is Vince Manship. For more information, contact Mike Mulcahy at (314) 345-4856 or visit www.carquest.com. Courses are held at South St. Louis county, O'Fallon and Belleville locations. The MRRT Training Voucher is accepted. Verify course desired is MRRT Approved.

HYB-100 Hybrid Generic Service

- December 13 - 14

Hybrid technologies have rapidly become the fastest growing segment of the automotive and light truck market. These systems include various strategies including electric and diesel. This course will focus on understanding the different types of systems and the critical service issues technicians will face during normal maintenance. Safety is an issue with these high voltage systems.

OBD-205 Controller Area Network Diagnosis

- January 24 - 25

Controller Area Network (CAN) is the new standard communication protocol between the scan tool and the vehicle that will be fully implemented by 2008. Starting in 2005 this new robust system will be phased in to approximately 25% of the fleet each year. CAN has been around for many years on Euro and some other domestic vehicles and will provide many new enhancements to your diagnostic capabilities. This course will cover the basics of CAN, how to recognize a CAN system and will focus on the changes that will affect your diagnostic strategies.

OBD-206 Advanced Mode 06

- March 28 - 29

Mode 06 is the scan tools request for the latest test results from the PCM for all non-continuous monitors. This concept was first introduced in OBD-203. Now we will cover practical uses of Mode 06, deal with the difficult Mode 06 information from GM and Chrysler as well as review the changes in Mode 06 on CAN vehicles.

DESIGN TECHNOLOGY, INC.

The trainer is Lou Craven. For information on training offered by DTI, call (636) 939-5670 or fax (636) 477-9093. The MRRT Training Voucher is accepted. Verify course desired is MRRT Approved.

MRRT Approved Continuing Education

(6:00 - 10:00 PM) \$79 per tech

- Most Common OBDII DTC's December 28
(Domestic Vehicles)

MUST Level 1 Classes

Mondays (8:30 - 3:30)

Tuition per Tech \$166 per class or \$1,494 for Series

- Compression/Thermodynamics December 18
- Fuel Systems-Hydraulic/Electronic January 29
- Automotive Computer Technology February 26
- O2 Waveform Analysis March 26

MUST Advanced Level 2 Classes

Wednesday and Thursday (4:00 - 7:30)

Tuition per Tech \$166 per class or \$1,494 for Series

All classes are approved for MRRT.

- ABC's of Diagnostics December 20 - 21
- No Start/Rough Idle January 24 - 25
- IC Spark Control February 21 - 22
- Current Ramping II March 21 - 22

MUST Advanced Level 3 Classes

Tuition per Tech \$166 per class or \$1,494 for Series

- OBDII "Introduction" January 11
- GM OBD II - Fuel Control Strategies February 8
- GM OBD II - Ignition Control Systems March 8



FEDERAL MOGUL

Training Course Information: 1-888-771-6005
 Web site: www.federal-mogul.com/training
 Contact: Thomas Martin at (314) 977-0798; or send a fax to (314) 512-8398
 Diagnostic Line: 1-900-486-0400 or 1-866-265-4170 (\$3.95/min.)

- The MRRT Training Voucher is accepted
- Courses TEC301, TEC304, TEC306 & TEC307 are MRRT Approved
- Technical information/Bulletins: 1-888-819-5681 (no charge)

TEC301 Automotive Electronics

This workshop will familiarize the technician with electricity and electronics, from the fundamentals to complex automotive circuits.

Dates (contact trainer for times):

- Session 607 November 6 - 8
- Workshop length: 2 ½ days (20 hours)
- 2 CEU's Awarded – \$479 (with hotel room); \$330 (without hotel room)

TEC304 Domestic Drivability

Designed specifically to keep technicians current on changing vehicle management systems for domestic vehicles. Engine controls and components are reviewed as they relate to OBD I and II.

Dates (contact trainer for times):

- Session 610 December 18 - 20
- Workshop length: 2 ½ days (20 hours)
- 2 CEU's Awarded – \$549 (with hotel room); \$400 (without hotel room)

TEC307 Advanced Drivability

This workshop will concentrate on advanced drivability problems encountered on late model vehicles. Students will learn the function and purpose of engine management systems.

Dates (contact trainer for times):

- Session 607 December 20 - 22
- Workshop length: 2 days (16 hours)
- 1.6 CEU's Awarded – \$439 (with hotel room); \$340 (without hotel room)

ST. LOUIS COMMUNITY COLLEGE AT FOREST PARK

The trainer is Angelo Vitullo. To register by phone or for payment by credit card, call Andrea at (314) 539-5341 or (314) 644-9287. MRRT Training Vouchers are not accepted but may be submitted by a shop directly to the Department of Natural Resources per the instructions on the voucher.

MRRT Certification Seminar:

(One 4-hour evening)
 December 20

Internet Resources:

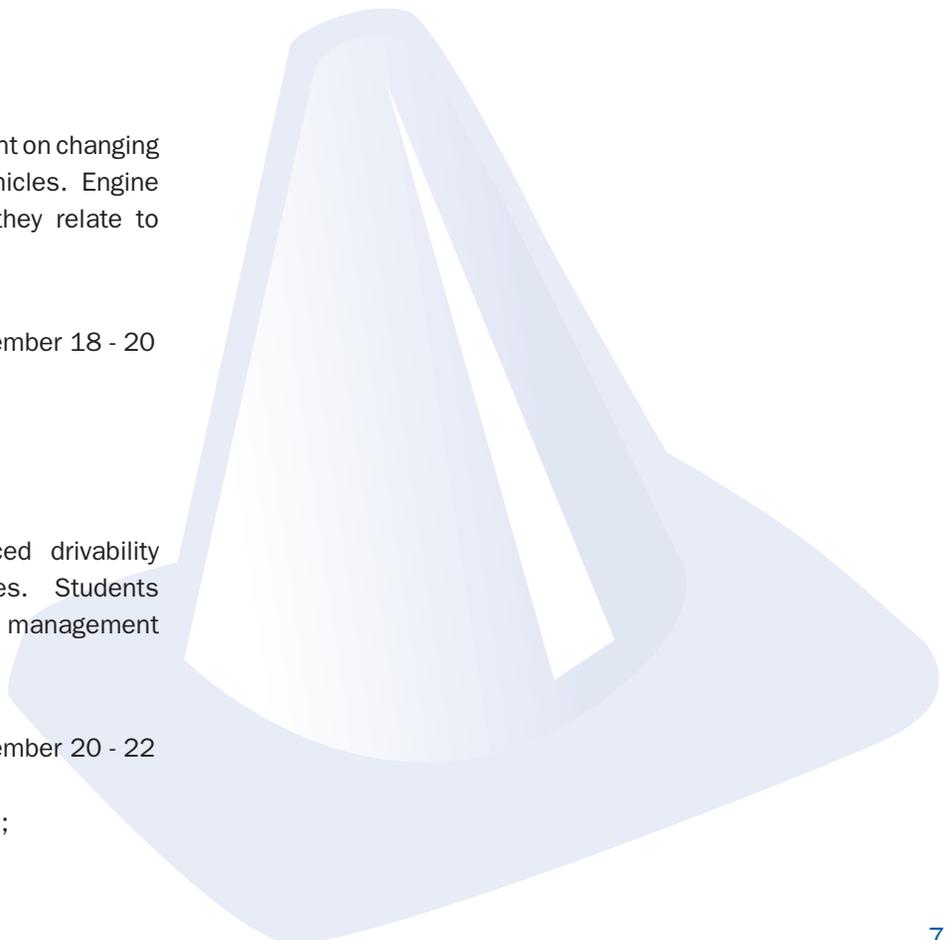
(One 4-hour evening)
 December 6

Evaporative Emissions Systems class:

(Two 3-hour evenings, 6-hour class time)
 December 12, 14

OBDII:

(One 4-hour evening per class)
 December 18



Gateway Air Repair
PO Box 1034
St. Charles, MO 63302-1034

PLEASE POST. Please pass on to any Missouri Recognized/Qualified Repair Technicians working at this address.



THIS NEWSLETTER PRINTED ON RECYCLED PAPER

Count Me In!

I'd like more information about the Gateway Clean Air Program!

Please Print

Name _____ Technician ID Number _____

Company Name _____ Facility ID Number _____

Address _____

City, State, Zip _____

Phone _____ E-mail Address _____

I'd like to receive the Gateway Air Repair electronically.

I'd like to receive future issues at home.

Please change or correct my address.

I am interested in:

_____ Send me OBDII brochures

_____ Training opportunities

_____ More information on becoming a Missouri Recognized Repair Technician or a Missouri Qualified Repair Technician

