



Gateway Air Repair

A Newsletter for the Vehicle Repair Industry

Volume 8 Number 5

September 2006

Gateway Clean Air Program Introduces New Express Lane

What is the OBD Express Lane?

The OBD Express Lane is set up to allow staff to perform data entry, a gas cap test, and download a vehicle's OBD system information at one lane location. Previously, this same process required the vehicle to be moved to three locations in a lane. This process shortens the test time for the customer.

The goal of the express lane is to place vehicles in lanes where they will likely receive the fastest service. The efficiency of the OBD Express Lane allows more vehicles to be staged in the OBD Express Lane, which shortens the test time for all vehicles at the station.

Presently, Station No. 8, located on South Kingshighway,

and Station No. 3 located on West Florissant in North County, have been equipped to test 1996 and newer vehicles using this streamlined On-Board Diagnostics (OBD) test procedure.

If you have questions regarding OBD Express, visit the station manager at either of the above locations or the Gateway Clean Air Program toll free at 1-888-748-1AIR (1247) with questions about emission testing or comments about your experience.



Safe Operation of Diagnostic Test Equipment

Today's vehicles have highly sophisticated sensitive electronic components. Repair technicians must use extra care in diagnosing and repairing these vehicles. Personal injury and property damage may occur if recommended testing procedures are not followed using correct and properly functioning test equipment.

The new hybrid vehicles incorporate technology that requires technicians to be attentive to safety issues. In addition to a 12-volt battery for the electrical system, hybrids have a separate high-capacity battery pack to power the electric motor. Depending on the model, high-voltage lines in hybrids carry 144 volts to 650 volts. 60 volts can be fatal; for some people, it's as little as 50 volts. High-voltage lines in hybrids are bright

orange or yellow. A few safety practices used by electricians can be used in the automotive repair shop:

- Use insulated lineman's gloves when working with high voltage.
- Stand on insulated mats when making electrical connections.
- Keep one hand in your pocket when making electrical connections. That way, if current does pass through you, injuries may not be as severe.

Other basic safety practices should be used for any type of vehicle repairs. These include:
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SAFETY FIRST

Drive Cycles Not the End-All of Readiness; Enabling Criteria Play an Important Part



When automotive technicians talk about making a car “ready” for an emissions retest following repairs, the discussion tends to focus on drive cycles, which is understandable.

No OBD-equipped vehicle will achieve test readiness unless it is put through the drive cycle recommended by the manufacturer for that make and model, thereby resetting the multiple monitors in the powertrain control module (PCM). (Monitor is a term that applies to any on-board diagnostic test routine.)

The drive cycle, also, is something that the customer usually carries out and conscientious technicians take pains to make sure their customers know what to do, and why, in this regard.

Many experienced technicians see a danger, however, in focusing exclusively on drive cycles to re-set monitors.

Enabling criteria, sometimes called enabling conditions, are the vehicle-specific events or conditions that must occur within the engine before the various monitors will set or run.

“To grasp the difference between drive cycles and enabling criteria, you have to change perspectives,” said Bruce Turnbull, an ASE-certified master technician whose shop has a five-star rating on the Massachusetts I/M program “report card” (Emissions Repair Success Rating). “A drive cycle is the perspective of the driver: How he drives the car to make it ready for an emissions test. Enabling criteria are the perspective of the engine: What has to happen from the engine’s perspective to make it ready.”

For example, the EGR monitor in most cars will not set unless seven criteria are met. These include: coolant temperature reaching 170 degrees Fahrenheit, or

higher; engine speed between 2000-2688 RPM (A/T) or 1952-2400 RPM (M/T); and TPS voltage within a range of 0.6 – 1.8V.

Another example: the thermostat monitor (found only in 2004 model year and newer vehicles) will not run in most cases unless the vehicle has experienced a minimum engine-off “soak time” of two hours; the engine coolant temperature (ECT) and the cylinder head temperature are below the target warm-up temperature for a hot engine; the vehicle speed sensor (VSS) detects a minimum speed of 15 mph; and an engine load of at least 30 percent has been reached.

“A drive cycle is the perspective of the driver: *How he drives the car to make it ready for an emissions test.* Enabling criteria are the perspective of the engine: *What has to happen from the engine’s perspective to make it ready.*”

Using the thermostat monitor example, you could have a customer complete the drive cycle in one turn behind the wheel, take the car directly to an inspection station for the re-test and be turned away as “not ready” because the car had not been turned off (“cold soaked”) for two hours.

If you did not understand the relationship between enabling criteria and test readiness, how could you deal successfully with that customer when he showed up, angry, after the turn-away?

“Training could have, and should have, provided you with the ammunition to handle that interaction,” said Turnbull. “Better still, the training would have alerted you to this possible outcome and prompted you to bring ‘cold soaking’ into your final comments to the customer.”

In shops that subscribe to online data systems, such as Mitchell on Demand, All-Data and Motor, technicians can quickly look up the enabling criteria for any make and model, Turnbull pointed out.

This article was reprinted by permission from the Massachusetts Enhanced Emissions and Safety publication.

Motor Magazine OBDII Articles



Vapor Trails: Finding and Fixing Evaporative System Faults

By Bob Pattengale

Current OBD II systems can detect evap system leaks too small to see, or even smell. Finding and fixing these and other system faults requires a carefully considered approach. (February 2006)

Slip-Sliding Away: Deciphering GM Transmission DTC P1870

By Wayne Colonna

The newest transmission technology provides nearly unnoticeable torque converter clutch application. As is often the case, an appreciation of how it works will help you understand why if something goes wrong. (June 2006)

Visit www.motor.com to download a free copy of these articles.

Continuing Education Still Needed for 2007

Please remember to take the four hours of continuing education in 2006 in order to keep active status as a Missouri Recognized Repair Technician (MRRT) in 2007. Any changes in the MRRT program will not be effective until September, 2007, at the earliest. See page 6 for more information about training opportunities.

Safe Operation of Diagnostic Test Equipment

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- Verify that the correct diagnostic equipment is available. Consult the vehicle manufacturer's service and diagnostic manuals, repair guides and technical service bulletins to determine what tools and equipment are needed for diagnosing and making repairs.
- Check the electronic leads. Make sure that the leads are of the proper electrical capacity for the equipment you are diagnosing and that they are not damaged.
- Verify that the capacity of the tool you are using matches, or exceeds, the electrical specs (volts, amps etc.) in the vehicle repair manual.
- Note the instrument's electrical parameter limitations and verify the unit of measure (amp, milli-amps, etc.) required for each diagnostic procedure. Remember, tool settings used for one vehicle may not work on another vehicle for the same test.
- Inspect tools for frayed or exposed wires, broken cases, and proper calibration.
- Closely follow the manufacturer's procedure for conducting the diagnosis. Do not skip any steps of the procedure.
- Check vehicle settings (ignition key on, off, etc.) before starting any tests.
- De-energize circuits whenever possible.
- Use only replacement parts that are built to original manufacturer's specifications.
- Check for properly grounded outlets, plugs and vehicle components.
- Wear safety goggles when working on vehicles. Do not wear loose clothing or jewelry that may get caught in moving parts.
- Follow all procedural warnings, cautions and notes described in the vehicle repair manuals to avoid personal injury or damage to the vehicle.

This article was reprinted by permission from The Maryland Department of the Environment.

Help is Just a Phone Call (or Click) Away

NASTF Updates Summary of OEM Service Website 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 websites.
- 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.carrecouncil.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

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 or e-mail to GCAP@esph.com.

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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.

AASP-EXCEL

25th Annual Trade Show and Training Conference

The Gateway Clean Air Program will have a booth at the AASP-EXCEL conference this October. Please stop by. Staff from the Department of Natural Resources will be at the booth, and will be providing an update on the future emissions inspection program. A question and answer period will also be provided, every hour starting at 6:30 p.m. on Friday and 4:30 p.m. on Saturday.

The following courses, offered at the AASP-EXCEL Conference, have been approved as MRRT continuing education courses by the Department of Natural Resources - Air Pollution Control Program.

T2 Functional Scan Tool Testing

(3 hour course - need additional approved conference course)

T9 Toyota Fuel Control Systems

(3 hour course - need additional approved conference course)

T3 Electrical/Electronics Diagnostics

(6 hour course - no additional course needed)

T10 The Profitable Guide to DSO Diagnostics

(6 hour course - no additional course needed)

T11 Controller Area Network (CAN)

(6 hour course - no additional course needed)

AASP will not accept training vouchers as partial payment for training offered. Training vouchers must be submitted to the department by the shop the MRRT is employed at to receive reimbursement. A copy of the certificate(s) of completion from courses taken at the AASP-EXCEL conference should be submitted with the voucher. Should no certificate be available, please include a separate listing of the courses taken at the conference. The course roster will be used to verify attendance in these instances

Please call 314-416-2115 if you have any questions.

CARQUEST

The trainer is Vince Manship. For more information, contact Mike Mulcahy at (314) 345-4856. Courses are held at 800 North 17th Street, St. Louis, MO 63106, O'Fallon and Belleville locations. The MRRT Training Voucher is accepted. Verify course desired is MRRT Approved.

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.

MUST Level 1-Daytime Series

- | | |
|--|--------------|
| • EI Ignition Systems | September 21 |
| • Compression/Thermodynamics | October 26 |
| • Fuel Systems | November 16 |
| • Automotive Computer Technology | December 21 |
| • O2 Waveform Analysis | January 25 |
| - Tuition per tech \$188 per month/total cost \$1,692. | |
| - This is a nine month series of classes. | |

MUST Level 1 Classes

Mondays (8:30 – 3:30)

Tuition per Tech \$ 166.00 per month or \$1,494.00 for Series

- | | |
|-------------------------------------|--------------|
| • Intro to Digital Storage Scopes | September 25 |
| • DI Ignition Systems | October 30 |
| • EI Ignition Systems | November 27 |
| • Compression/Thermodynamics | December 18 |
| • Fuel Systems-Hydraulic/Electronic | January 29 |
| • Automotive Computer Technology | February 26 |
| • O2 Waveform Analysis | March 26 |

MUST Level 2 Classes

Wednesday and Thursday (4:30 – 7:30)

Tuition per Tech \$ 188.00 per month or \$1,692.00 for Series. All classes are approved for MRRT.

- | | |
|------------------------|----------------|
| • ABC's of Diagnostics | October 25,26 |
| • No Start/Rough Idle | November 29,30 |
| • IC Spark Control | December 20,21 |
| • Current Ramping II | January 24,25 |

MRRT Approved Continuing Training 2006

(6:00 - 10:00 PM) \$79.00 per tech

- | | |
|--|-------------|
| • Advanced No Code Drivability | November 20 |
| • Most Common OBDII DTC
(Domestic Vehicles) | December 28 |



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 606 September 20 - 22
- Session 608 November 8 - 10
- Session 610 December 18 - 20
- Workshop length: 2 ½ days (20 hours)
- 2 CEU's Awarded - \$549 (with hotel room); \$400 (without hotel room)

TEC306 Fuel and Ignition Systems Diagnostics

This workshop is designed for technicians servicing drivability, emission and tune-up repair on today's vehicles. Practical instruction focuses on the fuel delivery and ignition systems that are essential knowledge for technicians.

Dates (contact trainer for times):

- Session 605 September 18 - 20
- Session 607 November 13 - 15
- 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 604 November 15 - 17
- Session 605 November 20 - 22
- 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

MRRT Certification Seminar:

(One 4-hour evening)

Sept 27, October 25, November 22, December 20, January 17, February 21

ASE L-1 crash course:

(One 4-hour evening)

November 6

Internet Resources:

(One 4-hour evening)

September 25, October 11, 24, November 2, 28, December 6, January 25, February 6, 27

Oscilloscopes class:

(Three 3-hour evenings, 9 hour class total time)
October 16, 18, 23, November 13, 15, 20, December 7, 11, 13, February 5, 7, 12

Evaporative Emissions Systems class:

(Two 3-hour evenings, 6 hour class time)
September 26, 28, October 10, 12, November 7, 8, December 12, 14, January 22, 24, February 13, 15

Carburetor Class:

(One 4-hour class)

September 20, October 19, November 29, December 21, January 31, February 28

OBDII:

(One 4-hour evening per class)

September 21, October 26, November 30, December 18, January 18, February 22

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Missouri Recognized/Qualified Repair
Technicians working at this address.

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- Training opportunities
- More information on becoming a Missouri Recognized Repair Technician or a Missouri Qualified Repair Technician

