Inspection Update

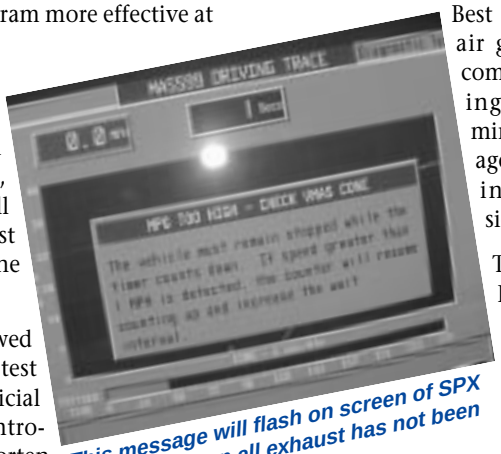
A Publication of the Massachusetts Enhanced Emissions and Safety Test Program

Volume 4, Issue 1, March 2003

Analyzer Software Changes Will Eliminate Fast Pass, Add Exhaust Dilution Check

Two pending changes in the analyzer software for the *Enhanced Emissions & Safety Test* program will make the emissions test more accurate and the program more effective at cleaning the air.

The first change will essentially eliminate the Fast Pass option from the drive trace, while the second will incorporate an Exhaust Dilution Check into the emissions test.



This message will flash on screen of SPX Analyzers when all exhaust has not been captured.

Fast Pass, which allowed a vehicle to pass the test on any of the six official test "humps," was introduced in 2000 to shorten the test time, thereby increasing test throughput and inspector convenience. Recent analysis by the Massachusetts Department of Environmental Protection (DEP) has shown, however, that Fast Pass has made it easier for dirtier vehicles with erratic emissions to pass the test.

Therefore, a new test sequence to be introduced in March will require the vehicle to drive three official humps before passing the test. If the vehicle fails at that point, it will be given a second chance to pass after driving three more humps on the dynamometer. The new sequence will also eliminate the initial "preconditioning" hump. This is essentially the same test sequence that was used before Fast Pass was introduced.

By eliminating Fast Pass, the DEP estimates that an additional 20,000 to 25,000 polluting vehicles will fail the test every year. Best of all, this clean air gain can be accomplished by adding less than one minute to the average inspection that includes a transient test.

The new Exhaust Dilution Check was designed in response to recently collected exhaust flow data. Its purpose is to eliminate a problem in the emissions test, i.e. some dirty vehicles may be passing the transient test because the exhaust samples have been diluted by too much clean air.

Exhaust dilution is suspected when the sum of hydrocarbons (HC), carbon monoxide (CO), and carbon dioxide (CO2) emissions is too low relative to the size of the engine being tested. Currently, the analyzer software measures exhaust dilution in terms of fuel economy, (miles per gallon, or mpg), by calculating a "carbon balance" on the engine, i.e., the carbon coming out of the engine in the exhausted CO, CO2 and HC should equal the carbon going into the engine as gasoline.

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Edward Farrell

India Welcomes MA Technician's Emissions Know-How

How far can an Automotive Service Excellence (ASE) certification take you?

It took **Edward Farrell** all the way from Arlington, Massachusetts to New Delhi, India and back.

For two weeks this January, Ed was in the Far East conducting an alternative fuels training for the U.S. Department of Energy's Clean Cities Program. Among those in his audience were Indian government officials and automotive engineers.

Farrell is an automotive technician who is passionate about reducing emissions. He has done some amazing things, and he believes it is all due to receiving his ASE certification early on in his career.

Farrell owns and operates a full service independent automobile/truck repair facility in Arlington. His specialization in conversion and repair of CNG (compressed natural gas) and propane powered vehicles led him to become the head alternative fuels

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RMV Looks to Suspend Registrations of Inspection Scofflaws

See Interview with Registrar Hinden, Page 3

What to Do When Exhaust Dilution Check Turns Up a Problem

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When the analyzer sees abnormally high fuel economy, all of the exhaust has not been captured, and the transient test should be re-run.

The analyzer will display the message "MPG Too High – Check VMAS Cone" whenever abnormally high fuel economy is detected. The inspector is given up to nine chances to run the trace before the test is invalidated and must be started all over again.

An inspector should perform the following checks if the Exhaust Dilution Check turns up a problem:

1. Check the placement of the VMAS exhaust collection cone. The cone, which must be entirely over the end of the tailpipe, may have moved or fallen off during the trace. Also, be sure that, if the vehicle has dual exhaust, you use two VMAS hoses and cones to collect all of the exhaust.
2. Check the condition of hoses and probes. Are there visible tears in the hose going to the VMAS? Does your probe tip pass a properly performed leak check as required during the three-day workstation calibration? If not, it's the station's responsibility to repair or replace these items.
3. If you've done 1 and 2 and you still can't get through the drive trace without "MPG Too High – Check VMAS Cone" flashing on the screen, call the Station Hotline, 877-297-5552 and open a service ticket. Agbar Technologies will have a field service representative schedule a visit to your station to check your analyzer.

DEP now Beta testing Exhaust Dilution Check... State-wide implementation will occur this spring.

Please note: Typically, there are no problems with a vehicle itself that should cause excess dilution or excessive fuel economy readings by the analyzer. Vehicles with obvious exhaust system leaks should be failed for "Exhaust System – Visual" during the safety part of the inspection, which would automatically prevent them from undergoing an emissions test.

Also, please keep in mind that actual problems with a vehicle's emissions control system will normally *decrease* fuel economy.

DEP is currently beta testing the Exhaust Dilution Check at selected stations and will begin implementing it statewide Spring of 2003. Early on during this phase-in, higher fuel economy limits will be used to make the check less stringent. Subsequently, the limits will be lowered in stages over a period of months in much the same way that the emissions cutpoints were lowered gradually following the implementation of the *Enhanced Emissions & Safety Test* program on October 1, 1999. ■

Surprise Awaits Those Who Delay Initial Safety-Only Inspections

There will soon be a downside for motorists who put off – and put off — their initial safety-only vehicle inspections.

Under a new *Enhanced Emissions & Safety Test* program regulation, a vehicle that is more than 60 days late for its initial safety-only inspection will have to undergo an emissions test in addition to the safety inspection.

The new regulation also stipulates that vehicles more than 60 days late for their safety-only re-tests will be required to undergo emissions tests in addition to their safety re-inspections.

The Massachusetts Department of Environmental Protection and Agbar Technologies are now working on changes to the software that will have the analyzer automatically determine if the vehicle is late and make the proper test selections.

Current plans call for these changes to be implemented on the VID by late-Spring, 2003. ■

Inspection Update is published quarterly and distributed to the automotive service and repair industry in Massachusetts by the Department of Environmental Protection and the Registry of Motor Vehicles, in association with Agbar Technologies, Inc.

Our mission is to help foster the success of the enhanced vehicle inspection and maintenance program by providing news and useful information to vehicle inspectors and repair technicians in a timely fashion.

We also want to facilitate the sharing of helpful information among people within the industry. Toward that end, we encourage our readers to contact us with their suggestions, observations and constructive criticism. Ideas that would benefit the industry as a whole will be presented in subsequent editions of *Inspection Update,* as space allows.

To register your comments, please e-mail or phone:
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The Vehicle Maintenance Initiative Committee (VMI), composed entirely of volunteers from the repair industry, serves as *Inspection Update's* editorial advisory board. William Cahill, of B.C. Auto Repair, Randolph, is chair of the VMI Committee.

Advanced OBD II Classes are Coming. . .

Registered repair technicians will be offered advanced OBD II technical training courses this spring. Trainings will be administered through MassBay Community College (MBCC) Technology Center in Ashland and sessions will be held at various locations throughout the Commonwealth.

For more information please contact Chuck Pearson at MBCC Technology Center by calling 781-239-3048 or emailing at pearsonc@massbay.edu. (Please include name, address, telephone number and registered repair technician "R" number.)

Interview with Registrar of Motor Vehicles

'Take Time to Educate Customers on Emissions'

Q&A

Kim Hinden

Striving Hard to Keep RMV Focused on Great Customer Service

Inspection Update: You've been Registrar of Motor Vehicles for about a year now. What has the Registry accomplished since you were appointed Registrar?

Registrar Kimberly Hinden: Since my appointment, we've maintained our goals of excellent, innovative customer service statewide, in spite of the Commonwealth's budget crunch. In the last year, we opened new branches in Falmouth, Springfield, and Chicopee. You might remember hearing about the Chicopee branch on the news – it's the first ever to feature a drive-through for our customers.

We also introduced one of the Registry's biggest innovations on the Web: online driver's license renewal. Since we introduced it in October, more than 70,000 people have taken advantage of the program. Thanks to this new service, 70,000 people saved themselves a trip to an RMV branch.

Another major accomplishment in the last year is the introduction of several new types of specialty license plates. You've probably seen them on the road: The United We Stand plate that commemorates September 11 and the Jimmy Fund/Red Sox plate, which benefits cancer research. There are several other specialty plates in the works, including a Youth Hockey/Boston Bruins plate, which you can get later this year.

IU: What new innovations is the RMV working on now?

Registrar: One major program that will affect the inspection industry is what we call "Sticker Enforcement." We're going to link the Registry's inspection and registration databases, so motorists who fail to get inspected will have their registrations suspended. Not only will this help ensure everyone visits an inspection station each year, but it will ultimately make our roads safer.

IU: You're very familiar with what can go wrong for the average consumer in the marketplace. What advice would you give to a motorist whose vehicle needs extensive repairs in order to pass inspection?

Registrar: If the failure is safety related, I need to make it clear that the vehicle must *not* be driven until the defects have been repaired. Most motorists can utilize the services of their local mechanic for these types of repairs, just as they have in the past. Emissions repairs, however, are a little different. The complexity of today's vehicles requires specialized equipment and training. This is why Massachusetts utilizes registered repair shops. These repair shops have met strict requirements for experience and training, and have the proper diagnostic tools to get the job done right. Plus, only repairs at registered shops count toward a waiver.

IU: And what advice would you give to the repair facility that proposes to make those repairs?

Registrar: Other than trying to stay on top of the ever-changing automobile industry, I'd advise them to take a little time in trying to educate their customers on emissions and safety. Many motorists have limited knowledge about the automobiles they drive every day, and an expensive repair can be very upsetting. Working with customers and understanding their needs has worked wonders here at the RMV, and applying this technique to any business should produce the same positive results.

IU: How have you and your colleagues tried to make the RMV more consumer-friendly?

Registrar: There are a number of ways we've made customer service better at the Registry. To make the lines shorter, we moved more administrative staff to the counters. To make sure people got in the right line, we put a Wal-Mart style greeter in every branch. To make the service friendlier, we established the RMV's first-ever customer service training program. To make the wait more comfortable, we put in benches and made sure our offices were clean. And to make sure people knew how long they'd be waiting, we installed a Q-Matic ticketing system, which gives each customer an estimate of how long they'll be waiting. All this had made a tremendous difference; our wait times are now just a fraction of what they used to be.

Another important innovation was the focus we put on our Web site. We realize that many of our customers would like to skip a visit to the RMV altogether, so we put as many services as possible on our Web site at www.mass.gov/rmv. You can renew your driver's license, renew your registration, order special plates, and even get up-to-the minute wait times for all of our branches.

IU: With more than 4.5 million licensed drivers in Massachusetts, the RMV is a large agency with diversified responsibilities. How do you balance the huge demands of your job?

Registrar: It can be a challenge to balance the RMV's important public safety role with our customer service goals, while keeping our constituent groups in mind at the same time. I'm fortunate to have an excellent management team that recognizes the RMV's role as the face of state government – nearly every adult in Massachusetts has some dealing with the agency.

IU: How do you feel about the *Enhanced Emissions & Safety Test* program?

Registrar: I think we have an excellent program in place in Massachusetts. We're ac-

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Myth of OBD II: You're Home Free As Soon as You Retrieve That Code

By Jim Moore

Servicing today's vehicles is more complicated than ever before. Prior to 1980, the average technician could diagnose most problems based solely on the nature of the customer's complaint. This was within a few months of a new model hitting the market. Those days, however, are long behind us. With the complex systems found on modern vehicles, an off-the-cuff assessment of a customer's problem is no longer possible. An accurate diagnosis on a newer vehicle requires more than a keen ear and a handful of automotive knowledge. Today's technicians have an array of diagnostic codes, scan tools and test equipment at their disposal. Even so, a driveability problem can remain frustratingly difficult to diagnose.

The scope of this dilemma grows constantly. Complexity increases as the manufacturers introduce new models employing more complex systems every fall. Brand-new engine management systems are far more intricate when compared to those of even a few short years ago. The technology changes with each new platform that reaches the market. This may leave more than a few technicians puzzled, and many may find themselves caught behind the learning curve.

What was once cutting-edge information may no longer hold true. It is no longer possible for a repair technician to learn the inner workings of a few engine management systems and then rest easy. A working technician can no longer trust in the ability of knowledge gained years ago to carry him through. To add to the problem, the myth that retrieving an OBD II code is the answer just isn't true.

Take, for example, a once-simple fuel delivery problem. A code for a case such as this holds the potential to lead to multiple problems. Many may have no real connection to the function of the fuel system at all. Technicians must familiarize themselves with many new terms simply to understand the process through which an OBD II system gains self diagnostic approval or readiness status. A technician requires both generic and manufacturer-specific OBD II system knowledge before he or she can grasp such terms as *readiness status*, *warm-up cycle*, *drive cycle* and *OBD trip*.

Two soon-to-be common terms for today's technician are *continuous* and *non-continuous monitors*. The *continuous monitor* links to what engineers call comprehensive component monitors. In our language, we know them as sensors and actuators. The system monitors these components at all times. The *non-continuous monitor* is a relative newcomer to the field of On Board Diagnostics and includes such items as the EGR and catalyst systems. These may require a few OBD trips before receiving a pass or fail decision from the PCM.

You can be certain that many other new phrases will appear in a technician's vocabulary — such terms as *pending codes*, *enabling criteria* and *similar-condition windows*. All of this means that it is no longer as easy to succeed in this business by relying on your experience alone. To stay ahead, every professional technician should submit himself to a quick mental check-up now and again.

Faced with all of this new information, the average technician may begin to feel more than a little bit overwhelmed, perhaps even alone. They are certainly not alone. *The case study highlighted on the lower half of this page, which concerns a 1998 Toyota Camry, sheds some light on the current state of affairs in the industry. It comes from a recent call from a technician in California to our technical hotline.*

It becomes obvious from the above example, as well as the numerous others encountered every day, that a working technician in the modern age does not have it easy. Systems become more complex with

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Vehicle:

1998 Toyota Camry
2.2L (California emissions)
MIL on with Code P0171 in memory (lean mixture)

The front O_2 sensor voltage reading on this vehicle is stuck at 0.650 volts. This voltage is constant and will not change. The technician has used a generic OBD II scan tool to check the O_2 sensor voltage. Freeze-frame data reveal the following information:

Engine speed:	2200 RPM
Vehicle speed:	24 MPH
Engine temperature:	189° F
Short-term fuel trim:	24.2
Long-term fuel trim:	44.5

Information:

The front O_2 sensor installed on this engine is a four-wire unit known as an A/F (air/fuel) sensor. Two wires carry the power and ground for the sensor heater, while the other two carry the exhaust mixture signal. The O_2 sensor heater raises the temperature of the O_2 sensor thimble to a minimum of 1200° F. This is double that of an early four-wire sensor. The A/F sensor requires such high temperatures in order to sample exhaust O_2 content correctly. At the time that the ECM engages the A/F sensor heater, eight (8) amps of current should flow through the circuit.

It is important to note that on this system, the sensor appears similar to a normal four-wire O_2 sensor design. However, the sensor signal's internal electrical operation is different. Unlike a normal O_2 sensor, it does not cycle above or below 0.450 volts and the voltage moves the opposite of that which one would expect.

Test:

1. Add propane to the intake. Check O_2 voltage.
2. Open a large vacuum port engine. Check O_2 voltage again.

Results:

The engine sits at idle. With external fuel added to the intake manifold, the scan tool O_2 sensor voltage drops briefly to 0.640 volts. Afterward, the voltage quickly returns to 0.650 volts. This occurs even during the addition of external fuel. The technician removes the power brake booster vacuum hose. The scan tool O_2 sensor voltage increases briefly to 0.670 volts. The voltage then returns to 0.650 volts. This situation continues even while the booster vacuum hose is open.

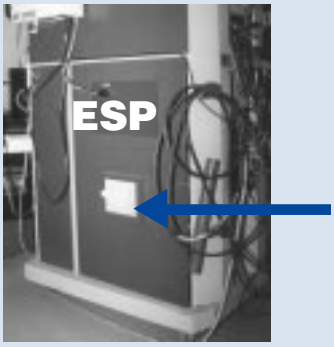
In most cases, a generic OBD II scan tool will indicate stoichiometric fuel trim for this vehicle at 0.660 volts. The O_2 sensor display of rich-mixture voltage should read 0.560 volts minimum while adding external fuel. The display of lean-mixture voltage should read 0.760 volts minimum while inducing a large vacuum leak.

Solution:

The technician replaces the A/F sensor on the vehicle. He then induces both rich and lean fuel conditions while using a scan tool to monitor O_2 sensor voltages. The voltage swings exhibited by the O_2 sensor under both conditions now meet or exceed listed manufacturer specifications.

Analyzer Cabinet Filters: Check Weekly, Clean as Needed

This filter is located on the right side of the analyzer cabinet, about two feet from the floor. This filter is made of a foam material that may be cleaned with water regularly.



This filter is located in the rear of the analyzer cabinet, about one foot from the floor. This is a paper filter, reinforced with aluminum casing. It may be cleaned with a concentrated air hose or shaken to remove excessive dirt.

Cleaning and/or replacement of filters promote improved analyzer performance, reduce failed calibrations, and prolong analyzer life. It is a good idea to keep a spare filter available for instant replacement.

To order additional cabinet filters, please contact the Station Support Hotline at 877-297-5552.

ODB II Myth

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every new model launch. Codes are more difficult than ever before to interpret. Even the type of sensor devices used on these vehicles is changing. What can the working technician do to remain informed about the latest technology? How can he ensure that he will not find himself left behind?

Help is just around the corner. Agbar Technologies and instructors from MassBay Community College are about to offer another round of OBD II training. They would certainly be happy to hold a special place in class just for you. Show that you truly care about your profession by investing in your own education. Professional training is your best weapon against becoming obsolete. It is your best opportunity to grow as a professional. Take the course. Learn. Consider it a gift to yourself.

Once final dates and locations are determined, registered repair technicians will receive sign-up information in the mail. ■

Jim Moore is the Manager of Educational Services at Delphi-ISS/ASPIRE Inc.

ASE Certifications Set Stage for MA Technician's Foreign Travel

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instructor at Wentworth Institute of Technology in Boston.

He serves on the curriculum development team for the National Alternative Fuel Training Consortium, has authored curricula for the Massachusetts Diesel Smoke Test program, is a member of the Massachusetts Clean Cities steering committee, and presents at various national, and now, *international*, alternative fuel events.

Farrell is an Agbar master trainer for the *Enhanced Emissions & Safety Test* program, and has taught advanced OBD II for MassBay Community College. He is also chairman of the student advisory committee for Minuteman Vocational School

Farrell will tell you that becoming ASE certified early on is what allowed him to catapult his career forward and help create so many new opportunities.

"Many advanced level positions in the automotive field today require ASE certifications as a prerequisite," says Farrell. "You have to be L-1 certified and a master technician in order to be an Agbar trainer, a master tech and F-1 certified to teach at Wentworth Institute of Technology, and L-1 certified to teach at MassBay. I wouldn't be able to do these things had I not been ASE certified early on in my career." ■

An Openness Overseas to Alternative Fuels

The Department of Energy's International Clean Cities Program (based in Washington D.C.) is in the vanguard of an international effort to reduce automotive exhaust emissions. As head alternative fuels instructor at Wentworth Institute of Technology, Ed Farrell was selected by the National Alternative Fuels Training Consortium to conduct a training for Clean Cities International on the maintenance and repair of alternative fuel vehicles in India last month.

"We are starting from scratch in third-world countries, such as India," remarks Farrell. "In the United States, we are so entrenched in gas and oil that to make the switch to alternative fuels would be extremely difficult. In China and India, however, they are still building their infrastructure, and we are trying to educate them on the benefits of using alternative fuels."

Alternative fuels are defined as domestic fuels — such as propane, natural gas and electricity. "In India – and this has been the case since 1999 — all public transportation (i.e. buses, taxis and rickshaws) is powered using CNG. If they aren't powered with CNG, they don't run," says Farrell. CNG stations receive their domestic supply of gas from a pipeline running from Bombay, India.

Today there are not enough natural gas stations to power anything beyond public transportation. Says Farrell, "Cars in India are powered via gasoline or diesel and there are no emissions controls nor are there inspection programs. This is a scary thought."

As more people buy cars in these developing countries, air quality and public health is jeopardized. Government officials have begun to institute emissions control policies such as those in the United States in order to ensure the good health of all citizens. They have started to take a hard look at gasoline and diesel and have discovered that alternative fuels such as natural gas are good for the environment and can reduce the amount of petroleum they must import. International cooperation in the reduction of harmful exhaust pollutants can only lead to improvement of air quality in all countries.

Edward Farrell can be reached via email at edwfarrell@hotmail.com. ■

Vehicle Inspectors, Th
State's Vocational/Technical Schools

Where do new vehicle inspectors come from? One excellent source is the state's vocational schools.

For example, this May, eight post-graduates will receive their automotive technician certificate from Minuteman Regional School in Lexington, MA (with an articulation agreement from Middlesex Community College for an associates degree) qualifying them as entry-level automotive technicians.

"These students are our next generation of automotive repair technicians," says **Tom Forsyth**, the man behind the Advanced Automotive Technology Program at Minuteman.

For the past four years Forsyth has brought his students to Agbar Technologies' DTC in Woburn for an overview of the state emissions and inspection program. He has since turned the five-hour program into three eight-hour modules so that he may offer his post-graduate students the option to earn their inspector's license prior to graduating. This year's eight students have all successfully completed the training and passed the test. They are now state-certified *Enhanced Emissions & Safety Test* program inspectors.

"The inspector license gives them another asset as they walk out the door," says **Skip Colburn**, Training Coordinator for Agbar Technologies.

A similar program utilizes the West Springfield DTC and is run by DTC Supervisor **Mike Zabik** in association with the Westfield Vocational High School. "In early February nine high school seniors from the automotive department came for an overview of the State's safety test and emissions program," says Zabik. "The students were able to see a complete safety and emissions test performed."

"**Inspector Phil Hammel** from the RMV spoke about vehicle safety inspection, **Bert Cox** of the DEP spoke about vehicle emissions, and I explained emissions testing," recounts Zabik. "The students were very interested and asked a lot of questions. We want to continue to do more of these types of things."■

Bert Cox director of vehicle programs for the Massachusetts DEP, takes his turn at the head of the class during a training session for new inspectors at the West Springfield DTC. Students around the table from left to right include: Jamie Beaudry, Kevin Bolduc, Keith Bull, Seth Robert, Matt Bloniarz, and Chris Hunter.

West Springfield DTC Supervisor Mike Zabik (back to camera) instructs students from the Westfield Vocational High School who are training to be vehicle inspectors. Students from left to right include: John Forgey, Matt Bloniarz, Mr. Robert Thibault (teacher in the back leaning against the lift), Steve Barkyourh, keith Bull, Jamie Beaudry, Chris Hunter.

he Next Generation
Are Integral to I & M Labor Supply

Post-graduate students from Minuteman Regional School in Lexington studying to be vehicle inspectors are, front row, from left: Dy Bun, Jason Broctor, Parth Patel, Ronald Belhomme, Carnes Masse and Bill Joyce. They were photographed at the Woburn DTC along with their instructors (back row): Tom Forsyth of the Minuteman School and Ed Farrell, an Agbar Technologies' trainer.

Skip Colburn, training coordinator for Agbar Technologies, instructs Minuteman student Bill Joyce in how to use a scanner to lift information from an inspection sticker.

Interview with Registrar Hinden

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complishing our twin goals of keeping unsafe vehicles off the road and removing thousands of tons of pollution from the air. Now that we're in the fourth year of the program, we can start to look at what we've been doing and evaluate in depth how the program has been operating.

Q. Is there a particular message you'd like to give to the inspection and repair facilities of Massachusetts, and to the thousands of inspectors and repairers who make the program work on daily basis?

Registrar: First, I would like to acknowledge the efforts of the industry during the last few years. Their professionalism and support has been great! When I think back to the start of the program and how far we've come since then, there is little doubt that we have some of the brightest and most competent folks in the business. It is clear to me that we have one of the most innovative programs in the country. There isn't a day that goes by that I don't hear some good news about this program, and with your continued involvement and support, we can continue to be proud of our accomplishments and look ahead to even better opportunities in the future. ■

ENFORCEMENT ACTIONS

10/1/02 – 12/31/02

Violations Issued to Inspectors: 82

Violations Issued to Stations: 75

Inspectors Required to Retrain: 3

Inspector Privileges Revoked: 1

Inspectors Suspended: 31

Stations Suspended: 35

Computer-Savvy Tech, Part II:

Editor's Note: Part I of this article appeared in the December 2002 (Volume 3, Issue 4) Inspection Update, courtesy of Jim Linder and AutoInc. magazine. Part I covered case studies numbered 1 through 6 on using the internet to improve your automotive diagnostic and repair skills. Part II covers case studies 7 through 11. We extend our acknowledgement and heartfelt thanks to Mr. Linder and AutoInc. magazine

By Jim Linder

These days more and more manufacturer-specific information can be accessed electronically. This article describes what is involved in accessing OEM (original equipment manufacturer) information via the Internet.

Jim Linder

NASTF is a cooperative effort among the automotive service industry, the equipment and tool industry, and automotive manufacturers to ensure that automotive service professionals have the information, training and tools needed to properly diagnose and repair today's high-tech vehicles.

One of the first projects taken on by this group of volunteers was the Vehicle Manufacturer Service Information Matrix, which can be accessed via the task force's Web site, www.nastf.org; the International Automotive Technicians Network (iATN) site, www.iatn.net; and the Automotive Service Association (ASA) Web site, www.asashop.org. (Select the Members' Only heading on the ASA Web site, then click on "Mechanical Division" to find the OEM Service Matrix link.) A printed version is also available from the collision and mechanical divisions of ASA.

The NASTF matrix is a detailed document showing what information is available directly from each car manufacturer, including contact phone numbers and Web sites where available. This document is continuously updated as new information and resources become available.

NASTF Matrix Confirmation

Often, sitting on a panel or presenting a class, I hear a shop owner or tech say, "It just isn't available." I, myself, have been guilty of making that statement and sometimes later see the information being used by another trainer or shop owner, etc. I then must ask myself how they found the information.

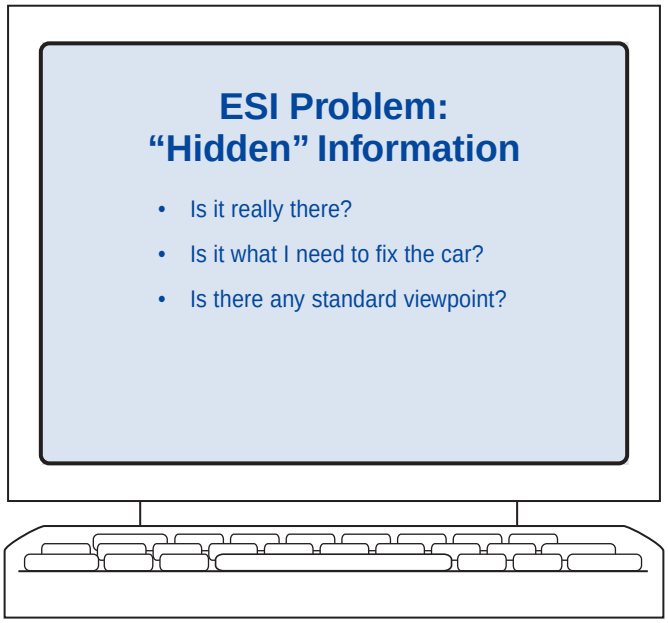
This is the problem we face today as service professionals. Where is this information to be found? This is why I decided to "test" the service information matrix for this article.

To help identify gaps in the availability of service information, the National Automotive Service Task Force (NASTF) accepts feedback from service technicians. Any problems locating or obtaining service information through the sources listed in the matrix may be reported directly to NASTF by submitting an NASTF Service Information Complaint Form (found online with the Vehicle Manufacturer Service Information Matrix).

Although far from being perfect, the matrix lists each manufacturer and a contact is provided for obtaining information and repair tools needed to service today's vehicles.

Case No. 7: What does this information cost?

Fair and reasonable cost is still looking for a proper definition. In the meantime, each original equipment manufacturer (OEM) is allowed to set its own prices and availability of service information. A working example would be the recent offering of GM SI2000 at www.acdelco.com. A single day (24 hours) is set at $15, five days is $75, a full month is $225 and a one-year subscription is not available at this time. (While at this site, pick up the most recent copy of Delco's "In-Tune" magazine.) Many of the OEMs mentioned in the NASTF matrix have service information available - some are free, some are fee-based. Another fee-based example is the availability of Ford factory service manuals on CD-ROM, which may be purchased per make and model through Helm Corp. It's only a matter of time until all are onboard with some sort of offering of online information.



Note: GM SI2000 offers only the newer manuals, 1996 and upward.

Case No. 8: Timely ESI information use

MPC Specifications example: When a 1996 Ford Taurus is brought in for a drivability problem, either the service technician or service writer may go to the computer and select the MPC Specifications icon. From there Ford is selected, then 1996 Taurus and 3.0L Vin U engine. Then, a two-page specification sheet is provided for this vehicle. It may simply be viewed or printed out to go with the vehicle work order.

Moving Deeply into the Matrix

Very quickly, we now have specifications for starting/charging systems, battery size, spark plugs, ignition coil specs, all output sensors, fuel pressure, injector resistance and idle speed adjustments.

Using the "480-minute" workday, we have just saved valuable time for the service technician by having these specifications at our fingertips.

Now let's again assume the service shop and working service technician has handled problems 1 through 3 and has spent the time training and equipping the service bay with these newfound channels of electronic service information (ESI). Now the most frightening issue of all: Will it be there when I need it or will it become (like some of the equipment upgrades promised each year) vaporware and fall into the cave of "it's coming soon," "next quarter" and "not done yet?"

Using the NASTF Service Information Matrix, we will look at three different manufacturers: DaimlerChrysler AG, General Motors Corp. and Ford Motor Co. (Space does not allow me to test all listings, so I've selected the three domestic manufacturers used most at my business.) The matrix lists all manufacturers alphabetically and includes all makes and models. Each company listing includes three general categories: "Non-Emission Service Information," "Reprogramming" and "Non-Emission-Related Diagnostic Tools Available."

DaimlerChrysler AG

Looking at the matrix, we select to view Chrysler first. Chrysler's answers to the questions are very clear with no conditional response answers and are handled with a simple "Yes" or "No." (Note: In my opinion, conditional answers should not be allowed in the matrix. More on that subject later.)

The first question asked: Is non-emission service information available and is it available on the Internet (as an ESI format)? The matrix says "Yes" it is available; "No" it is not an Internet downloadable product. When consulting the Web site, the information was available, with current technician training classes, training materials, books, CD-ROMs and service manuals that are easy to order and can be shipped to the shop.

The second question refers to REPROGRAMMING for three service areas of the vehicle: Emissions, Safety-Related, and Non-Emissions & Safety-Related Systems. Chrysler shows the answers as "Yes" to emissions-related; "No" to safety-related; and "No" to Non-emissions & Safety-related.

This is somewhat incorrect as the "service support tool" answer for this section reads "Yes," but I happen to own a couple of these tools and know that no upgrades have been offered in over a year. This situation requires changing the answers to three "No's" or upgrade the tool options. The matrix is simply incorrect for this section.

The third and final section of the matrix asks: NON-EMISSION-RELATED DIAGNOSTIC TOOLS AVAILABLE? The answer at this writing is "No."

Yes, I do know of shops that have purchased the DRB-III tools, but the answer is "No" on the matrix and I don't wish to discuss how they got the tools in this article.

If the matrix says "No," then it must be considered not conveniently available.

Ford Motor Co.

Ford is our next test of the matrix. Question No. 1 - NON-EMISSION SERVICE INFORMATION - has a "Yes," so it's available; and "No" regarding the Internet.

I consulted the Web site offerings, found information available and made a few purchases. The service information was readily available in both a printed version and CD-ROM and I found both to be current. The only thing missing was technician training. Although somewhat available, I found it to be dated and not up-to-date with the vehicles being sold and serviced today. I believe the training programs offered to the Ford dealer network to be unavailable through these channels. Maybe the matrix could be broken into training and service information. In my opinion, some service information is not very helpful without some method of training support.

In the second matrix concerning REPROGRAMMING, I found all three answers to be "Yes" and I have used each method! The reprogramming tools and software are available, and we have used not only the tools, but also the "flash" programming software for some time now. It's not only available, it works - as they say - and the "Hickok" folks have been helpful in the support of these products. (Hickok supplies the Ford tool for this service).

The third section of the matrix, NON-EMISSION-RELATED DIAGNOSTIC TOOLS AVAILABLE?, shows another "Yes" answer. We have also purchased the required tool (NGS for new Generation Star) and software, and have been more than happy with its performance. Hickok has offered and produced timely upgrades of program cards and software to keep this one of the most current tools in our shop. I consider this tool to be a required tool for all service shops servicing Ford vehicles and wouldn't consider operation without it. It ranks high on the "fair and reasonable" cost factors as well.

General Motors Corp.

GM is the next selection on the matrix and the last of the matrix offerings tested. When viewing the section on NON-EMISSION SERVICE-RELATED INFORMATION, the selection is "Yes" to both, with a [3] next to the "Yes." The [3] signifies - as shown at the bottom of the matrix - that the information is available through the ACDelco Parts Web site. Not only is it shown as "available," but it is also available as an Internet-accessible site for a daily, weekly or monthly fee. Or, with some searching, it is shown as a purchasable product on CD-ROM.

continued on page 10

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The actual Internet-based product is very complete and after some time of use, one may navigate the site and access information quite easily. Service information (although only from 1996 and upward) is complete and functional!

The only downside to this section would fall into the technician training area as the only training offered at this site is ACDelco training, which is not the actual dealer service training offered to the selling dealer service technicians. Even when consulting the aftermarket Delco schedule I found only a single class available in my area and it addressed a subject unrelated to my particular shop.

Again, I think the matrix should ask for OEM training availability.

REPROGRAMING is the next GM selection on the matrix and the answer is again "Yes" to all three selections with a conditional [3] shown as Delco Shop availability.

This is somewhat a puzzle to the unknowing, as we have - for some time - used the GM-offered programming supplied by a few different aftermarket suppliers. We have purchased the Vetronix "pass through" for our Mastertech unit as well as the EASE Off Board software for off-board, carry-in units. Both work well and have been upgraded with prompt, monthly CD-ROM software. We also use the Mac Tools-supplied version of the GM Tech 2 factory service tool. The only missing link is a small section of availability of '93-'94 pre-OBD-II vehicles (listed as Delco shop only) that, in all honesty, we have never needed.

Case No. 9: Is it really available?

Chrysler: Looking at the NATSF matrix we find and select a Web site: www.techauthority.daimlerchrysler.com.

From the Web site it was no problem whatsoever to click and order books, tapes or manuals.

I ordered several manuals I would need both for training classes and service procedures on my new PT Cruiser. My total order was applied to a charge card and I was done. There were many offerings for service information, training manuals, CD-ROMs and videotapes on systems from 1992-2002. Works great!

Ford: Again, using the NASTF matrix and looking at the Ford section on service information we are instructed to go to www.helm.com.

From the Helm site, select DIY or Dealer. I selected a dealer and found a 1999 Taurus/Sable shop manual on CD-ROM (a printed manual was $20 more).

I also found basic electrical training information.

GM: A previous visit to the NASTF matrix led me to different phone numbers and I was told to consult the latest matrix on iATN. The new matrix instructs us to go to www.acdelco.com. From there, select the "tech connect" icon to navigate to the technical information page. At this point there are a few options, one of which is purchasing GM-ESI 2000 by the day, week or month (as outlined earlier in this article).

The training available is ACDelco training and although a couple of classes are offered in my area, I must be a Delco Service Center to sign up. The two classes offered were a three-day air conditioning class and a one-day antilock brake systems class. Good for some, but not what I had expected.

Case No. 10: Is there a standard viewing process?

No, not at all!

And looking over the situation, I doubt there ever will be. Over the years, the OEMs haven't really agreed among themselves - let alone with the aftermarket. It would not be practical (however nice it would be) to expect each OEM to put all information in the same format.

This is a problem, but one that with a little practice we can overcome after some time.

And finally ...

Case No. 11: Is it what I need to fix the car?

In many cases the answer is "maybe not." Each OEM selling dealer service performed under factory warranty guidelines may not be the service fix we seek. I believe we (aftermarket service centers) must approach problems with different procedures to fix cars. For one, we lack the advantage of repeated vehicle "pattern failures" OEM technicians see each day. In our case, the type of vehicle we see today may not be seen again for months or even years. Also, the actual operating parameter may not even be discussed in the factory manuals as the OEM wishes that part to be replaced when the technician believes it is defective, or in some cases under a recall situation. In other cases, aftermarket-proven test procedures may not be listed as approved OEM repairs. This does not imply OEM technicians do a poor job; it just means we both have to operate in a very different environment. ■

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Peak Performance Through Honesty and Helpfulness

Drive westbound on the Mass. Pike to exit 2 and catch Route 7 heading south. Nestled in the snowbanks high atop the Berkshire Mountains you'll find Apex Automotive.

Bob Holcomb opened his shop in Great Barrington at the start of the *Enhanced Emissions & Safety Test* program in 1999. His was the first station in the area to inspect cars under the new program, and he recalls, with a shudder, large lines winding their way around his property.

The Apex Team: Richard Rockefeller, licensed inspector, Bob Holcomb, owner and registered technician, Matt Heckendorn, Bob's son and automotive apprentice, Mike Eichstedt, registered technician, and Diane Bartow, service manager. (Not pictured, Jane Holcomb, Bob's wife and office administrator.)

Both Holcomb and **Mike Eichstedt** are registered technicians and Holcomb's son, **Matt Heckendorn**, is learning the repair industry ropes as an apprentice.

"There's a lot of potential in this industry," says Holcomb. "There is a lot of money to be made. It is rare to find technicians, so there's a demand. There are also fewer repair facilities. Just along our road there used to be lots of gas stations that fixed cars and now, most are gone. But there are more cars. It just makes sense that you'll make money fixing cars."

Holcomb left the industry for eight years to dabble in construction before purchasing the garage that is now called Apex. "I came back into the industry because there was a need for it – and it is what I was trained to do," recounts Holcomb.

Growing up in Housatonic, a suburb of Great Barrington, Holcomb attended Monument Mountain Regional High School, where he learned about automotive repair. Now, Holcomb teaches at the school that taught him.

Bob has local friends in the automotive business and they frequently call on one another to troubleshoot when they get stuck on a car. "AllData and ItAN are two systems that I find very helpful as well," offers Holcomb.

As for advertising, Bob says, "You can't buy customers. They are going to go where they are happy and feel comfortable, so we stay focused on the customer. If we take care of our own, through word of mouth, we will get more business."

When asked about winning customer service, Holcomb stresses the importance of honesty. He looks at car repairs from the point of view of the vehicle, and "if the vehicle is happy, so too will be the customer."

"People are afraid to tell people to spend money and here is where a lot of problems arise," explains Bob. "I've taken a lot of heat from customers when I have to tell them they need four new tires. But they eventually realize the importance and they appreciate it in the long run." Apex Automotive scores five stars on the ERSR. ■

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691 Stockbridge Road
Great Barrington, MA 01230
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Hours: Monday-Friday, 8-5

Colleagues at RMV Offer Tributes

Casey Lived Life to the Fullest

It is with deep regret that the Registry of Motor Vehicles reported the passing of Assistant Director Richard P. Casey on January 26, 2003.

Richard P. Casey
Assistant Director
Vehicle Safety And Compliance
Registry of Motor Vehicles

Mr. Casey worked for the RMV for nearly eight years, first as a Field Investigation Supervisor and more recently as Assistant Director for Vehicle Safety and Compliance Services. Prior to working at the RMV, Mr. Casey worked for the Department of Public Utilities and for many years at the MBTA.

Mr. Casey—or Dick as he was known to his friends and co-workers—loved his family, his friends, his fellow man and life itself. Dick's approach to life was unique. Dick was not afraid to live fully, yet made sure he did not pass by anyone in need, as evidenced by his contributions to church and food shelters in the Boston area.

Both personally and professionally, Dick Casey brought a wealth of knowledge, ideas and inspiration to the Vehicle Safety and Compliance Services Department at the Registry. His candor, pride, willingness to help and great sense of humor will be greatly missed by those of us who worked closely with Mr. Casey. ■

ENHANCED EMISSIONS & SAFETY TEST

Where to Turn When You Have a Question

Department of Environmental Protection
617-292-5745
Emissions issues

Station Hotline
877-297-5552
For workstation and other equipment problems

Motorist Hotline
877-387-8234
For consumer issues

Registry of Motor Vehicles
617-351-9333
Registration and safety issues

Web Site
www.mass.gov/vehicletest
General program information

printed on recycled paper

Article on Page 4 Helps Separate Myth from Reality

Have You Missed the Real Meaning of OBD II?

P.O. Box 75
Marlborough, MA 01752

ENHANCED EMISSIONS & SAFETY TEST