



# INSPECTION UPDATE

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Summer 2012

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Inspection Update is a publication produced by Massachusetts Vehicle Check; a joint program of the Massachusetts Department of Environmental Protection (MassDEP), the Registry of Motor Vehicles (RMV) and Parsons Environment and Infrastructure Group, Inc.

## Massachusetts Busts a Myth: Cleaner Cars and Fuels Don't Slow Down the Economy

Some contend that strict government air pollution control requirements hinder economic progress.

The experience of Massachusetts over the last few decades tells a remarkably different story, even with a backdrop of increased federal and state emission limits on everything from the vehicles we drive and the fuels that propel them to factories and power plants.

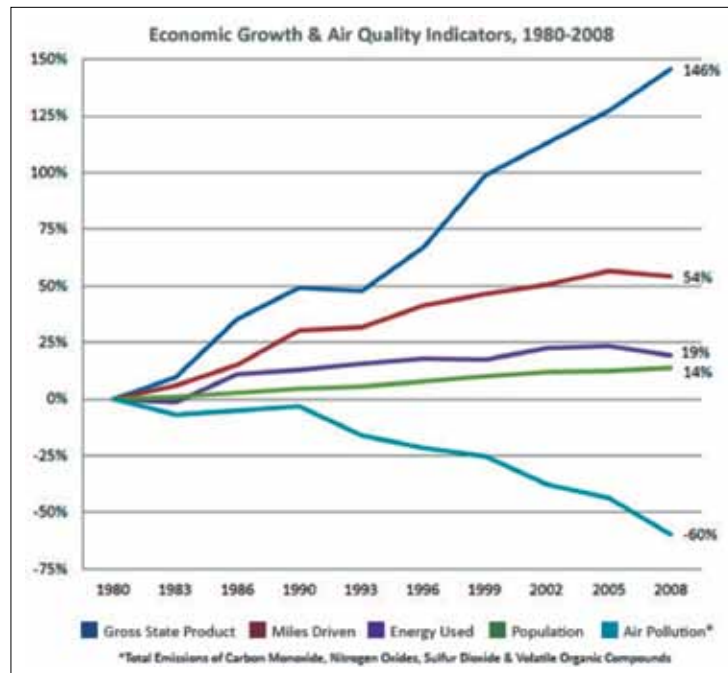
Between 1980 and 2008:

- Our economy, as measured by total production statewide, grew dramatically;
- The state's population and total energy use increased modestly but steadily; and
- Bay Staters generally drove their vehicles more miles on average with each passing year.

During that same time frame, emissions of four smog-causing and toxic air pollutants dropped by 60 percent statewide.

In Massachusetts, data proves that the economic "opportunity cost" of cleaner cars, fuels and air is nothing more than a myth. Both our environment and our economy are greener today than they were in 1980.

For more information about Massachusetts air quality, see the article "Summertime Still Brings Occasional Smog" on Page 3.



### Graph Data Sources:

- Air Pollutant Emissions from MassDEP Data Source:  
<http://www.mass.gov/dep/air/priorities/aqdata.htm>
- Energy Consumption from U.S. Energy Consumption Information Administration:  
[http://www.eia.gov/state/seds/hf.jsp?incfile=sep\\_use/tx/use\\_tx\\_MA.html&mstate=Massachusetts](http://www.eia.gov/state/seds/hf.jsp?incfile=sep_use/tx/use_tx_MA.html&mstate=Massachusetts)
- Gross State Product & Population from ISO New England Inc.:  
[http://www.iso-ne.com/trans/celt/fcst\\_detail/2011/isonet\\_fcst\\_data\\_2011.xls](http://www.iso-ne.com/trans/celt/fcst_detail/2011/isonet_fcst_data_2011.xls) (Tab 8 of Spreadsheet)
- Vehicle Miles Traveled from U.S. Department of Transportation, Federal Highway Administration:  
<http://www.fhwa.dot.gov/policy/ohpi/hss/hsspubs.cfm>

## Registered Emissions Repair Technician Update

Now that the Vehicle Maintenance Initiative (VMI) for current and prospective Registered Emissions Repair Technicians has begun, here are a few reminders:

### ► Current Registered Emissions Repair Technicians

If you are already a Registered Repair Technician, you must meet the following certification and training requirements to remain registered:

1. **ASE Certification.** You must keep your National Institute of Automotive Service Excellence (ASE) L-1, L-2, or L-1 and A9 Certifications current with Parsons.
2. **Mass Module.** You must take and pass an open-book 50-question exam with a score of 100 percent by September 30, 2012. Please visit the Mass Module Home Page at [http://www.massvehiclecheck.state.ma.us/inspection\\_mass\\_module.html](http://www.massvehiclecheck.state.ma.us/inspection_mass_module.html). To take the Mass Module Exam, you will need to log in using your repair technician number and personal password, which Parsons has mailed to you. Once you log in, follow the directions to take the exam.
3. **Ongoing Training.** You are required to attend one four-hour on-going training module each year to keep your registration current in the Massachusetts Vehicle Check Program. Ongoing training modules are offered quarterly at four Motorist Assistance Centers (MACs) located across Massachusetts and cost \$150.

The Summer 2012 Registered Emissions Repair Technician ongoing training seminar will be offered from 6:00 PM to 10:00 PM at the following MACs: Braintree (September 4), Fall River (September 5), West Springfield (September 19), and Shrewsbury (September 20).

The summer seminar will focus on Crank and Camshaft Position Diagnostic Trouble Codes (DTCs). Since the Massachusetts Vehicle Check Program began, over 12,000 vehicles have failed the on-board diagnostics (OBD) inspection with at least one Crank or Camshaft DTC. The training will concentrate on effective diagnostics and repair of vehicles that have failed their emission inspection with Crank or Camshaft DTC problems.

Application forms can be downloaded from the program website: [http://www.massvehiclecheck.state.ma.us/inspection\\_forms.html](http://www.massvehiclecheck.state.ma.us/inspection_forms.html). The cost of the seminar is \$150 and payment may be made by check or credit card. Please call our Registered Repair Coordinator at (781) 794-2961 to register for a class and make payment. Space is limited to 35 per class, so it is important to sign up as quickly as possible. Maps and directions will be provided upon scheduling.

### ► Prospective Registered Emissions Repair Technicians

If you would like to become a Registered Repair Technician, you must meet the following registration, certification, and training requirements to become and stay registered:

1. **Application.** To apply to become either a gasoline or diesel Registered Emissions Repair Technician, please print and send in a Registered Emissions Repair Technician application form, which can be downloaded from the program website: [http://www.massvehiclecheck.state.ma.us/inspection\\_forms.html](http://www.massvehiclecheck.state.ma.us/inspection_forms.html).
2. **ASE Certification.** You must keep your ASE L-1, L-2, or L-1 and A9 Certifications current with Parsons. Submit copies of your certifications with your application.
3. **Mass Module.** You must take and pass an open-book 50-question exam with a score of 100 percent. Once you have submitted your application to Parsons, please visit the Mass Module Home Page at [http://www.massvehiclecheck.state.ma.us/inspection\\_mass\\_module.html](http://www.massvehiclecheck.state.ma.us/inspection_mass_module.html) and begin to review the introduction and the four modules. To take the Mass Module Exam, you will need to log in using your repair technician number and personal password. If you have met the ASE certification requirements, Parsons will process your application and mail you this information.
4. **OBD Diagnosis and Repair Training.** This course consists of 28 hours of classroom and hands-on instruction, followed by a 50-question multiple-choice exam. This training course costs \$600 and is offered at the West Springfield Motorist Assistance Center (MAC) from September 17 to 20 according to the schedule below. If fewer than six repair technicians enroll by the week before a class begins, Parsons may cancel the class. Application forms can be downloaded from the program website: [http://www.massvehiclecheck.state.ma.us/inspection\\_forms.html](http://www.massvehiclecheck.state.ma.us/inspection_forms.html).

Please contact our Registered Repair Coordinator at (781) 794-2961 if you have any questions about these training requirements, the Mass Module Exam, the OBD Diagnosis and Repair Training Course, or the Ongoing Training Modules.

## Summer 2012 OBD Diagnosis and Repair Training Schedule

### West Springfield MAC (Day Class)

Monday through Wednesday, September 17 - 19: 8:00 AM to 5:00 PM, Classroom/Hands On Training

Thursday, September 20: 8:00 AM to 12:00 PM, Hands On Training/Exam

## Spring Registered Repair Technician Ongoing Training Recap



**G Truglia taught technicians about Exhaust Gas Recirculation OBD codes at the Medford Motorist Assistance Center on May 14, 2012.**

From May 14 to 17, 2012, the Massachusetts Vehicle Check Program offered a Registered Repair Technician ongoing training module titled "Exhaust Gas Recirculation (EGR) Diagnostic Trouble Codes (DTCs)."

Instructor "G" Truglia taught 103 repair technicians at four Motorist Assistance Centers about effective diagnostics and repairs on vehicles that have failed their emission inspection because of EGR problems or codes.

Truglia covered how to use current probes and power probes to test the valve functionality, as well as the use of scan tool parameter identification numbers to diagnose EGR problems. "Repair technicians that attended said the course was valuable to them because they picked up more than a few tips that will help them repair EGR DTCs," said Truglia.

## Summertime Still Brings Occasional Smog

Even with the many air quality gains in Massachusetts, there are still some days over the summer when smog – a mix of ground-level ozone and fine particles – can form in the hot sun. Smog is a health concern for everyone, but particularly for children and people with asthma and other respiratory problems. On smoggy days, it's important for people to limit strenuous outdoor activity.

The Department of Environmental Protection (MassDEP) and U.S. Environmental Protection Agency (EPA) provide air quality forecasts and alerts to let the public know when smog levels are high. For current conditions, visit the MassDEP web site at <http://public.dep.state.ma.us/MassAir/> or call the agency's Air Quality Hotline at 1-800-882-1497. You may also sign up to receive air quality alerts by email from EPA: <http://www.enviroflash.info/signup.cfm>

Because motor vehicles, small engines and power plants are among the major emitters of ozone-forming pollutants, MassDEP and EPA recommend that you take the following steps on smoggy days: use public transportation or combine errands to reduce vehicle trips; turn air conditioners down and lights, TVs and computers off when not in use; and avoid using lawn mowers, chain saws and other equipment with small gasoline-powered engines.

## Inspection Equipment Updates

### ► Laser Printer Installation Instructions

If your station requests and receives a replacement laser printer for your workstation, please follow these instructions to make sure your new printer works properly. If you require further assistance, please contact the Station Hotline at 877-834-4677.

#### *Step 1: Connecting the laser printer to the Workstation.*

- Shut down the Workstation by returning to the Main Menu and select option "(0) Exit"
- Choose YES on the next window asking if you are sure you would like to shutdown the workstation
- After the Workstation has shut down and the existing printer has been removed, plug the new laser printer power cord in and turn the printer "on"
- Connect the printer's USB cable to the printer and to the USB port on the back of the Workstation
- Turn the power on to the Workstation

#### *Step 2: Performing laser printer set up.*

- Once the Workstation has started up and is on the Main Menu, select option "(4) Utilities"
- From the Utilities Menu, select option "(7) Equipment Utilities"
- From the Equipment Utilities Menu, select option "(1) Printer Setup"
- Choose the model printer that you received from the drop down list and press the "Enter" key **NOTE:** If you received the same model printer that you previously had, you will need to select the one with the HIGHEST copy number at the end of the name (Example: Lexmark E250D Copy 4)
- Return to the Main Menu and select option "(0) Exit"
- Choose YES on the next window asking if you are sure you would like to shutdown the workstation
- After the Workstation has shut down, turn the power on to the Workstation.
- Once the Workstation is restarted and is on the Main Menu, the laser printer is now successfully installed.



## Motorist Assistance Center (MAC) Success Story

A motorist with a 2001 Toyota Corolla was having trouble completing its on-board diagnostics (OBD) monitors. After three turn-away inspection results, the vehicle received a "Refer to MAC" Vehicle Inspection Report (VIR) as the overall inspection result. The motorist contacted the Motorist Hotline as outlined on the VIR, and the hotline assigned the request for assistance to the Tewksbury MAC.

Phil Hughes, the Tewksbury MAC L1 repair technician, contacted the motorist to review the vehicle's inspection and repair history. After he reviewed the vehicle's history, Hughes scheduled the motorist to visit the MAC with the vehicle so that he could evaluate the vehicle's current emission status. When the motorist arrived to the MAC, Hughes observed the Malfunction Indicator Lamp (MIL) illuminated, and three non-continuous monitors (catalyst, evaporative and oxygen (O2) sensor) not-ready. The only monitor that was ready was the O2 sensor heater. Using an OBDII generic scan tool, Hughes downloaded a P0125 diagnostic trouble code (DTC) from the vehicle's electronic

control unit (ECU). The definition for this DTC as displayed by the scan tool was "Insufficient coolant temperature for closed loop fuel control."

On the day of the MAC visit, the ambient air temperature was approximately 60°F, and the vehicle displayed the operating temperature at 195°F. It is common to have vehicles arrive with this code (P0125) after a period of cold weather, but it is unusual for this code to be set during warmer weather because the vehicle will heat up to normal operating temperature even though there may be a coolant system problem (e.g., stuck open thermostat).

After researching the DTC, Hughes looked at the vehicle's freeze frame (FF) data. When the P0125 code was set, the recorded engine coolant temperature (ECT) reading was 186°F, the vehicle speed was at 57MPH, and the intake air temperature (IAT) was 77°F. Something didn't make sense. Why was the vehicle setting a code for failing to reach a sufficient temperature for fuel control when the FF data clearly showed that the vehicle was at normal operating temperature and in closed loop when the code was set?

Hughes found even more peculiar information when he looked through the ECU data stream. The short term fuel trim (STFT) was maxed out at +20%, while the long term fuel trim (LTFT) was unchanged at 0%. The bank 1 sensor 1 (B1S1) O2 sensor was displaying 0.0 volts all the time. Snapping the throttle and power braking the vehicle did not change either of the fuel trim values or the O2 sensor reading.

With the code, the FF data, and the data stream not making sense, Hughes looked for any Toyota Technical Service Bulletins (TSBs)

*(Continued on page 7)*

### Vehicle Inspection Report

#### Please Review This Important Information

Your vehicle is being referred to a Motorist Assistance Center (MAC) for specialized testing. You cannot return to a state-licensed inspection station for your re-test until you have visited a MAC. If your vehicle has failed its safety test, you must fix all safety defects immediately. Do not drive your vehicle until all safety repairs have been made. Please call the Motorist Hotline at 1-866-941-6277 to schedule an appointment. The Hotline is staffed from 7 a.m. to 5 p.m. Monday, Wednesday, Friday, and Saturday, and from 7 a.m. to 8 p.m. on Tuesday and Thursday. Questions? Visit [www.mass.gov/vehiclecheck](http://www.mass.gov/vehiclecheck) or call the Motorist Hotline at the number above.

Overall Result:	Refer MAC	Vehicle Information	Station Information
<b>On-Board Diagnostic (OBD) Test Results</b>			
OBD Tampering Check	Pass	OBD Connector Result	Pass
OBD Key-On Bulb Check	N/A	OBD Communication Result	Pass
OBD Engine-Running Bulb Check	N/A	OBD RPM Check	Pass
OBD Scan Tool Check Result	N/A	Pin 16 Volts Check	14.3
<b>On-Board Diagnostic (OBD) Monitor Results</b>		<b>OBD System Diagnostic Trouble Codes</b>	

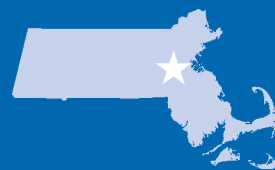
Example of "Refer to MAC" VIR.

Vehicle Inspection History			Monitor Status (N = Monitor Not Ready, R = Monitor Ready)				Inspection Results (P = Pass, F = Fail, T = Turnaway from Inspection, M = MAC Referral)		
Inspection Date	Check Engine Light Commanded On	DTC	Catalyst	Evap	O2 Sensor	O2 Heater	Overall Readiness	Overall Emission Result	Overall Inspection Result
07/05/11	NO		N	N	N	R	F	F	F
07/13/11	NO		N	N	R	R	T	T	T
07/19/11	NO		N	N	R	R	T	T	T
03/13/12	NO		N	N	N	R	T	T	M
03/23/12	YES	P0125	N	N	N	R	F	F	F
03/24/12	NO		N	R	R	R	P	P	P

2001 Toyota Corolla Inspection History

## Inspection Update Profile

George Youssef, Owner, Ashland Auto Service



George Youssef,  
Ashland Auto Service

**Q: What services does Ashland Auto Service Center offer?**

**A:** The Ashland Auto Service Center offers complete computer diagnostic service on all cars, both foreign and domestic. We diagnose automobile issues and offer full repair services. Our most common service requests include brakes, radiator and transmission issues. However,

there is no model, make, or problem we cannot handle. We pride ourselves in being able to help every customer.

**Q: What is your role as shop owner?**

**A:** I am responsible for everything in the shop, from employee management to customer satisfaction. Additionally, I stay current on the latest trends in the automotive industry so that I can educate my employees, as well. I enjoy running my own neighborhood business on a day-to-day basis. You can find me at the shop at almost any time.

**Q: How many employees do you have?**

**A:** I have two other employees, Gina Najem and Hussam Bekhitan. Gina has worked here for over five years. She is a vehicle inspector who also helps me with the bookkeeping. Hussam Bekhitan has worked with me for over a year, and does both vehicle inspections and general auto repairs. They are both valuable contributors to my business and great employees.

**Q: How did you get your start in the automotive industry? What made you want to open your own business?**

**A:** I have been around automobiles my whole life, since I was a young boy. I started professionally when I was 18 years old at my brother's gas station in Framingham. It was there that I learned how to repair cars, work with customers, and operate a business. In 2004, when I wanted to open up my own shop, I decided Ashland would be the perfect neighborhood for it. For the past eight years, Ashland Auto Service Center has provided the community with a friendly place to bring their automobiles when they are having any motor vehicle issues, small or large.

**Q: How do you keep up with changes and trends in motor vehicle technology?**

**A:** Technology is always changing within the automotive industry; I do a lot of reading, mostly in industry trade

magazines, to see what has developed in both repair technology as well as new car technology. I'm also constantly updating the software for my computers. When on-board diagnostics (OBD) are updated, I make sure my software has the ability to check everything throughout the entire vehicle. Having the most current technology is the best way to keep up with the changes in technology itself.

**Q: Do you find the Massachusetts Vehicle Check website is a helpful tool to help you keep up with industry news and trends?**

**A:** I do check the program website and find it is a valuable asset. The area I find the most helpful is the Inspection and Repair Industry section <http://www.massvehiclecheck.state.ma.us/inspection.html>. This section of the website provides the latest information for inspectors, which allows me to best service my customers. Additionally, I direct my customers to the website if they have any questions the steps involved in the inspection process.

**Q: Are there any vehicle repairs that are unique to summer roadway conditions?**

**A:** In the summertime, customers are always bringing in cars that have overheated as a result of the change in temperature. We tell our customers that one preemptive measure they can take is to always check their coolant and radiator. However, the only time they can properly check their radiator is in the morning, before they have started the car for the day. Once the car has been started and running in the warm weather – even for a short period of time – for safety reasons, they should never check the radiator.

**Q: How do you advertise your business?**

**A:** Having a shop situated in a small community, I have found the best advertising is word of mouth from our previous customers. We do advertise in local Ashland newsletters, which are sent to all residents, in order to promote ourselves to new members of the Ashland community.

**Q: What is your favorite part of your job?**

**A:** My favorite part of the job is making sure Massachusetts drivers are safe on the road. In our industry, we get a lot of frustrated drivers who come into the shop and do not know what is wrong with their car. Equipped with the proper technology, I can show the customer exactly what the issue is and at that point, we can go about fixing the problem, which is beneficial in both the short and long term.

## Inspection Procedure Reminders

### ► New Registry of Motor Vehicles Contact Phone Numbers

The primary phone number for Vehicle Safety & Compliance Services at the RMV will soon change from (617) 351-9333 to (857) 368-8130. The Registry will send a workstation message to all stations when this phone number changes. Please update your address books, contact lists, and speed dial settings so that you can contact the Vehicle Safety & Compliance Services section at the RMV using these new phone numbers.

### ► Lighting Devices Reminders

The Registry of Motor Vehicles has been receiving complaints from the public about vehicles with excessively bright headlights.

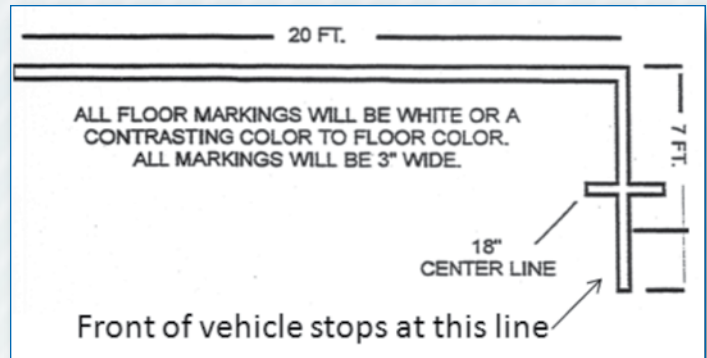
We would like to remind all inspectors of the following:

1. The regulation for Lighting Devices and Reflectors is 504 CMR 4.04 (10)(d), available at <http://www.mass.gov/rmv/inspect/540cmr400.pdf>. Per this regulation, all vehicle lighting devices must conform with Federal Motor Vehicles Safety Standard (FMVSS) 108.
2. Any vehicle with aftermarket lighting devices inconsistent with the FMVSS 108 regulation needs to be either rejected or repaired by replacing the aftermarket lighting devices with the proper lighting devices.
3. Original Equipment Manufacturer (OEM) HID lighting systems are approved for use. For vehicles not originally equipped with High Intensity Discharge (HID) headlights, HID conversion kits are prohibited, because conversion kits do not meet the same functional specifications as OEM systems. If you detect a HID conversion kit on the vehicle, you must fail the vehicle.
4. All lighting devices need to be securely attached to the vehicle and capable of performing their design functions. Lenses must be intact, clean, unobstructed, and free from cracks. The use of adhesive tape to repair lenses is prohibited.

### ► Headlight Inspection Procedure Reminders

When inspecting headlights, please follow these procedures:

1. Position the vehicle so that it is square with the aiming screen and with the front of the headlamps directly over a reference line which has been painted on the floor. Locate the center line on the floor so that it is in line with the center of the vehicle. Move the vehicle as needed until it is in alignment with these two points.



2. With the approved 48-inch measuring stick, take two measurements:

#### (1) From the center of the vehicle to the center of the bulb



#### (2) From the ground to the center of the bulb.

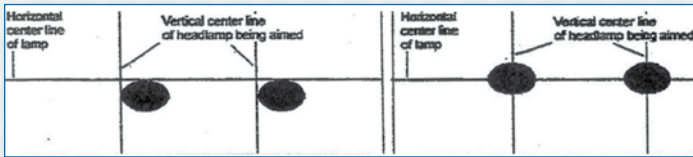


*(Continued on page 7)*

## Inspection Procedure Reminders

(Continued from page 6)

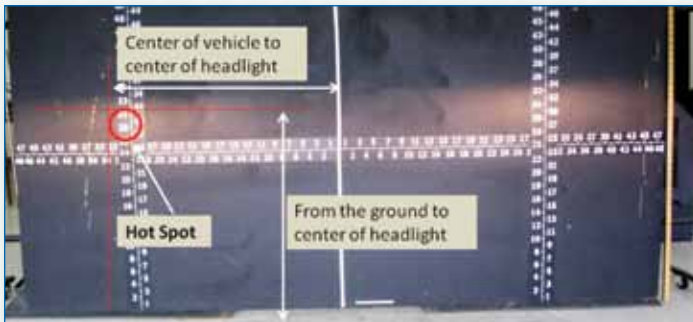
3. Apply these figures to the headlight board. To aim the low beam, the hot spot should fall two inches down and two inches to the right of the intersecting lines. To aim the high beam, the hot spot should be centered on the intersecting lines.



Low Beam Hot Spot

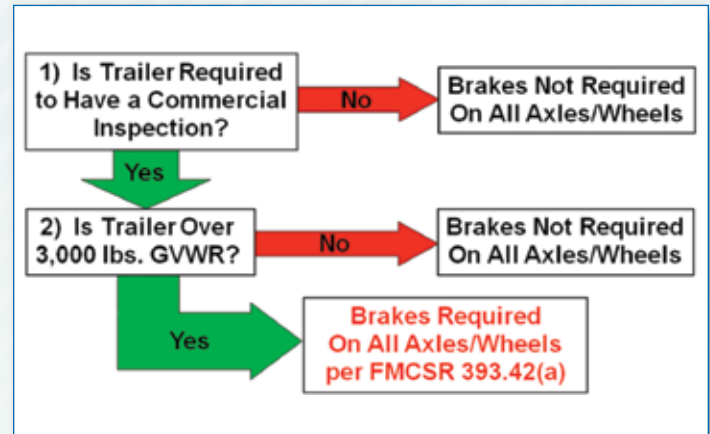
High Beam Hot Spot

A slight deviation of up to two inches to the left or right, or below is acceptable. Depending on the design of the vehicle's headlamps, you may or may not have to check the alignment of the high beams. If the vehicle uses separate bulbs and housings for high beams, a second measurement and alignment for the high beam headlamps will be needed.



## Commercial Trailer Inspection Reminders

The Registry of Motor Vehicles reminds all commercial inspectors of the following requirements for commercial trailers:



If a trailer has a manufacturer's Gross Vehicle Weight Rating (GVWR) over 3,000 lbs., and the trailer is used for commercial purposes, a commercial vehicle inspection (CVI) is required. If the trailer is subject to a CVI, per Federal Motor Carrier Safety Regulation 393.42(a), "every commercial motor vehicle shall be equipped with brakes acting on all wheels."

## MAC Success Story

(Continued from page 4)



2001 Toyota Corolla

pertaining to P0125 codes or unusual fuel trim values; there were none. Next, Hughes reviewed the diagnostic decision tree for P0125 codes using ALLDATA® and Mitchell OnDemand. Both products indicated that this code is stored "when there is little or no signal response from the O2 Sensor." ALLDATA® provided additional information: "On some models, Toyota does not adhere to the Society of

Automotive Engineers (SAE) standard definition for DTC P0125, which is related to the ECT. See diagnostic chart for complete diagnostic information regarding this code." The available diagnostic chart provided a decision tree for diagnosing a B1S1 O2 sensor problem.

Based on the information that Hughes found, the motorist took their vehicle to a registered emissions repair shop for diagnosis and repairs. When they installed a new B1S1 O2 sensor, the vehicle reset enough monitors to pass inspection. In the end, the vehicle only had a bad O2 sensor causing the P0125 code, but this code also prevented the catalyst, evaporative and O2 sensor monitors from running.

Based on a quick DTC scan tool reading, it can be easy to assume that the vehicle just needs the part indicated to be replaced, such as a new thermostat, but that assumption can often result in an unsuccessful repair and an unnecessary comeback for the technician, the shop, and the motorist. Therefore, it always pays to check FF data and data stream instead of blindly trusting the code definitions from a scan tool.

**MASSACHUSETTS****VEHICLE CHECK**

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**Inspection Update****Massachusetts Vehicle Check Program**

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## Registered Emissions Repair Technician and Headlight Inspection Reminders Inside!

### Massachusetts Vehicle Check Program At A Glance

Program at a Glance			Count
Non-Commercial Safety Inspections	1,020,689	6.3%	
Commercial Safety Inspections	40,012	5.0%	
7D Safety Inspections	5,037	2.7%	
OBD Emissions Inspections	825,869	8.0%	
Opacity Emissions Inspections	21,880	1.8%	
Emissions Waivers Issued	1		
Repair Hardship Extensions Issued	17		
Hotline and Training Statistics			Count
Motorist Calls Received	3,657		
Inspection Station Calls Received	7,365		
Initial Non-Comm. Inspectors Trained	297		
Initial Commercial Inspectors Trained	63		
Initial 7D Inspectors Trained	26		
Initial Motorcycle Inspectors Trained	6		
Enforcement Statistics			Count
Violations Issued to Inspectors			107
Violations Issued to Stations			129
Inspector Privileges Revoked			2
Inspector Required to Retrain			1
Inspectors Suspended			14
Stations Suspended			19
Penalties Assessed			\$16,000
Licensed Stations			Count
Class A Stations			1,213
Class B Stations			181
Class C Stations			30
Class D Stations			297
Class E Stations			9
Reg. Emissions Repair Shops			303

For period 01/01/2012 to 03/31/2012



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