



INSPECTION UPDATE

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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 Vehicle Check Program Introduces Emissions Repair Success Ratings

Since the beginning of 2013, the Massachusetts Vehicle Check Program has been collecting emissions repair data from repair shops using the Repair Data Entry application found at: <https://repairdata.massvehiclecheck.com/rde/>. The program has used information gathered through June to calculate an Emission Repair Success Rating (ERSR) for each shop providing data.

Registered emissions repair shops receive an ERSR that is calculated on the ratio of repaired vehicles that passed a retest to the total number of repaired vehicles entered. These ratios are then converted to an ERSR five-star score, with five stars representing the shops that have the best repair success ratios.

In October 2013, the program began providing motorists with ERSR information to help them select the best repair shops to service their vehicles.

Motorists who are seeking expert emissions repair service for their vehicles can use the Repair Shop Locator webpage, http://www.massvehiclecheck.state.ma.us/find_emissions_repair.php, to easily locate nearby Registered Emissions Repair Shops and see their emissions repair track records.

#	Name	Address	Manufacturers/Fuel Types Dealership/Specialty Shop	Total Repairs	5-Star Rating
1	Minuteman Auto Repair	123 Main St Springfield, MA 01100 Phone: 413-555-1234 Distance: 1.62 miles	ALL, Non-diesel Dealership = No Specialty Shop = No	15	* * * * *

Total Repairs is a count of the emissions-related repairs entered by a shop in the previous six-month reporting period.

5-Star Rating indicates the percent of Retests Passed to Total Repairs.

* * * * * = 90-100% Retests Passed

* * * * = 70-89% Retests Passed

* * * = 50-69% Retests Passed

* * = 25-49% Retests Passed

* = 1-24% Retests Passed

N/A = No Repairs Entered

Using the Repair Shop Locator, motorists can find the nearest Registered Repair Shop and their 5-Star Emissions Repair Success Rating. Repair shops with ERSRs will be listed as this example illustrates.

Later this year, motorists with vehicles that have failed on-board diagnostics (OBD) emissions testing will receive listings of the ten closest Registered Emissions Repair Shops and their ERSRs along with their Vehicle Information Reports.

The publication of this helpful information is the final element of the Vehicle Maintenance Initiative (VMI) that began in March 2012.

Commonwealth of Massachusetts Extends Vehicle Inspection Program

In July 2013, the Massachusetts Department of Transportation (MassDOT) Registry of Motor Vehicles (RMV) Division and Department of Environmental Protection (MassDEP) approved a two-year contract extension for the enhanced vehicle emissions testing and safety inspection program. The extension will begin October 1, 2015.



During the extension period, Parsons Environmental and Infrastructure Group Inc. will continue to manage the day-to-day operations of Massachusetts Vehicle Check for MassDEP and MassDOT/RMV, supporting a statewide network of more than 1,900 inspection stations and 200 registered emissions repair shops. Parsons will also continue operating 12 Motorist Assistance Centers (MACs) that have been located across the state to provide convenient advice to motorists and technical assistance to repair technicians. These centers help with getting vehicles "ready" for testing after emissions repairs, evaluate vehicles for repair waivers and economic hardship extensions, and provide vehicle testing quality assurance.

"Safety and customer service are our top priorities at MassDOT," said Registrar of Motor Vehicles Rachel Kaprielian. "The extension of the Massachusetts Vehicle Check Program will allow vehicle owners the continued convenience of having their vehicles inspected for safety and emissions at their neighborhood inspection station."

All passenger cars, light trucks and SUVs will continue to undergo on-board diagnostic (OBD) emissions testing until they are 15 years old. Annual OBD emissions testing will also continue for 2007 and newer medium-duty diesel vehicles and 2008 and newer medium-duty gasoline vehicles. Diesel-powered vehicles over 10,000 pounds Gross Vehicle Weight Rating and not equipped with OBD systems will continue to undergo annual opacity emissions testing.

All vehicles – including passenger vehicles, commercial vehicles and trailers, and motorcycles – will continue to undergo annual safety inspections. Also, the Massachusetts Commercial Vehicle inspection will continue to be recognized

by the Federal Motor Carrier Safety Administration as equivalent to the federally required annual "DOT" safety inspection, providing Massachusetts' commercial vehicle owners with convenient one-stop shopping for their safety inspection requirements.

"Parsons continues to manage the Massachusetts Vehicle Check Program well and we are pleased to award Parsons with a contract extension," said MassDEP Commissioner Kenneth L. Kimmell. "As a result of this extension, the program will continue to protect both air quality across the Commonwealth and motorist safety for an additional two years."

The two-year extension was approved by MassDEP, MassDOT and the RMV after the agencies reviewed a proposal from Parsons seeking the extension. The proposal included no fee increases during the extension.

In accepting the extension, Tom Nesbit, Parsons Vice President and Program Manager of the Massachusetts Vehicle Check Program, said, "The Parsons team appreciates the opportunity to continue working with its state agency oversight partners – the MassDEP and MassDOT's RMV – in providing a top tier inspection program for the Commonwealth's motorists. We are committed to working hard and being responsive as we deliver superior customer service to the Commonwealth's motorists, inspection stations and inspectors, registered emission repair shops and technicians for the next four years.



Inspection Procedure Reminders

► Safety Inspection Reminders regarding Dashboard Warning Lights

The Registry of Motor Vehicles has received numerous safety inspection calls about whether to pass or fail vehicles with certain dashboard indicator lights illuminated. Below are reminders for all inspectors of the impact of safety warning lights on vehicle inspections.










1. Air Bag Light: 540 CMR 4.04 (15) and 540 CMR 4.05 (13) clearly state the inspector shall check for proper operation of the Air Bag MIL (Malfunction Indicator Lamp). If the Supplemental Restraining System (SRS) or Air Bag Warning Lamp is illuminated after the vehicle is started, then there is a failure of the Air Bag System.

The procedure for inspecting the Air Bag System is explained in the Non Commercial Training Manual (Chapter 4 - 36) and the Commercial Training Manual (Chapter 3 - 96). If the system is not operating as designed, if the lamp indicates a malfunction in the Air Bag System, or if any Air Bag originally equipped in the vehicle is deployed or missing, the vehicle shall be failed.

2. Brake Warning Lamp: A Brake Warning Lamp that is illuminated after the vehicle is started and the Parking Brake has been released indicates a malfunction in the braking system. The vehicle should be failed for safety and be repaired prior to a re-inspection.

The procedure for inspecting the Brake System is explained in the Non Commercial Training Manual (Chapter 4 - 6) and the Commercial Training Manual (Chapter 3 - 13). If the system is not operating as designed, or if the lamp indicates a malfunction in the Brake System, the vehicle shall be failed.

3. Anti-Lock Brake System (ABS): Do not confuse the Brake Warning Lamp with the ABS Lamp. If the ABS Lamp is illuminated after the vehicle is started, the ABS System has a malfunction and will not operate properly in

  SRS	Air Bag Indicator If illuminated, FAIL
  BRAKE	Brake Warning System If illuminated, FAIL
	Anti-lock Brake System Even when illuminated, PASS
	Tire Pressure Monitoring System Even when illuminated, PASS
 VSC OFF  VSA	Vehicle Stability Control or Assist Even when illuminated, PASS
	Traction Control Indicator Even when illuminated, PASS

the event of a skid. Although the ABS feature assists the motorist with emergency braking, ABS is not part of the Massachusetts Vehicle Check safety inspection; therefore inspectors cannot fail vehicles for an illuminated ABS Lamp.

4. Tire Pressure Monitor System (TPMS): The TPMS lamp and/or digital pressure values on the dashboard visually indicate if one or more tires are low on pressure. This safety feature visually alerts the motorist of a tire pressure problem, but is not a part of the Massachusetts Vehicle Check safety inspection. Vehicles cannot be failed if a TPMS Lamp is illuminated.

5. Vehicle Stability Control (VSC), Vehicle Stability Assist (VSA), Traction Control System (TRAC): If the VSC, VSA, or TRAC Lamp is illuminated after the vehicle is started, it indicates the stability or traction system has a malfunction. Although these systems allow the motorist to accelerate the vehicle without excessive wheel spin, these warning lights are not a part of the Massachusetts Vehicle Check safety inspection. Vehicles cannot be failed if these indicator lamps are illuminated.

In the interest of good customer service, the Registry recommends that inspectors or service managers talk with their customers and explain that, although illuminated ABS, TPMS, VSC, VSA, and TRAC warning lamps will not cause the vehicle to fail the inspection, these lights indicate problems with their vehicle's enhanced safety systems. It is in the motorists' best interest that these systems be repaired at their earliest convenience to help ensure the benefits that these supplemental systems provide in all road and weather conditions.

Registered Repair Technician Updates

► Fall 2013 Ongoing Training Courses

The Fall 2013 Registered Emissions Repair Technician Ongoing Training Seminar will be the next opportunity for technicians to complete their annual training requirement. Parsons is offering this seminar from 6:00 PM to 10:00 PM at the following Motorist Assistance Centers: Braintree (November 18), Fall River (November 19), Shrewsbury (November 20), and West Springfield (November 25).

The fall seminar will focus on Evaporative Emission Control System Diagnostic Trouble Codes (DTCs). More than 183,000 vehicles have failed the on-board diagnostics (OBD) test with at least one evaporative DTC since the Massachusetts Vehicle Check Program began in 2008. The training will concentrate on effective diagnostics and repair of vehicles that have failed emissions tests with evaporative DTC problems.

The cost of the seminar is \$150, and payment may be made by either check or credit card. The application for this course is available at http://www.massvehiclecheck.state.ma.us/inspection_ongoing.html. Should you require assistance registering or have any questions regarding the course, please do not hesitate to contact our Registered Repair Coordinator at (781) 794-2961. It is important to sign up as soon as possible, as space is limited to 35 technicians per class.

► Prospective Registered Emissions Repair Technicians

If you would like to become a Registered Repair Technician, please visit http://www.massvehiclecheck.state.ma.us/inspection_repair_tech.html and review the application and training requirements.

Workstation Maintenance Rates

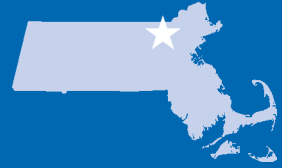
The Massachusetts Vehicle Check Program reminds station owners and managers to ensure that their workstation maintenance checking accounts are sufficiently funded at the beginning of each month so that they are able to handle revised workstation maintenance rates. From October 1, 2013 to September 30, 2017, the monthly maintenance fees for each equipment configuration will be as follows:

Workstation Configuration	Monthly Cost
MASS08 OBD II Workstation	\$ 49.74
MASS08 OBD II and Diesel Workstation	\$ 146.23
MASS08 "No Emissions" Workstation	\$ 42.46
Optional Hardware	Additional Monthly Cost
15" Touch Screen ELO CRT	\$ 12.76
Honeywell 4600 or Honeywell Xenon 1900 Barcode Scanner Upgrade, w/o 3800 surrender	\$ 3.18
Honeywell 4600 or Honeywell Xenon 1900 Barcode Scanner Upgrade, w/ 3800 surrender	\$ 1.63



Inspection Update Profile

Gary Wilson, Owner, Wilson's Service Center
Groton, MA



From left to right, the Wilson's Service Center team members include Chris Meekins, Aric Cadote, owner Gary Wilson, Jeff Briand, and James Silk.

Q: What services does Wilson's Service Center offer?

A: Wilson's handles all types of automotive repairs. We also do a lot of specialty work on high-end European, antique and sports cars. In addition to auto repair, we conduct about 30 state inspections each day.

Q: What are your roles and responsibilities as owner?

A: My role as owner is to oversee the entire Wilson's Service Center operation. I also counsel each of my employees on specific auto-related repairs.

Q: How many employees do you have?

A: I have a total of five employees: my wife Nancy Montgomery, our office manager; Jeff Briand, our head technician and shop manager who is an ASE Master technician with 30 years experience; Aric Cadote, an ASE technician with 19 years experience; James Silk, a technician with 12 years experience; and Christopher Meekins, a technician with 10 years experience.

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

A: I have been working in the automotive industry for 45 years. Growing up in Littleton, Mass., my dad had a large shop that handled auto repairs, towing, and served as a gas station. He started the shop in the 1950s and I later joined him, assisting with automotive repairs and towing. I attended Nichols College, where I majored in personnel management and economics. After graduation, I went back into the automotive industry and opened my own shop.

Q: How did your passion for music and vintage sports cars help you to start Wilson's Service Center?

A: I have always had a love of music and even started a band. As a result, I met J. Geils of the J. Geils Band, who came to watch us perform. We both share a love of music and cars. By 2001, several life changes brought me to working at Jay's former vintage race and exotic car shop. I then opened Wilson's Service Center.

Q: Have you attended any of the MAC Open Houses? How else do you keep up with changes in vehicle technology and emerging technologies in the Industry?

A: My team has attended several MAC Open Houses over the years. Two of my technicians have taken all of the GM course offerings. We use the Mitchell On Demand and Management program. I've also had several people come in and speak to my employees about how to use new technologies and equipment. We learn quite a bit on the job.

Q: What are some of your most challenging vehicle repairs?

A: My most challenging vehicle repairs involve evaporative issues. The other issues that we see quite a bit, especially in European cars, are problems with Positive Crankcase Ventilation (PCV) systems. This system is how the internal part of the motor separates the fuel vapors, to avoid engine damage.

Q: What should motorists begin to do to ready their vehicles for the fall?

A: Motorists should keep up their vehicles by getting regular monthly maintenance. They should follow recommended procedures for these key mileage service periods, no matter if it's 20,000 miles or 80,000 miles. This is the best way to avoid missed vehicle problems down the road. They should also make sure their tires are in good shape for the fall season.

Q: What is your business motto?

A: Our motto at Wilson's is "We have the best car repair anywhere." We also keep our shop extraordinarily clean and ensure that every customer who brings in their vehicle receives the highest level of service and is happy with our work.



Motorist Assistance Center Repair Technician's Corner

► Readiness Failure with a Twist

For most of us, a vehicle's readiness issue is the result of a motorist or repair facility clearing codes that we know will reset the monitors to *Not Ready*. Usually, we advise motorists to drive their vehicle's applicable drive cycle and, in most cases the monitors become *Ready*, and the vehicle can complete its inspection.

The motorist confirmed that no work had recently been done on the vehicle. Additionally, the malfunction indicator lamp (MIL) did not come on when the engine was running, the battery had not been replaced, and the vehicle had not been jump started recently.

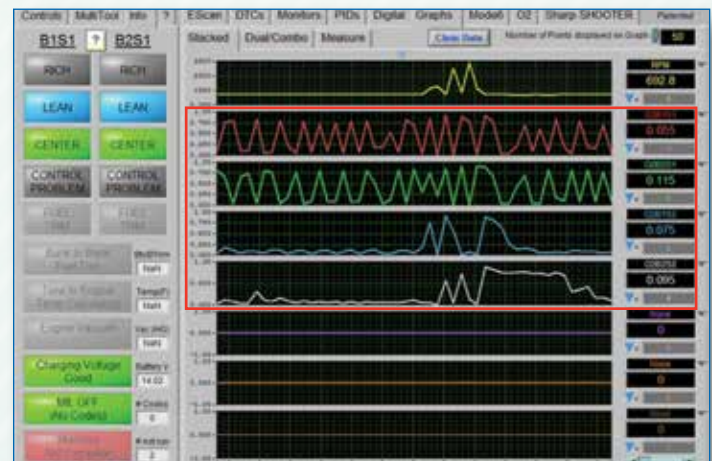
Our MAC L-1 repair technician prepared to take the Tundra for a road test. As a standard rule, before performing an

Date of Inspection	Overall Inspection Result	Catalyst	Evap	Secondary Air	Oxygen Sensor (O2S)	O2S Heater	EGR
1/16/2013	Fail	N	R	U	N	R	U
2/22/2013	Turnaway	N	R	U	N	R	U
3/2/2013	Turnaway	N	R	U	N	R	U
4/8/2013	MAC Referral	N	R	U	N	R	U
4/15/2013	Pass	N	R	U	R	R	U

Then there are those vehicles that can give us trouble. Our Motorist Assistance Center (MAC) recently worked with a Registered Repair Shop on a 2002 Toyota Tundra failing its emission inspection due to insufficient monitors being Ready. The vehicle failed its initial test and then attempted two more inspections, but was turned away each time. During each inspection, the same two readiness monitors were not completed.

extended road test it is a good idea to check for diagnostic trouble codes (DTCs), both current and pending, and to check the OBD datastream for any potential obvious issues that may be causing the monitors not to run.

The catalyst monitor on many Toyotas can be very challenging to set, but the oxygen sensor (O2S) monitor is usually very easy to make *Ready*. In contrast, the Evaporative system monitor is almost always one of the last monitors for any vehicle to get to *Ready* due to its enabling criteria. For help setting this monitor, Toyota Technical Service Bulletin (TSB) #EG003-02 describes the enabling criteria and drive cycle for all Toyotas up to model year 2002. Yet, this vehicle showed the opposite of what we expected. The O2S was *Not Ready*, but the Evap monitor was *Ready*.



This OBD scan tool screen shot illustrates that both the front and rear O2 sensors are functioning as expected. None of the bank 1 or bank 2 O2 sensors are showing signs of laziness or malfunctioning.



2002 Toyota Tundra. Source: evoximages.com.

We fully expected to find in the OBD data a lazy O2S or a pending DTC that could be causing O2S monitor problems; however, nothing jumped out as obvious. The bank 1 and bank 2 Long Term Fuel Trims (LTFTs) were a little far apart from each other. One LTFT was over 10 percent, but our L-1 technician concluded that this had nothing to do with the monitors failing to run.

(Continued on page 7)

Motorist Assistance Center Repair Technician's Corner

(Continued from page 6)

The motorist had driven the vehicle over 1,000 miles since the first inspection, and the O2S monitor still had not become *Ready*; therefore, it seemed unlikely that operating the truck on the MAC dynamometer would set the monitors.

So primarily due to the unusual failure of the struggling O2S monitor, our L-1 performed a visual inspection of the engine compartment and under the vehicle. When vehicles fails to run O2S monitors, a component is probably not correctly installed or is broken. While the initial under hood inspection failed to highlight any obvious issues, the under vehicle inspection revealed a serious problem. Below are pictures of the rear (downstream) O2 sensors.

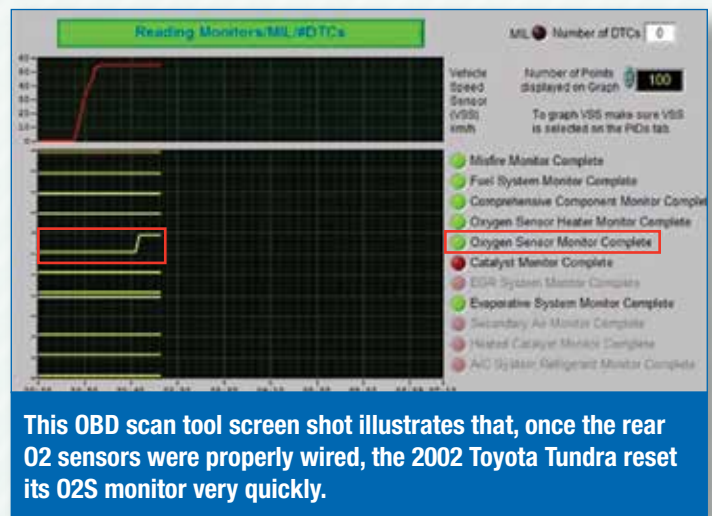
Our L-1 discovered someone had been performing O2S repairs under the vehicle. The rear O2S harness was improperly run and had not been secured properly. The rear O2S connectors should be installed the same way on both banks; however, on this Toyota, the bank 2 harness was connected to the bank 1 sensor, and the bank 1 harness was connected to the bank 2 sensor.



There are two ways to confirm that the O2S connectors had been reversed. The first method involves starting the vehicle, then disconnecting one of the suspect sensors while watching monitoring the datastream to confirm that the datastream changes adjusts for the correct sensor. A second method involves referencing a wiring diagram. In this case our L-1 chose the second method, using a wiring diagram and comparing wiring colors. This course of action allowed our L-1 to avoid setting a DTC that would then require the DTC to be cleared, which would also reset the monitors and require further driving to reset the monitors.

After discussing our findings with the owner, the motorist noted that they had replaced the transmission sometime during the previous summer. The transmission repairer had apparently wired the O2 sensors incorrectly.

Once diagnosed, our L-1 technician ran the vehicle on their dynamometer and found that the O2S monitor ran to completion in fewer than two minutes. As a result of our diagnostic efforts, the vehicle passed inspection later that same day.



This OBD scan tool screen shot illustrates that, once the rear O2 sensors were properly wired, the 2002 Toyota Tundra reset its O2S monitor very quickly.

This "readiness failure with a twist" case study is a prime example of OBD computers not being intelligent enough to diagnose all problems. Even though the vehicle had the rear O2S connectors swapped, and the Powertrain Control Module logic knew there was a problem, it was unable to determine the cause of the issue or to set any DTC. The truck operated correctly with no drivability problems. The only sign of a problem was that it would not run the O2S monitor.

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MA Vehicle Check Program Extension and Dashboard Warning Light Reminders Inside!

Massachusetts Vehicle Check Program At A Glance

Program at a Glance			Enforcement Statistics	
	Count	Failure Rate		Count
Non-Commercial Safety Inspections	1,225,137	4.8%	Violations Issued to Inspectors	85
Commercial Safety Inspections	43,350	5.5%	Violations Issued to Stations	106
7D Safety Inspections	657	4.4%	Inspector Privileges Revoked	0
OBD Emissions Inspections	964,185	6.1%	Inspector Required to Retrain	1
Opacity Emissions Inspections	24,935	1.8%	Inspectors Suspended	21
Emissions Waivers Issued	3		Stations Suspended	38
Repair Hardship Extensions Issued	19		Penalties Assessed	\$124,000
Hotline and Training Statistics			Licensed Stations	
	Count			Count
Motorist Calls Received	3,342		Class A Stations	1,203
Inspection Station Calls Received	7,382		Class B Stations	189
Initial Non-Comm. Inspectors Trained	360		Class C Stations	29
Initial Commercial Inspectors Trained	77		Class D Stations	304
Initial 7D Inspectors Trained	32		Class E Stations	9
Initial Motorcycle Inspectors Trained	31		Reg. Emissions Repair Shops	234

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