



INSPECTION UPDATE

A Publication of the Massachusetts Vehicle Check Program

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Have you...

...seen the workstation messages about the new software release 1.10?

Remember to review your workstation messages! For details on retrieving workstation messages, look inside!

How Do I...

Load stickers?

When loading new stickers into the workstation printer tray, be sure that the sticker/VIR stock with the lowest number is on top of the pile. Remove all sticker stock remaining in the tray, place the new sticker stock in the bottom of the tray, then replace the stock you previously removed to ensure that the lowest-numbered sticker will be used first.

Hotline Numbers

Technical Helpdesk:
877-834-4677 (877-VEH INSP)

Motorist Hotline:
866-941-6277

Branding Your Station Has its Benefits

Those bright blue and green signs that identify official Massachusetts Vehicle Check inspection stations are great marketing tools, and motorists definitely notice them.

The Massachusetts Vehicle Check brand was created to be simple yet memorable, help connect motorists with the services you offer, and emphasize your station's professional credibility. In fact, many motorists choose to patronize inspection stations based on whether or not they display official Massachusetts Vehicle Check program signs.

When your business is easily recognizable as an inspection station, you'll attract more customers, which can lead to repeat business and even increased sales. If you haven't already, you might want to brand your station as part of the Massachusetts Vehicle Check program. Here are some helpful tips:

- While they are not required by RMV regulations, consider ordering new Massachusetts Vehicle Check logo signs that easily identify your shop as an official inspection station.
- Make sure that your signs are easy to see from the roadway.
- When installing new Massachusetts Vehicle Check decals and logos onto existing signs, try to cover the old logo completely to prevent motorist confusion.
- Use inviting language, such as "Come in for your Massachusetts state inspections!"

Branding is an effective and affordable way to enhance your visibility as an inspection station. For more information on signage, please contact the Technical Help Desk at 1-877-834-4677 or send an email to info@massvehiclecheck.com



Easy-to-read sign attracts customers



Good sign, but new decal obstructs program name

Proper Diagnosis Leads to Satisfied Motorist

A 1996 Nissan vehicle passed its safety test, but failed its OBD test with four monitors: EGR System, O2 Sensor, Evaporative System and Catalyst. The motorist had the O2 Sensor replaced by a non-registered repairer, brought the vehicle back for a re-test, and was turned away for three "not ready" monitors: O2 Sensor, Evaporative System and Catalyst. In all, the vehicle was tested a total of six times without a workstation flagging it for Motorist Assistance Center (MAC) referral.

Next, the owner of the vehicle called the Massachusetts Vehicle Check Motorist Hotline and was told to continue driving the vehicle until the monitors re-set. The motorist then brought the vehicle to a non-registered repair shop, which performed a repair diagnosis and determined the vehicle needed a new engine control module (ECM). The motorist balked at such a costly repair, called the Department of Environmental Protection (MassDEP) for assistance, and scheduled the vehicle for a visit to a MAC.

After further review by MAC personnel, the motorist was encouraged to visit a local Registered Repair Shop. The MAC offered to work with the selected Registered Shop to assist in the best resolution for repairing the vehicle.

The Nissan was finally brought to a registered repair technician, Jack Ferry, owner and registered technician at Ferry's Automotive of Hanson, Mass. Ferry replaced the fuel filter and drove the precise drive cycle for the vehicle to set the monitors to ready, including stopping to add fuel as directed. Ferry's Automotive was able to set all the monitors to ready with the exception of the catalyst and evaporative system monitors. Ferry was successful in setting the last two monitors on his station's dynamometer, versus driving the vehicle on the road. The motorist was ecstatic to learn that the total cost of repair was less than \$300, including the sticker and cost of fuel.

Safety Reminder

Studded tires are permitted on vehicles, but only from November 1 through April 30.

Photo courtesy Nokian Tyres plc



How Do I... Retrieve workstation messages?

When a workstation message is sent, inspectors will see a flashing mailbox symbol in the top left corner of the main screen. Once the incoming message is viewed by one viewer, the flashing mailbox will disappear.

To retrieve all messages from the Main Menu, select (5) View Messages > (2) View Contractor Messages. Select the message to view by clicking on it with the mouse pointer, then press (V) to View the message. Once on screen the message can be printed or you can exit to view other messages.

Enforcement Statistics period 01/01/2009 to 03/31/2009:

Violations Issued to Inspectors:	100
Violations Issued to Stations:	131
Inspector Privileges Revoked:	3
Inspector Required to Retrain:	1
Inspectors Suspended:	6
Stations Suspended:	10
Penalties Assessed:	\$244,000

Did you Know?

In the new program, more than 8,700 inspectors have attended classes in Non Commercial, Commercial, Motorcycle, and 7D Inspector training.

Since October 1, 2008, more than 3.5 million inspections were performed; over 3 million of those were initial tests.

Repairing vehicles that fail the emissions test in 2009 is expected to reduce smog-forming pollution by 28 tons per day.

There are 28,917 hybrid vehicles currently registered in Massachusetts — a 23 percent increase over 2008.

License plates returned to the RMV produced 90 tons of recycled aluminum in 2008.

- ! **New stickers have been distributed to all inspection stations. Remember to start using the new stickers as soon as they are received! Please package and store old stickers for RMV pickup.**

Reminder: Properly Classifying Trucks & Trailers

With the weather warming up, stations are seeing more trucks and trailer combinations being brought in for inspections. If you are performing a commercial inspection on a motor vehicle with a trailer hitch, remember to ask if the commercial vehicle operator uses a trailer in conjunction with the vehicle. If the answer is yes, the trailer is used in commerce, and it weighs more than 3,000 pounds, then the trailer must also undergo a commercial inspection. A commercial inspection must also be done when the GVWR of a vehicle and its trailer combined is more than 10,000 pounds. If in doubt, call the Technical Helpdesk at 877-834-4677.

Commercial Vehicle Questions and Answers

with Mark LaFrance, Project Manager of RMV's Vehicle Safety and Compliance Services

Q When does a SRW (single rear wheel) truck in commercial use require a commercial motor vehicle (CMV) inspection?

A An SRW truck in commercial use requires a CMV inspection when the gross vehicle weight rating or gross combination weight rating of 10,001 or more pounds; or the vehicle is designed to transport more than 15 passengers, including the driver; or the vehicle is used in the transportation of hazardous materials in a quantity requiring placarding in accordance with the Hazardous Materials Regulations of the United States Department of Transportation.

Q Does a truck over 10,000 GVW with a commercial plate that is used for personal uses need a CMV inspection?

A Yes.

Q Does a truck over 10,000 GVW with a passenger plate that is used for personal use require a CMV inspection?

A No.

Q When does a commercially used trailer require a CMV inspection?

A When the trailer has a manufacturer's gross vehicle weight rating over 3,000 lbs; or the gross combination weight rating of the truck and trailer is 10,001 or more pounds.

Q What vehicles are required to have a reverse alarm?

A According to Massachusetts General Laws, Chapter 90: Section 7: "Every commercial motor vehicle, or trailer weighing, with its load, more than twelve thousand pounds, and used to deliver gasoline or other flammable material, shall be equipped with an audible warning system when the vehicle's transmission is in reverse. For the purpose of this paragraph, the term commercial motor vehicle or trailer shall mean a bulk tank carrier delivering gasoline or other flammable material." School buses are also required to have a reverse alarm; 7D vehicles are not required to have a reverse alarm.

Q What is a "hoist alarm" and are all trucks are required to have one? What about dump trucks, dump trailers, boom trucks, wreckers, catch-basin cleaners, roll-offs?

A Again, referencing Massachusetts General Laws, Chapter 90: Section 7: "Every motor vehicle truck with dump bodies shall be equipped with an adequate audible warning system to alert the operator when the dump body is in an upright and elevated position."



Q Is the inspector required to sign (and thereby certify) the CMV vehicle inspection report (VIR) when a vehicle fails the inspection?

A The inspector is required to sign all CMV inspection forms — whether a pass or a fail. Otherwise, the inspection is not valid.

Q Why did RMV implement the CMV inspection?

A In response to industry requests for a single inspection that included both FMCSA (DOT) and State Motor Vehicle Inspection.

Plate Policy Reminder

Motor vehicles in Massachusetts must have two plates affixed to the vehicle, except for vehicles with green and white passenger plates, boat, dealer, repair, owner-contractor, and farm plates. State law requires that Massachusetts license plates must be readable from 60 feet. Any green or red passenger plate that has lost its reflective coating or paint or has been damaged must be replaced. Regulations require that all letters, numbers, stickers and symbols must be clearly visible on the number plate. A number plate frame that obstructs any letter, number, decal or symbol on the plate fails inspection.

If you have any questions about this policy, please contact the Technical Help Desk at 1-877-834-4677.



The EVAP Challenge — An S10 with Attitude!

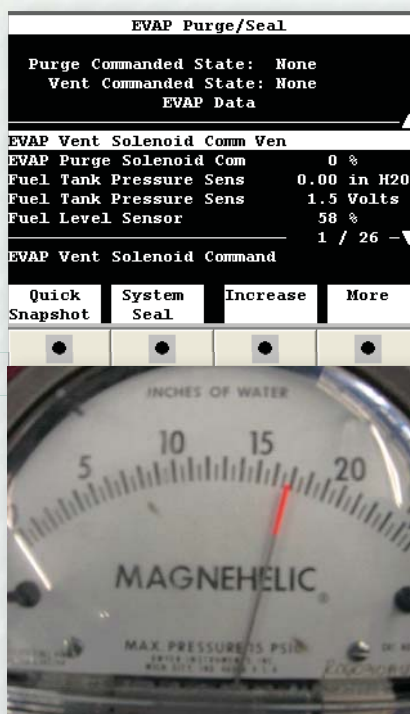
I recently had a diagnostic assistance call for a recurring evaporative emission problem on a 2001 S10 Pickup with a 2.2 litre engine. The Diagnostic Trouble Code (DTC) creating the problem was P0440 for a large leak detected. The shop owner had the vehicle's EVAP system tested twice on its last visit and no leaks were found. They cleared the DTC, but after a couple days the check engine light was back on with the same code stored in memory again.

First, as with all my diagnostic work, I recorded all the information available for the vehicle, such as VIN, mileage, DTCs, freeze frame data, and failure records. Taking notes is an important step in properly diagnosing a vehicle.

Then I perform a visual inspection, looking for any damaged components or wiring, recent repairs or body work. My inspection found no obvious problems with the vehicle.

Next, I connected my evaporative emission tester along with my Magnehelic gauge to pressure test the EVAP system. Before pressurizing the system, I used my scan tool to exercise the vent and purge valves on and off repeatedly. This was necessary for verifying their proper operation because vent valves tend to be underworked and are prone to sticking, while purge valves tend to be overworked and are prone to not sealing.

When I conduct a pressure test, I pressurize the system first with Nitrogen gas to 17 inches of water (inH₂O) to check for leaks. If no leaks are detected, I then apply vacuum to the system and check for leaks again. I test the system this way for two reasons. Not only does this tell me whether any leaks are present, it also allows me to observe the Fuel Tank Pressure (FTP) sensor's ability to detect the changing pressures in the system, both positive and negative.



The FTP sensor should read between 1.3–1.7 volts and 0.00 inH₂O at atmospheric pressure (with the fuel cap removed). The FTP sensor readings for this vehicle were 1.5 volts and 0.00 inH₂O before I began my tests.

When I pressurized the EVAP system to 17 inH₂O, however, the FTP sensor readings did not change from normal atmospheric pressure.

I had the technician



David DeCoursey of D&D Professional Automotive Services

lower the tank to access the FTP sensor connector for testing.

The first step was to test the electrical circuits to the FTP sensor. The FTP Sensor has a three wire circuit—5 volt reference, signal, and reference ground. The easiest way to confirm that the circuits are good and the powertrain control module (PCM) can process the data correctly is with the following simple test:

1. With the key on; install the test leads of a digital volt/ohm meter (DVOM) on the 5 volt reference and the reference ground connectors. The DVOM should read 5 volts on the display screen.
2. Install a jumper wire from the 5-volt reference to the signal connector. The FTP sensor data (PID) on the Scan tool should read 5 volts.
3. Install the jumper wire between the reference ground and the signal connector. The FTP sensor data (PID) on the scan tool should read 0.00 volts.

The test revealed that the 5-volt reference circuit and reference ground circuits were good: when the 5-volt reference circuit was jumped to the signal line, the FTP sensor data (PID) read 5 volts. But, there was a problem with the signal circuit itself: when the reference ground circuit was jumped to the signal line the FTP circuit read 1.5 volts, and not the correct 0.00 volt reading. Also; the scan tool data (PID) for the FTP sensor showed 1.5 volts even though the sensor was disconnected.

Further tests showed there was no voltage present anywhere on the signal line. I removed the connector at the PCM to check for any water intrusion/corrosion that may bleed voltage over to the signal line pin terminal, but there was none. Conclusion: there was an internal problem with the PCM.

We have located one defective part of the system: are we done testing?

Now for a little twist. If the PCM had an internal fault that was bleeding 1.5 volts into the FTP sensor signal circuitry, where did the voltage go that was being produced from the FTP sensor?

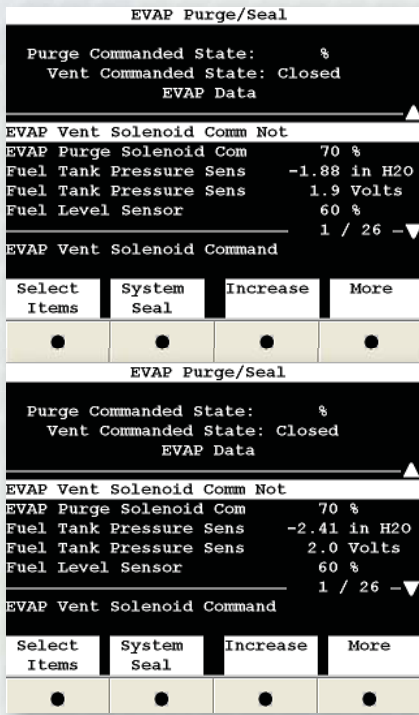
My first thought was there should be 1.5 volts being produced by the FTP sensor (at atmospheric pressure) added to the 1.5 volts from the faulty internal PCM circuitry, for a total of 3.0 volts on the FTP sensor (PID) of the scan tool.

Could the FTP sensor be defective as well?

I found the answer with the following simple test — Jump the 5 volt reference and reference ground from the FTP sensor connector to sensor, leaving the signal circuit open. Hook up your DVOM to the signal output terminal of the

sensor and measure the output voltage. It should read approx 1.5 volts.

The FTP sensor on this vehicle was also “defective”. It was unable to produce any output voltage. The shop installed a new FTP sensor and reinstalled the tank. The FTP sensor (PID) on the scan tool now read 3.0 volts, as it should have with the faulty PCM. The next day the new PCM was installed and the FTP sensor (PID) on the scan tool now read the correct voltage at all pressures.



Additional Notes:

On this system when the enabling criteria are met for the EVAP readiness monitor to run, the PCM will first perform a test for large leaks. The FTP sensor voltage is noted, and then the vent valve is closed to seal the system. Then, the PCM will operate the purge valve and apply a vacuum to the system. If the system can be pulled down to a specified fuel tank sensor voltage (vacuum level) the system will pass the large leak test.

Next, the PCM performs a test for small leaks by shutting off the purge valve while keeping the system sealed and monitoring the FTP sensor voltage for any vacuum decay. If no leaks are detected over a specified time, the system passes the small leak test.

With this vehicle, the FTP sensor voltage always read 1.5 volts, which is equal to atmospheric pressure. The PCM interpreted this voltage as meaning the EVAP system had a large leak. The PCM failed the large leak test and set a pending DTC.

The next time the EVAP readiness monitor ran, the large leak test was performed, which failed again due to the faulty PCM and FTP sensor still indicating

atmospheric pressure. The P0440 DTC was set, the MIL was illuminated and the freeze frame was recorded.

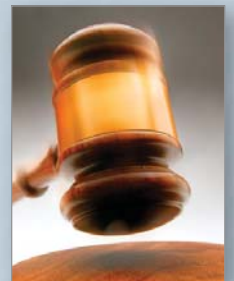
For questions or comments about this article, please contact David DeCoursey at ddprofessional@hotmail.com

D&D Professional Automotive Services provides mobile diagnostic services to the automotive repair community. Mr. DeCoursey, who holds a degree from the Franklin Institute of Boston in automotive technology, is frequently called to help with difficult diagnoses. While he covers everything from braking to electrical systems, the largest demand for his services focuses on diagnosing complex OBD emissions control systems.

Station Fined & Suspended, Inspector's License Revoked in "Clean Scan" Case

Attorney General Martha Coakley announced in April that her office had reached a settlement with a Dorchester motor vehicle inspection station and an inspector it once employed, resolving allegations that the defendants conducted illegal on-board diagnostic (OBD) emissions tests on more than 70 vehicles between 2006 and 2008.

Under the settlement, the station agreed to a total penalty of \$144,000 — half of which will be suspended if the station operates within Massachusetts Vehicle Check rules over the next three years — and its inspection station license was suspended for six months. The inspector's license to test vehicles was permanently revoked.



The complaint alleged that for each of the fraudulent emissions inspections, the defendants performed an OBD test not on the motor vehicle brought in for inspection, but instead on a second “clean” vehicle — one they knew would pass the test — and then used the results to issue a passing inspection sticker for the original vehicle.

According to the complaint, a motorist who wanted to avoid repairing a vehicle that had previously failed an OBD emissions test or had its “check engine” light on could arrange a fraudulent test and get a passing sticker by asking for “Joe the Fish,” who the inspector later admitted was him.

By issuing passing stickers to vehicles that were not inspected, the station and inspector misled the public, including potential vehicle buyers, and gained an unfair competitive advantage over stations and inspectors that perform inspections legally.

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Inspection Update

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**Have you seen the workstation messages about the new software release 1.10?
Remember to review your workstation messages!**

Please keep us up to date with current information on your business to help us ensure that you continue to receive this Inspection Update. If you know someone who would like to receive the newsletter, or have changes or corrections to your information please use this form. If you mail or fax the corrections, be sure to send the entire back page and mark the appropriate boxes below. Remember, you must also inform RMV of any station name or address changes.

New Shop

Phone Number Change

Change of Address

Technician Moved to a New Shop

Call us at: 877-834-4677

Email us at: info@massvehiclecheck.com

Fax us at: 866-873-8932

Or write to us at: Massachusetts Vehicle Check Program

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