



A Newsletter for Fleet Emissions Inspection Facilities and Inspectors

IN THIS ISSUE...

-  **Editorial Desk**
 -  **OBD II Readiness Monitors**
 -  **Questions & Answers**
 -  **Training Calendar**
- VEI Web site: www.vei.azdeq.gov

Editorial Desk

Welcome to the *Summer 2011 "Fleets in Review."* This newsletter is distributed exclusively through the Internet on the ADEQ Web site. We hope that this is a most convenient way to keep in touch with you.

In this issue we will concentrate on vehicles equipped with OBD II, and specifically with the readiness monitors. Unfortunately, some folks are not aware of what the monitors are and how they must be reset in order to complete an emissions test.

The article in this issue and the Q&A column may help.

Several people have asked when we will stop emission testing motorcycles in the Phoenix area. Motorcycle testing was terminated in Tucson a couple of years ago. We are waiting for approval from the US Environmental Protection Agency. The EPA must approve changes to a state's implementation plan (SIP) before those changes can go into effect.

Important note: Tucson-area fleets must plan for a change in the training calendar. Effective with the new fiscal year in July classes will be offered quarterly in Tucson. With fewer classes, expect some class dates to fill up quickly. Reserve your space as soon as possible, and if a cancellation becomes necessary, please let us know as soon as possible.

Previous issues of "Fleets in Review" are available online at www.azdeq.gov/environ/air/vei/fleet.html.

OBD II Readiness Monitors

By Alex Studham, Training Specialist

All 1996 and newer light duty vehicles (8,500 pounds or less GVWR) that are sold in the U.S., have Onboard Diagnostic II (OBD II) systems. The OBD II diagnostic system's purpose is to monitor and test the vehicle's emissions systems. An emission system problem is determined when an increase of 1.5 times or greater than the new car standard is detected.

A Malfunction Indicator Light (MIL) normally located on the vehicle's dashboard will illuminate, telling the driver of the vehicle that a problem exists and further diagnosis needs to be done at a qualified repair facility. Also, a Diagnostic Trouble Code (DTC) will be logged in the vehicle's computer, which helps the technician to locate the emissions system that caused the MIL to illuminate.

There is a function called "Freeze Frame," which is a reading of the computer data stream (signals) at the time the problem occurred. This function will also help the technician in locating specific problems.

One of the most common problems that technicians have when working on OBD II vehicles is getting the "Readiness Monitors" to set to "Ready." Any time the vehicle battery has been disconnected, or voltage drops below 5 volts, the vehicle's readiness monitors will reset to an "Unready" state.

There are two types of readiness monitors, "continuous and non-continuous." The continuous monitors are: misfire, fuel trims, and comprehensive components which are the vehicle sensors and actuators. These emission systems are continuously monitored as long as the vehicle's engine is running.

Non-continuous readiness monitors are the catalytic converter, EGR system, evaporative emission system, oxygen sensor system, oxygen sensor heater system, secondary air injection, air conditioning system (if the vehicle uses R-12 refrigerant), and heated catalyst if applicable. The vehicle's OBD II system monitors these emissions systems when a

(continued on page 2)

specific driving condition called a drive cycle has been performed. During an emissions inspection the non-continuous monitors are the ones that are checked.

During an OBD II emissions inspection, one of the procedures is to verify that the vehicle's readiness monitors meet the federal guidelines. For 1996 through 2000 model year vehicles, up to two non-continuous monitors may show the "Not Ready" status. For 2001 and newer vehicles, only one non-continuous readiness monitor may show an unready status. In each case additional "not ready" monitors will cause a vehicle to be rejected from testing or to fail.

If a monitor is not supported on the vehicle, then the scan tool will indicate this by displaying "Unsupported," or something to this effect to let the technician working on the vehicle know which emissions systems the vehicle has or does not have.

When a monitor is "Not Ready," it may take up to three drive cycles or more to reset the monitor to "Ready." There can be no other driving of the vehicle in between the drive cycles or you may have to start all over again. When the drive cycle instructions state that there must be a key cycle before the next drive cycle, it normally means that the coolant temperature must drop by so many degrees before restarting the vehicle to perform the next drive cycle, otherwise the monitor will not run. Also, depending on the manufacturer of the vehicle, the coolant temperature must reach a certain minimum

temperature (195 degrees or more) before the monitors will run.

There may be pre-conditions that the vehicle must meet prior to performing the drive cycles. Coolant temperature and air charge temperature must be within five degrees of each other, gas tank must be within 1/3 to 2/3 full, etc... Make sure to meet the preconditions before performing the drive cycle, or monitors may not run.

Make sure that you perform the drive cycle exactly as stated. If you don't, the monitors will not set to "READY." Some problems that may stop the readiness monitors from setting:

- DTCs present
- Low battery voltage
- MIL commanded "ON"
- Engine not up to normal operating temperature
- Not performing the drive cycles as stated by the manufacturer

If the drive cycle states that you must drive the vehicle between 55 and 60 mph for five minutes, and you exceed or drop below the 55 to 60 mph, you will have to perform that section over again. The same is true if you don't do the cycle the required number of times. You normally won't have to start the drive cycle over from the beginning, but you will have to start that driving condition over again. Drive cycles can be frustrating, but following them will help ensure that the vehicle is not rejected from testing.

Congratulations for compliance with fleet emissions inspection requirements



Town of Buckeye: Inspectors Filiberto Chavira (left) and Michael DePaulo

Congratulations for compliance with fleet emissions inspection requirements



Peoria Unified School District: Inspectors John Swinbourn (left) and Christopher Owens

Questions & Answers

In this column, staff will answer recurring questions about emissions related problems and their solutions. We encourage you to submit your queries to VEI at (602) 771-3950 and ask for a technician. Questions of a common nature will also be addressed here.

Question: Why do some monitors continue to show “not ready” even after extensive driving? I need to get the vehicle through the emissions test.

Answer: Each manufacturer chooses what monitors (or systems) will be supported on a specific vehicle. Then after extensive testing, they determine what must be done to reset the monitor to a ready status. In more and more instances, the procedure or “drive cycle” is becoming very involved and may include several segments of urban or highway driving and one or more “key off” cycles (engine cool-down required). To ensure monitor resets, the drive cycle must be followed accurately.

Question: What is a Readiness Monitor and where can I find it?

Answer: First, don’t look for a device on the vehicle. A monitor is a computer program installed in the firmware of the “Powertrain Control Module,” the vehicle emissions computer. To find the status of the monitors, you must connect a scan tool to the diagnostic link connector (DLC) of the vehicle. The monitors purpose is to ensure that the emissions control systems are ready to be interrogated by the technician or the emissions test.

Question: Even after following the drive cycle, I can’t get the monitors to reset. Am I doing something wrong?

Answer: Not necessarily. Remember to check for diagnostic trouble codes. The vehicle may have a pre-existing problem that will prevent the monitors from resetting. In some cases, disconnecting the battery may have erased the DTCs and the systems will have to re-establish the codes. Be sure to retrieve all DTCs before beginning repairs or removing the vehicle battery to establish a baseline for diagnosis and repair.

2011 Emissions Class Schedule

JULY 2011	
Fleet	Dates
Gov/Fleet Shop "CFD" Licensing	12 - 14
Gov/Fleet Shop "CF" Licensing	12 - 13
Gov/Fleet Shop "FD" Licensing	*13 - 14
Dealer "CF" Licensing	19 - 20
Tucson- Class Canceled	
WALK-IN TESTING (Fridays)	1, 8, 15, 21, 29
Holiday Office Closed	4

AUGUST 2011	
Fleet	Dates
Gov/Fleet Shop "CFD" Licensing	2 - 4
Gov/Fleet Shop "CF" Licensing	2 - 3
Gov/Fleet Shop "FD" Licensing	*3 - 4
Dealer "CF" Licensing	9 - 10
Tucson - No Class Scheduled	
WALK-IN TESTING (Fridays)	5, 12, 18, 26
Possible Furlough Day Office Closure	19

SEPTEMBER 2011	
Fleet	Dates
Gov/Fleet Shop "CFD" Licensing	13 - 15
Gov/Fleet Shop "CF" Licensing	13 - 14
Gov/Fleet Shop "FD" Licensing	*14 - 15
Dealer "CF" Licensing	20 - 21
Tucson-All Licensing Class	27 - 28
WALK-IN TESTING (Fridays)	2, 9, 23, 30
Holiday Office Closed	5
Possible Furlough Day Office Closure	16

OCTOBER 2011	
Fleet	Dates
Gov/Fleet Shop "CFD" Licensing	4 - 6
Gov/Fleet Shop "CF" Licensing	4 - 5
Gov/Fleet Shop "FD" Licensing	*5 - 6
Dealer "CF" Licensing	18 - 19
Tucson-All Licensing Class	25 - 26
WALK-IN TESTING (Fridays)	7, 14, 21, 28
Holiday Office Closed	10

NOVEMBER 2011	
Fleet	Dates
Gov/Fleet/Dealer "CFD/CF" Licensing	1 - 3
Gov/Fleet Shop "FD" Licensing	*2 - 3
Tucson-All Licensing Class	15 - 16
WALK-IN TESTING	4, 10, 18, 23
Holiday Office Closed	11, 24
Possible Furlough Day Office Closure	25

DECEMBER 2011	
Fleet	Dates
Gov/Fleet/Dealer "CFD/CF" Licensing	6 - 8
Gov/Fleet Shop "FD" Licensing	*7 - 8
Tucson-All Licensing Class	13 - 14
WALK-IN TESTING (Fridays)	2, 9, 16, 22, 30
Holiday Office Closed	26
Possible Furlough Day Office Closure	23

* Strongly Recommended/Optional attendance for "FD" Licensing

* **NOTE:** If attending the Wednesday-Thursday class for "FD" the start time for Wednesday class is 10 a.m.



Fleets in Review is a publication of



Vehicle Emissions Inspection

600 N. 40th Street, Phoenix, Arizona 85008

Main Office: 602-771-3950 Fleets in Review: (602) 771-3959

Tech Info: 602-771-3954

Contact: Adrion Osborne (602) 771-3959 osborne.adrion@azdeq.gov

Publication Number: N 11-03