ADEQ Arizona Department of Environmental Quality

Fleets in Review

Vol. 5 No. 2 Summer 2009

A Newsletter for Fleet Emissions Inspection Facilities and Inspectors

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VEI Web site: www.carcare.azdeq.gov

Editorial Desk:

Welcome to the Summer 2009 issue of "Fleets in Review." We hope that you have had a chance to look at the spring issue and reviewed the rules information as well as the technical info found in the Q & A column. This month we will continue the overview of the rules we all must abide by, looking at R18-2-1006, which is the definition of the inspection procedures for all vehicles in the fleet subject to emissions testing.

Correction: In the last issue coolant temperature should be between 190 degrees and 210 degrees, rather than 1900 and 2100 degrees. And, in the GM drive cycle, the "cold start" temp needs to be below 50 degrees C (120 degrees F).

In this issue we are including the Ford drive cycle, for your reference, hopefully without errors.

Vehicle Emissions, Phoenix has a new telephone system, which, of course, includes new telephone numbers. Sorry, all of you who have our old numbers memorized. Here are a few of the new numbers to pencil on the wall or your tool box (just kidding).

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The Rules Corner:

A continuing discussion of the rules governing vehicle emissions inspection. How do we get these rules in the first place? Who enforces them? Who must follow them? We hope to answer these and other questions about the Arizona Administrative Code (AAC) as it applies to you, in this column. Readers may look at the rules online or purchase a copy of them by going to the Secretary of State Web site: www.azsos.gov.

In the last issue, we surveyed the rules that establish the who, what, when and where of emissions testing. Previous issues of "Fleets in Review" are available online at www.vei.azdeq.gov then scroll down to "Vehicle Fleets/Newsletters".

In this issue we will look over the actual test procedure. Here is where our journey into the rules really begins. So, let's take a look at R18-2-1006.

R18-2-1006 Emissions Test Procedure

This rule contains the actual emissions inspection process, and restrictions. Included in this rule are the procedures for the official state inspection stations and for fleet inspection stations. R18-2-1019 makes continued reference to this rule as to how fleet tests are to be performed.

R18-2-1006.A-C provides a visual inspection of the vehicle prior to any actual testing. The visual is to determine if the vehicle is safe and testable. Among the items reviewed:

> Liquid leaking from fuel tank or supply lines; oil or coolant leaking onto the floor; dangerous tires; improperly installed tailpipes; improperly operating brakes and any condition that would prevent the vehicle from being tested on a dynamometer.

For vehicles subject to an OBD inspection, the diagnostic link connector must be attached as "per mfg."

Vehicles may not be emissions tested while pulling trailers, or when loaded with hazardous materials or explosives.

Unsafe or untestable vehicles will be rejected from further testing. They will not be failed, but must be repaired and return for testing.

R18-2-1006.D requires that a vehicle be tested as presented, unless it is rejected. The inspector cannot perform any alterations or adjustments. Bi-fuel

(continued on page 2)

vehicles must be tested on each of the fuels used, requiring two tests (charged as one). The process is described here.

R18-2-1006.E1 describes the test procedure for vehicles in area A that are model year (my)1967-1980, GVWR <8501; 1967 and newer (non OBD) vehicles >8500; and 1967 and newer reconstructed vehicles.

The test procedure includes a steady state loaded test, an idle test, and a gas cap test. Each test is described, with the process and requirements.

In addition to the test procedures detailed in R18-2-1006, there are several tables which are a part of the rules that provide procedural or pass/fail information and which are referenced by the rules outlined here. Tables include:

Table 1: dynamometer loading for specific weight classes of vehicles to be tested.

Table 2: Maximum allowable emissions levels for loaded cruise and idle testing

Table 3: Maximum allowable emissions for vehicles receiving a transient loaded test (IM147)

Table 4: Transient test drive cycle

R18-2-1006. E.2 describes the test procedure for 1981 thru 1995 light duty vehicles. Here again the specifics of the test requirements are spelled out. But the steady state tests are replaced with the transient (IM147) emissions test, and evaporative pressure testing is added.

R18-2-1006.E.3 describes the test for 1996 and newer light duty vehicles, which is an OBD test. The details of the test procedure and sequence are found here.

R18-2-1006.E.4 describes the test requirements for motorcycles and constant 4wd vehicles (not OBD compliant).

The remainder of section "E" details the specific pass/fail requirements for the above tests.

Section "F" follows with the equivalent procedures and requirements for area B vehicles (Tucson area).

R18-2-1006.G addresses specific variations from the above for certain engine types such as rotary and turbine, and engine replacements.

R18-2-1006.H addresses the test procedure for diesel powered vehicles in area A. While *R18-2-1006.I* deals with diesel vehicles in area B.

R18-2-1006.J deals with the tampering inspection requirements for diesel vehicles.

Questions & Answers:

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

Question: How do I complete the OBDII for the Ford OBD II Drive Cycle:?

Answer: The following procedure is designed to cute aexecute and complete the OBD II readiness monitors and to clear the Ford P1000 I/M readiness DTC. To complete a specific monitor for repair verification, follow steps 1 through 4, then continue with the step described by the appropriate monitor found under the "OBD II Monitor Exercised" column. When the ambient air temperature outside is 4.4 to 37.8 degrees C (40 to 100 F.), or the altitude is above 8,000 feet, the EVAP monitor will not run. If the P1000 code must be cleared in these conditions, the PCM must detect them once (twice on some applications) before the EVAP monitor can be "bypassed" and the P1000 cleared. The EVAP "bypass" procedure is described in the following drive cycle. The OBD II Drive Cycle will be performed using a scan tool. Consult the instruction manual for each described function.

Congratulations Eduardo Zatarain, fleet vehicle emissions inspector and owner of EMZ Auto Sales for excellent compliance with regulations.

Ford Motor Co. OBD II Drive Cycle

Drive Cycle Recommendations:

1. Most OBD II monitors will complete more readily using a "steady foot" driving style during cruise or acceleration modes. Operating the throttle in a "smooth" fashion will minimize the time required for monitor completion.
2. Fuel tank level should be between ½ and ¾ full, with ¾ being the most desirable.
3. The Evaporative Monitor can only operate during the first 30 minutes of engine operation. When executing the procedure for this monitor, stay in part throttle mode and drive in a smooth fashion to minimize "fuel slosh."

For best results, follow each of the following steps as accurately as possible.

OBD II MONITOR EXERCISED	DRIVE CYCLE PROCEDURE	PURPOSE OF DRIVE CYCLE PROCEDURE
Drive Cycle Preparation	1. Install scan tool. Turn key on with the engine off. Cycle key off, then on. Select appropriate vehicle and engine qualifier. Clear all DTCs / Perform a PCM reset.	Bypasses engine soak timer. Resets OBD II Monitor status.
	2. Begin to monitor the following PIDs: ECT, EVAPDC, FLI (if available) and TP Mode. Start vehicle without returning to key Off.	
	3. Idle vehicle for 15 seconds. Drive at 40 MPH until ECT is at least 76.7^0 C. (170^0 F.)	
Prep for Monitor Entry	4. Is IAT within 4.4^0 to 37.8^0 C. (40^0 to 100^0 F.)? **If not, complete the following steps but, note that step 14 will be required to "bypass" the EVAP monitor and clear the P1000.**	Engine warm-up and provide IAT input to the PCM.
HEGO	5. Cruise at 40 MPH for up to 4 minutes.	Executes the HEGO Monitor.
EVAP	6. Cruise at 45 to 65 MPH for 10 minutes (avoid sharp turns and hills) NOTE:, to initiate the monitor: TP MODE should = PT, EVAPDC must be > 75%, and FLI must be between 15 and 85%.	Executes the EVAP Monitor (If IAT is within 4.4^0 to 37.8^0 C. (40^0 to 100^0 F.))
Catalyst	7. Drive in stop and go traffic conditions. Include five different constant cruise speeds, ranging from 25 to 45 MPH over a 10 minute period.	Executes the Catalyst Monitor.
EGR	8. From a stop, accelerate to 45 MPH at ½ to ¾ throttle. Repeat 3 times.	Executes EGR Monitor
SEC AIR/CCM (Engine)	9. Bring the vehicle to a stop. Idle with transmission in drive (neutral for M/T) for 2 minutes.	Executes the ISC portion of the CCM.
CCM (Trans)	10. For M/T, accelerate from 0 to 50 MPH, continue to step 11. For A/T, from a stop and in overdrive, moderately accelerate to 50 MPH and cruise for at least 15 seconds. Stop vehicle and repeat without overdrive to 40 MPH cruising for at least 15 seconds. Stop for at least 20 seconds and repeat step 10 five times.	Executes the transmission portion of the CCM.
Misfire & Fuel Monitors.	11. From a stop, accelerate to 65 MPH. decelerate at closed throttle until 40 MPH (no brakes). Repeat this 3 times.	Allows learning for the Misfire monitor.
Readiness Check	12. Access the On-Board System Readiness (OBD II monitor status) function on the scan tool. Determine whether all non-continuous monitors have completed. If not, go to step 13.	.Determines is any monitor has not completed.
Pending Code Check and EVAP Monitor "Bypass" Check.	13. With the scan tool, check for pending codes. Conduct normal repair procedures for any pending code concern. Otherwise, rerun any incomplete monitor. **NOTE: If the EVAP monitor is not complete and IAT was out of the 4.4^0 to 37.8^0 C. (40^0 to 100^0 F.) temperature range in step #4, or the altitude is over 8000 ft., the EVAP "bypass" procedure must be followed. Proceed to step 14.**	Determines if a pending code is preventing the clearing of P1000
EVAP Monitor "Bypass".	14. Park vehicle for a minimum of 8 hours. Repeat steps 2 through 12. Do Not Repeat Step 1.	Allow the "bypass" counter to increment to two.

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2009 Second Half Training Schedule

JULY 2009	
Fleet	**Dates**
Government and Fleet Shop	7-8
Dealers	14-15
Diesel	9
Tucson	28-29

AUGUST 2009	
Fleet	**Dates**
Government and Fleet Shop	4-5
Dealers	11-12
Diesel	6
Tucson	Not Scheduled

SEPTEMBER 2009	
Fleet	**Dates**
Government and Fleet Shop	1-2
Dealers	15-16
Diesel	3
Tucson	29-30

OCTOBER 2009	
Fleet	**Dates**
Government and Fleet Shop	6-7
Dealers	20-21
Diesel	8
Tucson	27-28

NOVEMBER 2009	
Fleet	**Dates**
Dealers, Government and Fleet Shop	3-4
Diesel	5
Tucson	17-18

DECEMBER 2009	
Fleet	**Dates**
Dealers, Government and Fleet Shop	8-9
Diesel	10
Tucson	15-16