

APPENDIX D

PUBLIC AWARENESS INFORMATION



READINESS FAILURE FACT SHEET

Beginning December 2004, New York will implement a new motor vehicle emission testing program in 53 of New York's upstate counties, and in May 2005, expanding into the 9 County New York Metropolitan Area. Under the New York Vehicle Inspection Program ("NYVIP") an on-board diagnostics (OBD II) inspection will apply to most model year 1996 and newer light duty vehicles. Exemptions from the OBD II inspection include:

- vehicles with weights in excess of 8,500 lbs,
- diesel-powered vehicles,
- electric-powered vehicles,
- vehicles less than 2 model years old.

WHAT IS A MONITOR?

To complete an OBD inspection, the NYVIP test equipment makes an electronic request for information to the vehicle being inspected through a standardized diagnostic link connector. The subject vehicle responds back to the NYVIP equipment with data including vehicle information, the on/off status of the Malfunction Indicator Light (MIL), Diagnostic Trouble Codes (DTC) and the status of the vehicle's monitors. As discussed below, the "monitors" verify the OBD system has completed testing each system.

An essential component of every NYVIP OBD II inspection is the readiness check of each applicable monitor. The readiness evaluation is part of the final OBD II inspection result, and it could possibly be the only reason why a vehicle fails New York's emissions inspection.

As noted below, there are a total of 11 possible monitors, but currently no vehicle has all 11 monitors present.

- Misfire (continuous)
- Fuel Trim (continuous)
- Comprehensive Components (continuous)
- Catalyst (CAT)
- Exhaust Gas Recirculation (EGR)
- Evaporative (EVAP)
- Oxygen (O2) Sensor
- Secondary Air
- Heated Catalyst
- Air Conditioning (AC) System
- O2 Sensor Heater

The exact number of monitors in any vehicle depends on the motor vehicle manufacturer's emissions control strategy. Note that the misfire, fuel trim, and comprehensive components monitors are referred to as being "continuous." These three monitors are found in every gasoline-powered OBD II vehicle, and are very different in design from the other eight monitors. The Powertrain Control Module (PCM) through the use of its three "continuous monitors" is constantly testing and evaluating their assigned emission components and/or emission system while the vehicle is running. Conversely, the other eight monitors are commonly referred to as being "non-

continuous” monitors, as certain conditions need to occur before a test or series of tests can be completed by the PCM.

The conditions necessary for the monitor to run testing are referred to as the “enabling criteria.” Some monitors require the vehicle to follow a prescribed “drive cycle” routine as part of the enabling criteria. Drive cycles vary among vehicles and for each monitor in any particular vehicle. Some non-continuous monitors require two drive cycles to complete testing due to the need for a cool down and warm up periods in between. For more information on drive cycles, see the discussion below. Depending on the non-continuous monitor, variables such as speed, engine and ambient temperatures, load, fuel level, as well as other conditions must be met for the monitor to perform its test.

It is very important to realize that the NYVIP unit does not force the vehicle to perform any monitor test. Rather, the NYVIP simply asks the vehicle for information. The NYVIP unit makes the readiness determination based on the information supplied.

WHAT IS MEANT BY MONITOR STATUS?

Motor vehicle manufacturers follow standardized protocols when reporting monitor status to scan tools or emissions inspection devices (i.e., NYVIP). When a particular monitor is not applicable to the vehicle being tested, the monitor is reported as “Unsupported.” The vehicle cannot report the results of this monitor simply because it does not exist. Most gasoline-powered OBD II vehicles have at least a few unsupported monitors. Unsupported monitors have no role in the overall readiness evaluation or the overall OBD inspection result.

Those monitors incorporated into vehicle manufacturer’s emissions control design are referred to as being “Supported.” Supported monitors need to be evaluated by the vehicle’s PCM. For most gasoline-powered light duty vehicles, the common range of the number of “supported” monitors is six to eight. When the vehicle’s PCM’s monitor completes testing, the readiness system status will be reported as “Ready” or “Complete.” Once a monitor is set as “Ready” or “Complete” it will remain in this state unless diagnostic trouble codes (DTCs) are cleared by a scan tool or if the PCM’s short term memory is erased by a power failure (i.e., disconnecting the battery). Since the three continuous monitors are constantly evaluating, they will generally be reported as “Ready.” If testing of a particular supported non-continuous monitor has not been completed, the monitor status will be reported as “Not Complete” or “Not Ready.”

New York has adopted the federal Environmental Protection Agency (EPA) guidance concerning readiness during OBD inspections. A vehicle will fail the NYVIP OBD II inspection if enough monitors are reported as “Not Ready.” Generally, OBD II vehicles from model year 1996 to model year 2000, inclusive, will fail if 3 or more monitors are set as “Not Ready;” while model year 2001 and newer vehicles will fail when 2 or more monitors are reported as “Not Ready.” There are a few vehicle exceptions to these guidelines, but the NYVIP inspection software makes these cases transparent to the inspector. Consistent with federal guidance, the three continuous monitors are not considered in the readiness determination as these are anticipated to be Ready. ***In summary, the readiness status of all supported, non-continuous monitors are only considered in making the OBD II pass or fail determination. For most gasoline-powered vehicles, this involves 3 to 5 monitors.***

It is not always required, nor practical in some cases, for **ALL** monitors to be set as “Ready” for the NYVIP inspection. This condition is, however, highly recommended for the confirmation of effective repairs. In general, the EVAP and CAT monitors will be the most difficult monitors to set as “Ready.” When a vehicle fails the NYVIP readiness evaluation, the test equipment will display a screen to the inspector listing all monitors found “Not Ready” and the Inspection Receipt will also note these findings to the motorist. Should a motorist present a vehicle for inspection with an expired emissions/safety inspection and then fail the OBD inspection for readiness only, the NYVIP unit will allow a one-time 10-day extension.

The following guidance is offered for motorist information and for effective OBD repairs.

GENERAL READINESS GUIDANCE

1. Motorists should be advised against disconnecting their battery in an attempt to bypass the NYVIP OBD inspection. This practice is counterproductive as it will lead to a NYVIP readiness-related failure.
2. Motorists should be encouraged to have emissions-related repairs completed when they are first identified by the illuminated MIL. A delay in effective repairs may result in increased fuel cost due to reduced fuel economy and potentially more costly repairs for the motorist in the future.
3. Motorists should be encouraged to have their annual inspection completed prior to the last week of their valid inspection sticker. Some vehicles are more difficult to make “Ready” than others and multiple attempts at completing a recognized drive cycles may be necessary.
4. Motorists receiving a 10-day extension should be cautioned that the extension is for one time only. Either the inspector or motorist should drive the vehicle for several days in an attempt to set monitors, and then have the vehicle re-inspected several days in advance of the 10-day expiration.

OBD II - REPAIR SUGGESTIONS

1. Consult technical service bulletins (TSBs) before attempting repairs. If it is a common problem that has already been documented, it will save you a lot of time and frustration.
2. Use a professional grade scan tool to verify that the MIL is not commanded on. Confirm that there are no diagnostic trouble codes (DTCs) which may prevent a monitor from running to completion.
3. Use the “OBD generic” function on the scan tool, as these results may differ from the manufacturer specific protocols.
4. The practice of “clearing codes” should be used as sparingly as possible, as all monitors will be re-set as “Not Ready” when this occurs. Whenever possible, instead of clearing codes after completing a repair, drive the vehicle sufficiently to allow the PCM to extinguish the MIL.
5. Know how your customer drives. If they drive infrequently or avoid speeds greater than 50 mph, they may or may not get a sufficient number of monitors to be “Complete” before their first NYVIP inspection or after repairs were made. If in your estimation, the motorist will not be able to drive the vehicle adequately to pass re-inspection, you may assist customers in re-setting monitors by completing the appropriate drive cycle(s) for a reasonable fee.
6. Verify that the most current version of manufacturer’s firmware (PCM software) is installed on the vehicle’s computer, as the vehicle may need an upgrade to operate correctly.
7. Follow recommended diagnostic practices and procedures. Aimlessly replacing parts in an attempt to remove a DTC is generally ineffective and potentially very costly for the motorist. For example, an oxygen related DTC could actually be the result of an exhaust leak upstream of the O2 sensor. In this case, replacing a properly functioning O2 sensor will not resolve the problem.
8. Check the fuel level in the vehicle. Some monitors, in particular the EVAP monitor, may require the fuel level to be between 35% and 85% of full to initiate diagnostic testing.
9. Continuing education and training related to OBD repairs is recommended.

RUNNING AN OBDII DRIVE CYCLE

The purpose of completing an OBD II drive cycle is to force the vehicle to run its onboard diagnostics. Some form of a drive cycle needs to be performed after DTCs have been erased from the PCM’s memory or after the battery has been disconnected. Running through a vehicle’s complete drive cycle will “set” the readiness monitors so that future faults can be detected (and potentially to pass the NYVIP re-inspection). Drive cycles vary depending on the vehicle and the monitor that needs to be re-set. Whenever possible, follow the drive trace prescribed for the specific vehicle/monitor in question. Some vehicle-specific drive cycles can be found in the vehicle’s Owner’s Manual.

The following “universal” drive cycle can be used as a guide to assist with re-setting monitors when a vehicle specific drive cycle cannot be located. This generic OBDII drive cycle begins with a cold start (coolant temperature below 122 degrees F and the coolant and air temperature sensors within 11 degrees of one another).

This condition can be achieved by allowing the vehicle to “sit” overnight, and then by beginning the drive cycle the next day. Most drive cycles will be difficult to follow exactly under normal driving conditions, so the driver should exercise caution, road safety, and courtesy to others.

1. Start the engine. Idle the engine in drive for two and a half minutes with the A/C and rear defroster on.
2. Turn the A/C and rear defrost off, and accelerate to 55 mph at half throttle.
3. Hold at a steady speed of 55 mph for three minutes.
4. Decelerate (coast down) to 20 mph without braking or depressing the clutch.
5. Accelerate back to 55 to 60 mph at ¾ throttle.
6. Hold at a steady speed of 55 to 60 mph for five minutes.
7. Decelerate (coast down) to a stop without braking.

If you would like more information on OBD or monitors, visit the following websites:

www.obdclearinghouse.com

www.obdiicsu.com

www.iatn.net

www.obdii.com

<http://autocenter.weber.edu/OBD-CH/vehicleoems.asp>

www.ncvecs.colostate.edu/

www.nastf.org

Motorist Fact Sheet

On-Board Diagnostics

A new vehicle inspection program is being introduced across New York State to decrease the emissions from motor vehicles and to reduce air pollution. The New York Vehicle Inspection Program (NYVIP) is designed to assist New York State comply with federal Clean Air Act requirements by including a new on-board diagnostic test (OBD II) for most 1996 and newer vehicles (light duty vehicles with a registered weight less than 8,501 pounds). This test will monitor the emissions control systems of applicable vehicles as part of the required annual vehicle inspection. The NYVIP program is a joint venture of the New York State Department of Motor Vehicles (DMV) and the New York State Department of Environmental Conservation (DEC).

How does the driver know there is a problem?

If a potential problem is detected, the vehicle's on-board computer illuminates a dashboard light that states either "Service Engine Soon," "Check Engine," or simply a symbol of an engine. This light, also referred to as the Malfunction Indicator Lamp (MIL), informs the driver that a problem has been detected and vehicle service is needed.



How can a vehicle fail the OBDII test?

There are five possible reasons or ways to fail an OBD inspection:

1. The MIL fails to light when the ignition key is in the on position and the engine is not running. This will be displayed as "Key On Engine Off: FAIL" on the receipt.
2. The MIL stays on when the ignition key is in the on position and the engine is running. This will be displayed as "Key On Engine Running: FAIL" on the receipt.
3. The vehicle's computer has commanded the MIL to light.
4. The NYVIP testing equipment cannot communicate with the vehicle's computer. This will be displayed as "OBD Communications Failed" on the receipt.
5. There are too many Readiness monitors reported as "Not Ready." The specific monitors that are not ready will be listed on the receipt.

Explanation of the reasons above.

1. The purpose of the MIL bulb check (when the ignition key is in the on position and the engine is not running) is to see if the MIL can illuminate. If it cannot light, there is no way for the system to alert the operator when a problem exists.
2. When the MIL stays on (when the ignition key is in the on position and the engine is running), the on-board computer is indicating a potential emissions-related problem with the vehicle.
3. The vehicle's computer has detected a problem and has signaled the Malfunction Indicator Lamp to light to alert the operator.
4. The OBD portion of the inspection could not be properly completed.
5. The OBD system has not completed its tests of the various components and systems it monitors to be able to make a determination of their condition.

What you should do if your vehicle failed.

For items 1 through 4, you should consult a qualified, trained service technician equipped with the appropriate diagnostic and repair equipment to perform OBD related service. For item 5, you should refer to your vehicle owner's manual for OBD/Readiness Driving Procedures or drive your vehicle in a normal fashion both at highway cruising speed and "stop and go" driving for a week before getting the vehicle re-inspected. If your vehicle failed only for item 5, not enough monitors set to ready and your current inspection sticker is expired, the testing equipment will issue you a 10-Day Extension. You should plan to get the vehicle re-inspected several days before the expiration of the 10-Day Extension, as it will be the only one issued.

How do I know if my vehicle is covered under warranty?

Federal law requires that the emission control systems on 1995 and newer model year vehicles be warranted for a minimum of 2 years or 24,000 miles. Additional warranty coverage for the on board computer and catalytic converter is extended to 8 years or 80,000 miles for these same vehicles. Many automakers provide extended warranty coverage beyond that required by law. Depending on the model year and mileage of your vehicle, emission system repairs may be covered by the manufacturer. Consult your vehicle's warranty documents or your vehicle dealer for more information.

What Do You Mean My Car's Not Ready?



A Consumer Guide to Readiness Monitor Failures as Part of the New York State Vehicle Inspection Program



WHAT IS A READINESS MONITOR?

Vehicles equipped with On Board Diagnostic II (OBDII), which includes most 1996 and newer vehicles under 8500 pounds, self-test their emission systems utilizing various monitors. Vehicles perform up to 11 system tests, depending on year, make and model of the vehicle. These tests are commonly referred to as "readiness monitors." The readiness monitors identify whether the vehicle's computer has completed the required "tests" while the vehicle is being driven.

If a test has been completed, the system status will be reported "ready." An uncompleted test will be reported "not ready." An OBDII vehicle will not pass the annual inspection unless the required monitors are "ready." The Inspection Receipt from the test equipment will identify monitors that are not ready.

The test equipment reads the OBDII and readiness monitor status as part of the vehicle's emissions inspection. The vehicle inspector cannot change the information reported by the vehicle.

HOW MANY MONITORS HAVE TO BE READY?

The US Environmental Protection Agency (EPA) guidelines allow up to two monitors to be in a "not ready" state for model year 1996 through 2000 vehicles and one monitor "not ready" for 2001 and newer model year vehicles.

WHAT CAUSES A "NOT-READY" REPORT?

Causes of a "not ready" report:

- Recent vehicle repairs in which diagnostic trouble codes have been cleared with a OBDII scan tool; or,
- if the battery had been recently disconnected or replaced; or,
- if the vehicle's computer requires a software update; or,
- a pending problem has not yet illuminated the "check engine" light.



WHAT DO I DO NOW?

To allow your vehicle's monitors to perform their tests and reset them to a "ready" state, your vehicle will have to be driven in a special way called a "drive cycle." Running through the drive cycle sets the readiness monitors so they can detect any emissions failures. Your vehicle's specific drive cycle can depend on the vehicle make and model, and which monitor needs to be reset. In most cases, two drive cycles are required, separated by a cool down period.

WHAT ARE MY OPTIONS?

If the only reason your vehicle failed the inspection was due to readiness monitors not being in a "ready" state, and your current inspection has already expired, the inspection software will issue a 10-day extension that will allow you to legally operate your vehicle on the highways. During those ten days, you can either:

1. Drive the vehicle as directed by your owner's manual (look under OBD); use the generic drive cycle on the back of this brochure; or consult with a qualified auto technician who can tell you how to complete a vehicle or monitor specific drive cycle. Be sure to return to the inspection station within ten days to get the vehicle reinspected.
2. Negotiate with the inspection station to have a technician perform the drive cycles according to manufacturer specific guidelines for a fee you will pay.

If you take the vehicle from the inspection facility to perform the drive cycle yourself, the inspection station operator can charge you an emission re-inspection fee, up to the maximum fee allowed for an original emission inspection.

HOW DO I AVOID THIS IN THE FUTURE?

Tips to consider:

1. If your check engine light comes on, do not wait until your annual inspection to get your vehicle repaired. Not only will it help clean the air, but it could save you a lot of time, as well as future repair and fuel costs.
2. Refer to your owner's manual to see if your car has a readiness monitor check. Some newer model vehicles have this function programmed in, which enables you to check your vehicle's monitors before an inspection.
3. Inspect your vehicle early! Do not wait until the end of the month to get your annual inspection.



GENERIC DRIVE CYCLE

The purpose of the OBDII drive cycle is to run your vehicle's onboard diagnostics. This, in turn, allows monitors to operate and detect potential malfunctions of your vehicle's emission system. The correct drive cycle for your vehicle can vary greatly, depending on the vehicle model and the monitors that need to be reset. When a specific drive cycle is not known, or drive cycle information is not available from an owner's manual, the generic cycle described below may assist with resetting your vehicle's monitors. However, this generic cycle may not work for all vehicles.

IMPORTANT: If you choose to use the generic drive cycle below, you must obey all traffic laws and drive in a safe manner.

1. The OBDII drive cycle begins with a cold start (coolant temperature below 122 degrees F and the coolant and air temperature sensors within 11 degrees of each other).
2. The ignition key must not be left on prior to the cold start - otherwise the heated oxygen sensor diagnostic may not run.
 - As soon as the engine starts, idle the engine in drive for two and one-half minutes, with the air conditioning (A/C) and rear defrost turned on, if equipped.
 - Turn the A/C and rear defrost off, and accelerate to 55 mph under moderate, constant acceleration. Hold at a steady speed of 55 mph for three minutes.
 - Decelerate (coast down) to 20 mph without braking (or depressing the clutch for manual transmissions).
 - Accelerate again back to 55 to 60 mph.
 - Hold at a steady speed of 55 to 60 mph for five minutes. Decelerate (coast down) to a stop without braking.



Skip the trip to DMV.
Please visit the DMV Internet
Office:

<http://www.nysdmv.com>

NEW YORK STATE DEPARTMENT OF MOTOR VEHICLES

David A. Paterson, Governor / David J. Swarts, Commissioner

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