

# THE NEW DRIVE CLEAN

## An Essential Guide for Members

We have borrowed heavily in this Issue of Front Line from "Drive Clean Best Practices for Used Car Dealers" produced by the Ministry of the Environment, Drive Clean Office. The entire document is linked on our website and may be viewed at [www.ucda.org](http://www.ucda.org) under **HOT TOPICS FOR DEALERS**.

As we told members in the November Front Line, big changes are coming to the Drive Clean Program in the New Year. Dealers in areas where emissions testing is required will be the first to be affected.

Starting January 1<sup>st</sup>, 2013 Ontario will join most other North American emissions inspection programs by requiring vehicles to be inspected with an On-Board Diagnostics ("OBD") test procedure.

### Talking to the Vehicle

The new Drive Clean emissions test for OBD equipped vehicles will "talk" to the vehicle's emissions control system through the vehicle's on-board computer.

There is no doubt that failure rates under OBD testing *will be higher than under the current test*.

### Ready for Testing?

One of the concerns with the new test will be getting the vehicle ready for testing.

Only older, pre-OBD vehicles will receive a tailpipe exhaust gas inspection.

Pre-OBD passenger cars and light trucks (1988-1997) will be tested for tailpipe emissions by the Two Speed Idle (gasoline) or visual smoke (diesel) tests.

Heavy SUVs and pickup trucks (1988-2006) over 3,856 kg will be treated like pre-OBD vehicles.

Heavy SUVs and pickup trucks (2007 and newer) between 3,856 kg and 4,500 kg will be tested by OBD.

Some things that can affect a vehicle's readiness are a recent battery replacement, a code reset, certain servicing or mechanical flaws. When non-readiness is caused by something other than a flaw of some sort, the vehicle will need to be driven for a period of time at different speeds to recreate a "diagnostic record" for the Drive Clean system to check ... and hopefully pass ... the OBD test.

The "readiness" issue may be less time consuming for vehicles newer than model year 2000. Longer drive times may be required for 1998 to 2000 model vehicles. Depending on the year and make, drive times can range from a few minutes to several days of city and highway driving.

A monitor is considered "Ready" when it successfully completes a check. If a monitor has not or cannot complete its check, it will report "Not Ready".

### How Does a Vehicle become "Not Ready"?

A vehicle's OBD computer memory can be cleared and all monitors set to "Not Ready" when:

- Vehicles sit on the lot for extended periods of time with a dead or disconnected battery.
- Engine repairs or maintenance temporarily interrupts battery power.
- Weak batteries, that can barely start an engine, will have voltage drops during cranking. The temporary voltage sag can also make the vehicle "Not Ready".
- Codes are reset.

Disconnecting the battery, a dead or weak battery, badly corroded connections, an electrical problem that causes a low voltage condition, or clearing the OBD computer codes prior to an emission test will result in an emissions test failure for Readiness.

### Drive Cycles

After power is restored, the vehicle needs to be driven under various conditions (drive cycles), to allow the OBD computer to check emissions systems and report each monitor "Ready" for an emissions test.

A vehicle can be difficult or impossible to get "Ready" when it has an emissions control system problem and may require repairs to make it ready. If enough monitors are "Not Ready" (have not completed their checks), the vehicle will fail its Drive Clean emissions test.

A period of city and highway driving will normally allow the OBD monitors to run and become "Ready". *Many vehicles with no emissions control system problems can become "Ready" with a few minutes of normal driving.*

Here is a suggested "generic drive cycle" that should allow most vehicles' OBD systems to become "Ready":

- Step 1: Make sure the vehicle has been parked for eight hours without a start.
- Step 2: Start the engine and let it idle in Drive for two-and-a-half minutes with the Air Conditioning (A/C) and rear defroster on.
- Step 3: Turn the A/C and rear defroster off. Drive the vehicle for 10 minutes at highway speeds.

Step 4: Drive the vehicle for 20 minutes in stop-and-go traffic.

Step 5: The drive cycle is complete.

For the 'generic drive cycle' to work the gas tank should be  $\frac{1}{4}$  to  $\frac{3}{4}$  full and the vehicle should be driven smoothly, avoiding rapid acceleration

Once "Ready", there may still be an emissions problem that turns the engine light (malfunction indicator lamp or "MIL") on and causes the vehicle to fail the Drive Clean emissions test.

### Malfunction Indicator Lights

When an emissions problem is detected on an OBD equipped vehicle, an instrument panel warning light called a Malfunction Indicator Light (MIL) turns on to alert the driver.

On some vehicles it will appear as a yellow engine symbol, CHECK ENGINE or SERVICE ENGINE SOON alert. Most vehicles use the following symbols to represent the MIL:



The purpose of the MIL is to warn that an emissions related problem needs to be repaired.

During normal operation, the MIL will turn on for a few seconds when the engine is first started and turn off when the engine is running. If you don't see these lights come on when starting up a vehicle, something is wrong.

If the MIL remains on, the OBD system is warning the driver that it has detected an emissions control system problem.

The OBD system will automatically turn off the MIL if the issue(s) that caused the problem are no longer detected.

This will happen when the OBD system checks a component or system three consecutive times and no longer detects the initial problem.

For example, if a gas cap was not properly tightened after refuelling, the OBD system detects an evaporative leak and turns on the MIL.

Once the gas cap is tightened, the OBD system will recognize this and the MIL will be turned off *after a few minutes to a few days of normal driving.*

## Repair and Retest

Repairs can create "more readiness" concerns.

Dealers will not know immediately if a repair has fixed a problem. The vehicle must drive through a cycle to allow the system to confirm if the repair fixed the problem and the vehicle can pass the test.


## Monitored Systems


The Drive Clean test Vehicle Inspection Report (VIR) includes a table of the Systems Monitored and their Status.


A vehicle's OBD computer checks emissions systems performance by monitoring data from the engine, transmission, fuel system, and emissions controls. Up to eleven (11) monitors check these major systems and components under specific operating conditions.

The exact number of monitors in any vehicle depends on the manufacturer's emissions control strategy. No vehicle has all 11 monitors present, so the "status" or condition of some monitors will be "Unsupported". For all of a vehicle's supported monitors, the "status" will be "Ready" or "Not Ready".

## Drive Clean Vehicle Emissions Inspection Report ("VIR")

ONTARIO DRIVE CLEAN PROGRAM VEHICLE EMISSIONS INSPECTION REPORT Test Date / Time: 2012-05-09 10:29 AM		
ONTARIO MINISTRY OF THE ENVIRONMENT		
<b>VEHICLE/ENGINE INFORMATION</b>		
Plate:	Year: 2004	Cylinders: 6
VIN:	Make: Pontiac	Engine Size (L): 3.8
Type: Re-test	Model: Grand Prix	GVWR (kg): 1500
<b>OVERALL TEST RESULT: FAIL</b>		
<b>OBD-II INSPECTION RESULTS</b>		
<b>Systems Monitored</b>	<b>Status</b>	<b>Malfunction Indicator Lamp (MIL) Results</b>
Misfire	Ready	Is the MIL operational? Yes
Fuel System	Ready	Is the MIL commanded on? Yes
Comprehensive	Ready	
Catalyst	Ready	<b>Diagnostic Trouble Codes (DTC) If Present</b>
Heated Catalyst	Unsupported	<b>DTC Description</b>
Evaporative System	Not Ready	P0420 Catalyst System Efficiency Below Threshold Bank 1
Secondary Air	Ready	
Oxygen Sensor	Ready	
Heated Oxygen Sensor	Ready	
EGR System	Ready	
Air Conditioning System	Ready	
<b>REPAIR COST LIMIT: \$450.00</b>		
Retain this copy for use on re-inspection. If the vehicle is being tested for purposes of resale, it is not eligible for a conditional pass and the vehicle must be repaired regardless of cost.		
The OBD inspection performed indicates problems with your emissions system. The vehicle must be repaired and retested. If emissions related repairs performed are greater than the Repair Cost Limit of \$450 then the vehicle may qualify for a Conditional Pass. If the vehicle is being tested for purposes of resale, it is not eligible for a conditional pass and the vehicle must be repaired regardless of cost.		
<b>FOR PIO USE ONLY</b>		<b>SECURITY CODE</b>
<b>DRIVE CLEAN FACILITY</b>		
DCF Name:	Report Number:	DCF #:
DCF Address:	Phone:	Analyzer Number:
Inspector ID:	Inspector's Signature:	Software Version: 12.5.1.5
<b>VEHICLE EMISSIONS INSPECTION QUESTIONS</b>		
For additional information, please contact the Drive Clean Call Centre 1-888-758-2999 www.driveclean.com		

ONTARIO DRIVE CLEAN PROGRAM VEHICLE EMISSIONS INSPECTION REPORT Test Date / Time: 2012-11-22 3:50 PM		
ONTARIO MINISTRY OF THE ENVIRONMENT		
<b>VEHICLE/ENGINE INFORMATION</b>		
Plate:	Year: 1998	Cylinders: 4
VIN:	Make: Ford	Engine Size (L): 2
Type: Initial	Model: Contour	GVWR (kg): 1300
<b>OVERALL TEST RESULT: FAIL - NOT READY</b>		
<b>OBD-II INSPECTION RESULTS</b>		
<b>Systems Monitored</b>	<b>Status</b>	<b>Malfunction Indicator Lamp (MIL) Results</b>
Misfire	Ready	Is the MIL operational? N/A
Fuel System	Ready	Is the MIL commanded on? No
Comprehensive	Ready	
Catalyst	Not Ready	<b>Diagnostic Trouble Codes (DTC) If Present</b>
Heated Catalyst	Unsupported	<b>DTC Description</b>
Evaporative System	Ready	
Secondary Air	Not Ready	
Oxygen Sensor	Ready	
Heated Oxygen Sensor	Not Ready	
EGR System	Not Ready	
Air Conditioning System	Ready	
<b>REPAIR COST LIMIT: \$450.00</b>		
Your Drive Clean test indicates there are problems with your emissions system. You need to repair these problems and then have your car retested before you can register, renew registration or sell your vehicle. Please speak to your Drive Clean technician for advice and options. For more information about the test results and options available to you including how to qualify for the Repair Cost Limit where applicable, please see the brochure "What if my vehicle fails" which your inspector should provide to you. You can also call the Drive Clean Contact Centre at 1-888-758-2999 or visit our website at www.driveclean.com.		
<b>FOR PIO USE ONLY</b>		<b>SECURITY CODE</b>
<b>DRIVE CLEAN FACILITY</b>		
DCF Name:	Report Number:	DCF #:
DCF Address:	Phone:	Analyzer Number:
Inspector ID:	Inspector's Signature:	Software Version: 12.10.31.5
<b>VEHICLE EMISSIONS INSPECTION QUESTIONS</b>		
For additional information, please contact the Drive Clean Call Centre 1-888-758-2999 www.driveclean.com		

ONTARIO DRIVE CLEAN PROGRAM VEHICLE EMISSIONS INSPECTION REPORT Test Date / Time: 2012-03-14 9:31 AM		
ONTARIO MINISTRY OF THE ENVIRONMENT		
<b>VEHICLE/ENGINE INFORMATION</b>		
Plate:	Year: 2004	Cylinders: 6
VIN:	Make: Pontiac	Engine Size (L): 3.8
Type: Re-test	Model: Grand Prix	GVWR (kg): 1500
<b>OVERALL TEST RESULT: PASS</b>		
<b>OBD-II INSPECTION RESULTS</b>		
<b>Systems Monitored</b>	<b>Status</b>	<b>Malfunction Indicator Lamp (MIL) Results</b>
Misfire	Ready	Is the MIL operational? Yes
Fuel System	Ready	Is the MIL commanded on? No
Comprehensive	Ready	
Catalyst	Ready	<b>Diagnostic Trouble Codes (DTC) If Present</b>
Heated Catalyst	Unsupported	<b>DTC Description</b>
Evaporative System	Ready	
Secondary Air	Ready	
Oxygen Sensor	Not Ready	
Heated Oxygen Sensor	Ready	
EGR System	Ready	
Air Conditioning System	Ready	
<b>REPAIR COST LIMIT: \$450.00</b>		
Thank you for maintaining your vehicle and meeting vehicle emissions standards. Bring this report with you when you register your vehicle. It is valid for one year. By law, all emissions control equipment must be installed and functioning at all times.		
<b>FOR PIO USE ONLY</b>		<b>SECURITY CODE</b>
<b>DRIVE CLEAN FACILITY</b>		
DCF Name:	Report Number:	DCF #:
DCF Address:	Phone:	Analyzer Number:
Inspector ID:	Inspector's Signature:	Software Version: 12.03.07.1
<b>VEHICLE EMISSIONS INSPECTION QUESTIONS</b>		
For additional information, please contact the Drive Clean Call Centre 1-888-758-2999 www.driveclean.com		

## Diagnostic Trouble Codes (DTC)

A good repair technician will follow the vehicle manufacturer's recommended diagnostic practices and procedures to determine and repair the specific source of the DTC problem.

A transmission problem can be directly related to the emissions control system and can turn the MIL on.

Transmission malfunctions can prevent a vehicle from running efficiently, increasing emissions above OBD standards.

Even if the OBD system is ready, if it detects an emissions related malfunction, a Diagnostic Trouble Code (DTC) is stored in the on-board computer and the Malfunction Indicator Lamp (MIL) on the instrument panel lights up. This means there is something wrong with the vehicle's emissions control system and it needs to be repaired.

The DTC on the VIR indicates the general area of the emissions failure and will help a repair technician determine the appropriate repairs.

The DTC does not provide the motorist or the repair technician with everything needed to repair the malfunction.

Aimlessly replacing parts will not work and can be potentially expensive. For example, an O2 sensor related DTC could be caused by an exhaust leak. In this case, replacing a properly functioning O2 sensor will not fix this problem.

## Readiness Tips

### Quick E-Check: Trade-in & Auctioned Vehicles

If possible, before purchasing or taking a vehicle on trade - do a quick emissions check. Plug a portable scan tool into the vehicle's Diagnostic Link Connector (DLC) to download all DTCs and check for Readiness:

- A vehicle with no Diagnostic Trouble Codes (DTC) and with all supported monitors "Ready" will mostly likely pass its Drive Clean inspection.
  - If DTCs are found or one or more monitors are "Not Ready" the vehicle will require repairs before it can pass a test.
- Check the thermostat operation, fuses, battery connections and wiring to the on-board computer.

- Inefficient catalytic converters may not allow the catalyst monitor to become "Ready".
- Use an "automotive memory saver" when replacing or disconnecting a battery during service to retain the OBD information rather than erasing it. These tools are relatively inexpensive and can be found at most automotive parts supply outlets.

## Keeping a Vehicle "Ready"

A vehicle with all its monitors "Ready" can stay "Ready" while sitting on your lot, by keeping the on board computers energized. To prevent the memory from being erased take the following precautions:

- Ensure car batteries stay charged and are not drained or disconnected,
- Regularly charge batteries – especially in winter,
- Test and replace weak batteries. The voltage sag during cranking may clear the monitors or prevent an emissions inspection from completing – causing it to be rejected,
- **Do not clear codes** when performing maintenance on a vehicle, and,
- When replacing or disconnecting a car battery, use an automotive "Memory Saver" device plugged into the Diagnostic Link Connector (DLC).

## Practical Tips

- When considering a vehicle to purchase or take as a trade, dealers need to be aware of whether the engine light stays on, or does not come on at all. In both cases, it will probably fail a test.
- To reduce problems dealers have in assessing vehicles we recommend that you consider buying a hand held OBD scanner. Prices can range from as low as \$60 to a few hundred dollars, depending on the functions of the scanner, and will be able to confirm "readiness" and, in some cases, identify what's wrong with a vehicle's emission system and what monitors or codes are related.
- 1998 to 2000 model year vehicles, two monitors are allowed to be "not ready" and the vehicle can still pass, for 2001 and newer vehicles, the limit is one monitor not "ready".
- After a repair DO NOT reset vehicle codes, drive the vehicle to let the cycle confirm the repair has succeeded.
- Drive Clean tests performed in 2012 will remain valid for 12 months, so it may be worthwhile to test as much of your inventory in December as possible, if they have not already passed a test in 2012.