# THE NEVADA CLEAN AIR BULLETIN

State of Nevada
Department of Motor Vehicles

Management Services and
Programs Division

555 Wright Way
Carson City, NV. 89711

**A NEVADA I/M PROGRAM INFORMATIONAL LETTER**

## *PRE-TESTING OR CODE CLEARING*

Article By: Gerald Howry

It has been noticed that some licensed emission inspectors are clearing diagnostic trouble codes and retesting vehicles before all of the monitors have run to completion without repairs made to the vehicles. This is a violation of NAC 445B.463 and can constitute grounds for suspension or revocation of license if you intentionally remove any data from an analyzer or vehicle onboard computer system. It is also a violation of NAC 445B.460 for a 1G station to check or clear diagnostic trouble codes. The only time you may clear codes is if you are employed at a 2G station and it is part of the diagnosis and repair procedure. Once you have made the repair and cleared a code, the affected monitor must run to completion before the vehicle is retested. If you clear codes for any reason other then diagnosis and repair at a 2G station you and your employer are subjected to possible fines, suspension or revocation of your license(s).

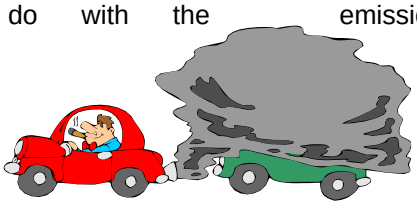
It has also been learned that some licensed emission inspectors are not verifying the MIL light operation and in some cases are aborting the test upon discovering that the MIL is illuminated. This is a violation of NAC 445B.5805 and can subject you to fines, suspension or revocation of your license(s). It is considered pre-testing if you send a vehicle away without a test because the MIL is illuminated. Please remember that you must test all required vehicles that are presented to your facility for an emissions test and that they must be tested in the condition in which they were received. **NO EXCEPTIONS!**

This reminder is to help you and your employer avoid sanctions against your license(s) because of incorrect test procedures, unauthorized aborting of tests and pre-testing.

## *ABOUT TRANSMISSION CODES*

Article By: Gerald Howry

Several customers have been coming to the Emissions Lab wondering why their vehicle failed the emissions test for a transmission code. They are especially irritated because the technician who performed their test told them that transmission codes have absolutely nothing to do with the emissions.



The Federal Test Procedure is performed with the vehicle completely encapsulated in a bag and all emissions from the vehicle are captured while the vehicle is operated under simulated driving conditions. The captured emissions are measured in grams per mile. The maximum allowed emissions for this test are the threshold for the Federal Test Procedure. Any component on the vehicle that could cause the emission to exceed 1.5 times the Federal Test Procedure will illuminate the MIL light. The two-speed

tailpipe test that we perform in Nevada does not even come close to duplicating the Federal Test Procedure for new vehicles.

If the transmission is not shifting properly (*not going into or out of overdrive, etc.*), then the engine will not be operating as designed which will cause the emissions to increase. A good example would be a vehicle that will not shift into overdrive. If it was designed to run in overdrive at 2500 RPM while cruising at 65 MPH and now it is running at 4000 RPM while cruising at 65 MPH, then it will obviously be emitting more pollution and exceeding the Federal Test Procedure threshold of 1.5 times. The same would apply to a vehicle that will not shift into first gear. If the vehicle starts out in second gear, it will be under a greater load then what the vehicle was designed for under this condition. This would cause the vehicle to exceed the FTP threshold.

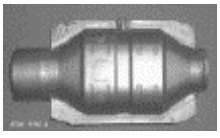
When a vehicle fails the OBDII emissions test for a transmission code, please tell your customer why the transmission code is related to the emissions failure. If you're still not sure, then refer them to the emissions lab, but at least let them know that transmission problems can effect the emissions of their vehicle.

**Remember!** Any code that causes the MIL to illuminate is an emissions related code, and must be repaired before the vehicle can pass the OBDII test.

## ***THE CATALYST AND OIL CONNECTION***

Kevin S. McCartney
Automotive Support Services
Training, Consulting, Product Development

Catalytic converters provide a huge emission reduction on most automobiles. Many Original Equipment Manufacturers (OEM) depend on catalysts to clean up 99% of exhaust emissions. That's a much bigger contribution to clean air than any other single component. A good catalytic converter can reduce NOx emissions from 2000 ppm to 20 ppm. That's a huge reduction!



We all know that catalytic converters fail, but what makes them fail? A catalyst doesn't get used up in the process of oxidizing or reducing emissions. It should theoretically last forever. Anything that causes a converter to overheat can quickly destroy it. In the case of extreme misfires, destruction can occur in less than a minute. But, contamination and sintering are the more common causes of converter failure.

Sintering is a process in which the continual heating and cooling of the substrate and wash coat eventually reduces the effective surface area and deficiency of the converter. Every catalytic converter will eventually degrade, but it should take a very long time to reduce efficiency enough to cause an emission failure (IE: ASM/IM240 test or OBDII).

Contamination is something we have more control over. Lead, Sulfur and Phosphorous are the primary contaminants that destroy converts. Lead has been removed from gasoline and should no longer be a problem. Sulfur and Phosphorous can get into the converter from gasoline or engine oil. They also increase EGR system deposits. The sulfur and phosphorous limits for gasoline are regulated by government agencies. It is pretty low and not something we have much control over. The phosphorous and sulfur that gets into the converter from engine oil is something we can control. And one automobile manufacturer has indicated that phosphorous may now be the primary cause of catalytic converter failure on some models during the emissions warranty period.

Sulfur and phosphorous from the oil enter the engine through the PCV system. The more volatile components in the oil vaporize and carry these contaminants into the intake manifold. Most of this happens during the first 300-500 miles after each oil change. Most volatile components vaporize from the oil within that first 500 miles after each oil change. So, changing oil more often will actually accelerate converter failure. The degree of impact depends on the amount of phosphorous and sulfur, and the volatility of the oil.

Car manufacturers have been concerned about the impact of oil on emission systems for years. Organizations in the United States and Japan combined to create new oil standards that would improve emission system life while simultaneously improving engine longevity and fuel efficiency. The International Lubrication Standardization and Approval Committee (ILSAC) is the organization that now develops standards for engine oil that indicates catalytic

converter compatibility, fuel efficiency and engine protection.

The ILSAC GF-1 standard was created in October of 1990 and quickly became the minimum requirement for oil used in American and Japanese automobiles. It was upgraded in October 1992 and then replaced by ILSAC GF-2 in 1996. ILSAC GF-3 replaced ILSAC GF-2 in 1997. Unfortunately, after over ten years, most automotive technicians still don't recognize the need to use ILSAC approved oil in catalytic converter equipped cars.

Some oil companies have compounded the problem with misleading labeling. One company commonly includes the claim: "Exceeds the engine protection requirements of ILSAC G-3" on products that actually fail to meet ILSAC approval. The claim is requirements, but they do not meet other requirements of ILSAC GF-3. Many technicians and consumers assume that the statement indicates the product meets all ILSAC requirements when in fact it does not.

Surveys have shown that the majority of technicians depend exclusively on brand loyalty, viscosity and the term "synthetic" in selecting engine oil. Brand names and synthetic claims are not reliable indications of anything. A federal trade commission judgment allows relatively common group II base stock oil to be advertised as full synthetic.

Many technicians select viscosity based on old habits instead of manufacturer recommendations. The result is that many cars receive engine oil that unnecessarily increases damage to the catalytic converter and the engine itself. This is especially true in warmer climates. Technicians often assume that thicker oil is required in warmer climates. They often end up with oil that is thicker but lower quality. IE: replacing a 5W-20 oil with a similarly priced 5W-30 will frequently represent a decrease in the quality of the base stock and increased likelihood of heat related damage and other problems. In addition to lubrication, oil also serves as a coolant, a hydraulic fluid for lash adjusters & variable cam timing, and impacts the life of emission systems.

General Motor's owner's manuals specifically state that the use of 10W-40 and 20W-50 viscosity is prohibited in their newer automobiles. There are no oil products in these viscosity's that have passed ILSAC GF-3 approval. ILSAC has introduced the new more stringent GF-4 rating that is required to further extend catalytic converter life on 2005 model year cars.

Using the wrong oil could jeopardize the emissions warranty. Catalytic converters are now covered under warranty for 70,000, 80,000, 100,000 or 150,000 miles depending on the certification level of the vehicle and the state of origin. ILSAC GF-4 oil can also extend the life of catalytic converters on older cars.

5W-30 and in many cases 5W-20 viscosity is recommended for most newer cars, but a few still require 10W-30. In most cases where 10W-30 is approved, 5W-30 is still the preferred viscosity. All of these are commonly available in ILSAC GF-3 approved products. ILSAC GF-4 is harder to find but also readily available. Many 5W-30 and 10W-30 products that are advertised for higher mileage vehicles are not ILSAC approved.

Even thinner oil is recommended for some colder climates. A very few European cars still require slightly thicker oil in the warmest climates. Thin high quality oil helps address oil pump cavitation, piston and right cooling; reduced passage size and cold start lubrication issues.

Many manufacturers have special proprietary requirements for the oil used in their cars. This is most common on European cars and cars with oil monitor systems. But, it also applies to most Fords, Hondas and some specialty models of other makes. Many experts agree that oil meeting more stringent long life ratings should be used when monitors are used to extend oil change intervals. Most manufacturers require this practice.

Technicians should familiarize themselves with the more stringent ACEA and proprietary oil rating systems in selecting the correct oil for these cars and vehicles that are subjected to severe or long life service. ACEA has 14 separate oil ratings that help identify oil that is appropriate for special applications. Information systems like "Mitchell on Demand" and All-Data list appropriate viscosity but often fail to include ACEA and proprietary requirements. The vehicle

owner's manual should be consulted when necessary.

Selecting the correct oil does take a little effort and familiarity with the various rating systems but it's worth it. The proper oil can increase fuel efficiency, reduce EGR maintenance, maximize catalyst life and improve air quality while insuring proper engine protection. Look for the ILSAC GF-4 approval to insure maximum emission system life, and look to ACEA and proprietary ratings for other special lubrication needs. Further training is available on this subject from parts distributors, industry organizations, TDJ events (tdjevents@sbcglobal.net or 713-725-1895), the author and others.

*Kevin McCartney provides emission related technical training throughout the county. He worked in research for California emission programs and served as a Master trainer for California's advanced level emission instructors. He can be contacted at* Crashh@prodigy.net or 209-873-1155.