



TECHNICAL SUPPORT DOCUMENT

COMAR 11.14.08 Vehicle Emissions Inspection Program

Purpose of Amendments

The primary purpose of these amendments is to update the Vehicle Emissions Inspection Program (VEIP) regulations to reflect changes to the program initiated in Fall 2009, including:

- Elimination of the IM240 dynamometer test;
- Mandatory gas cap testing for vehicles undergoing the idle test;
- Revised idle test standards for certain model year vehicles;
- Updated and expanded Fleet Inspection Station program; and
- Modified equipment requirements for Certified Emissions Repair Facilities.

Background

Since its inception in 1984, the VEIP has played a key role in Maryland's overall plan to achieve healthy air for all citizens. Motor vehicles produce over one-third of the emissions that contribute to Maryland's air quality problem of ground-level ozone. By requiring inspection of vehicle emissions systems every two years, and repair of vehicles that fail to meet emissions standards, VEIP significantly reduces ozone-forming emissions.

The VEIP is a centralized vehicle emissions inspection and maintenance program operated by a contractor and jointly administered by the Maryland Department of the Environment (MDE) and Motor Vehicle Administration (MVA). Generally, significant program modifications are timed to coincide with a new operations contract period. The latest VEIP operations contract expired on July 31, 2009, and the State determined that the timing was appropriate to implement some modifications to provide the most cost effective means of testing into the future years. A key change is the elimination of the IM240 dynamometer test.

The dynamometer test is being eliminated because over 85% of the current vehicle population is now subject to the on-board diagnostics (OBD) test, while the number that would be eligible for the dynamometer test is about 10% and declining as older vehicles are replaced with newer models. The dynamometer equipment is also almost 15 years old and maintenance-intensive. Accordingly, the VEIP operations contract effective August 1, 2009 – July 31, 2014 specifies OBD testing and idle testing.

Sources Affected and Location

Under the 2009 operations contract, the VEIP testing network consists of 18 inspection stations located in 13 counties and Baltimore City. Approximately 3 million vehicles are tested every two years. Vehicles that fail the emissions test must be repaired and pass a re-inspection at one of the centralized inspection stations.



Requirements

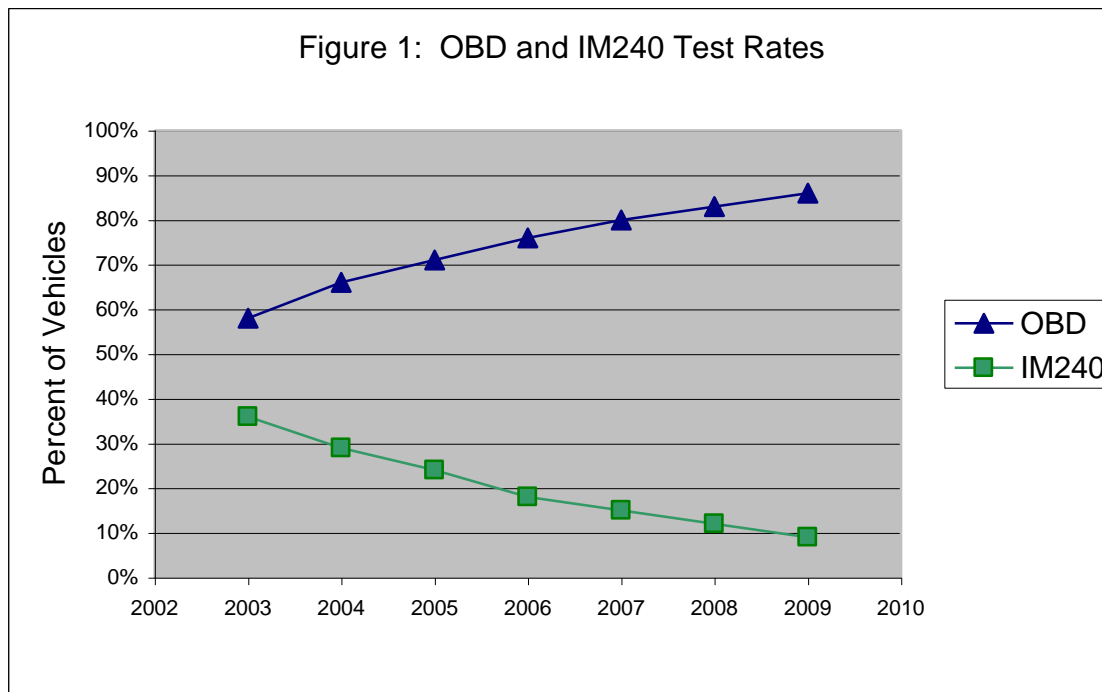
Test Procedures Prior to August 1, 2009

- OBD test for 1996 and newer passenger cars and light duty trucks.
- IM240 dynamometer test for 1984 – 1995 passenger cars and light duty trucks.
- Idle test and catalytic converter tampering check for 1977 – 1983 model year passenger cars and light duty trucks, and 1977 and newer heavy duty vehicles up to 26,000 lb.
- Advisory gas cap leak test for all subject vehicles.

Revised Test Procedures Effective August 1, 2009

- OBD test for 1996 and newer passenger cars and light duty trucks, and 2008 and newer heavy duty vehicles up to 14,000 lb.
- Idle test, catalytic converter tampering check, and mandatory gas cap leak test for 1977 – 1995 passenger cars and light duty trucks, 1977 – 2007 heavy duty vehicles up to 14,000 lb., and 1977 and newer heavy duty vehicles 14,000 – 26,000 lb.

Maryland initiated mandatory pass/fail OBD testing for model year 1996 and newer passenger vehicles and light duty trucks in July 2002. As shown in Figure 1, the percentage of vehicles subject to the OBD test has risen steadily, and OBD tested vehicles now comprise the vast majority of the VEIP population, while the number eligible for the IM240 dynamometer test continues to decline. The State has determined that the most cost effective approach at this juncture is to cease dynamometer testing and conduct the idle test on vehicles not equipped with OBD systems.



Also, heavy duty vehicles between 8,501 and 14,000 pounds became fully compliant with federal OBD requirements in model year 2008; therefore, model year 2008 and newer vehicles in this weight range are now subject to the OBD test rather than the idle test.

Mandatory Gas Cap Test for Idle Tested Vehicles

Under this action, idle tested vehicles must undergo a gas cap test. The gas cap test is a functional test that checks for leaks and proper seal of the gas cap, to reduce fuel evaporation. This test had previously been advisory only; however, vehicles that fail the gas cap test on August 1 and later must be fitted with a new gas cap and returned for retesting. The retest consists of the entire test procedure, including the idle test and gas cap test.

The mandatory gas cap test is not conducted on OBD-equipped vehicles because the OBD system checks the entire fuel system, including the cap.

Revised Idle Test Standards

Idle test standards have been updated, primarily for certain model year passenger vehicles and light duty trucks that had previously been subject to the IM240 test. The new standards were developed as result of a study of idle test standards and emissions measurements. In the study, VEIP idle test standards, and the distribution of vehicles exceeding the standards, were compared with those of other states. Several scenarios were tested with emissions measurement data from VEIP and other states.

The findings of the study were that the existing idle test standards are appropriate for passenger vehicles and light duty trucks in the 1984 – 1990 model year range, but revised idle test standards are needed for 1991 – 1995 models. The revised standards are necessary to reflect advances in emissions control system design and durability, and related lower emissions levels of the newer vehicles. Heavy duty vehicle idle test standards have also been revised, as the stringency of the manufacturer certification standards for newer model years has increased and emissions levels decreased.

Updated and Expanded Fleet Inspection Station Program

The change in test procedures allows the re-establishment of the Fleet Inspection Station (FIS) program, which licenses organizations with centrally maintained fleets to test their own vehicles. Frozen to new applicants since 1995, the FIS program will be expanded to include additional facilities, and updated to replace outdated reporting methods and stand-alone equipment.

Under the new program, each FIS will purchase or lease the FIS test equipment from the contractor that operates the centralized program. The equipment will include the fraud and error prevention functions found in the State VEIP stations, replacing the paper-based compliance system currently in place. The equipment will be fully automated and connected into the central data system, providing improvements in testing operations, automatic vehicle compliance reporting, and electronic purchase of testing authorizations. FIS program modifications will begin in Spring 2010, following the transition of the central VEIP stations.



Certified Emissions Repair Facility Program Revisions

The Certified Emissions Repair Facility (CERF) program is administered by MDE to ensure that motorists failing the VEIP test have access to high quality emissions-related repairs. CERFs employ highly skilled Master Certified Emissions Technicians and have the proper tools and reference information to perform effective repairs.

A CERF was previously required to own an exhaust emissions gas analyzer in addition to other repair equipment. However, most repairs are now for OBD failures, which do not require a gas analyzer for diagnostic or repair verification purposes. These amendments establish an alternative repair facility certification without a gas analyzer, suitable for shops that do not normally repair older passenger vehicles or heavy duty vehicles. Such CERFs will be advertised to motorists as equipped to repair OBD failures.

A CERF that chooses to retain the previous certification and keep the gas analyzer will be advertised as equipped to repair both idle test and OBD test failures. A gas analyzer costs approximately \$5,000; the alternative certification should encourage more repair businesses to become CERFs, thereby raising the overall availability of effective emissions-related repairs to the public.

Summary of Economic and Environmental Impact

This action establishes a requirement for Fleet Inspection Stations (FIS) to purchase or lease a testing system from the VEIP operations contractor, Environmental Systems Products, at an estimated purchase price of \$7,900 plus annual maintenance costs of approximately \$1,150. Previously, MDE provided a list of approved analyzers that a FIS could purchase. However, the equipment was stand-alone, not connected to the central VEIP stations, and compliance documentation was hand written. The new equipment corrects these inadequacies by providing full automation, and fraud and error prevention functions equal to those of the State VEIP station test equipment.

Vehicle repair businesses seeking Certified Emissions Repair Facility (CERF) licensing that choose the new optional certification level established by this action will not need to purchase an exhaust emissions gas analyzer, resulting in savings of approximately \$5,000. An existing CERF may choose to forego the analyzer it already possesses for licensing, and will experience minor savings in maintenance and operations costs, and future savings by not having to replace the analyzer at the end of its useful life.

The proposed action is not expected to have significant economic impact on any other entity.

This action replaces the idle test with the more appropriate OBD test for model year 2008 and newer heavy duty vehicles up to 14,000 pounds. This action also implements more stringent idle test standards for newer model year passenger vehicles and light duty trucks previously subject to the IM240 dynamometer test, as well as for newer heavy duty vehicles. The cessation of IM240 dynamometer testing, given the composition of the Maryland fleet as well as the concurrent start of a new operations contract period, reflects current EPA guidance. In total, the

changes are consistent with Maryland's ongoing efforts toward maximizing emissions reductions through a cost effective inspection and maintenance program that provides the high motorist acceptance necessary for success.

Submission to EPA as Revision to Maryland's SIP

This action will be submitted to EPA for approval as a revision to Maryland's Enhanced Vehicle Inspection and Maintenance SIP.

Applicable Federal Requirements

- Federal enhanced vehicle emissions inspection and maintenance requirements are specified in the Clean Air Act as amended in 1990 and in 40 CFR parts 51 and 85. The federal laws and regulations require certain elements while delegating authority to the State to design and implement a vehicle emissions inspection program.
- These amendments are not more restrictive than the federal requirements.