State of California

AIR RESOURCES BOARD

CALIFORNIA CERTIFICATION AND INSTALLATION PROCEDURES FOR ALTERNATIVE FUEL RETROFIT SYSTEMS FOR 2004 AND SUBSEQUENT MODEL YEAR ON-ROAD MOTOR VEHICLES AND ENGINES

[Note: This is a newly adopted regulation shown without underline as permitted by section 8, title 1, California Code of Regulations.]

Adopted: August 8, 2014

[Note: These procedures are incorporated by reference into section 2030 & 2031, title 13, California Code of Regulations.]

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California Certification and Installation Procedures for Alternative Fuel Retrofit Systems for 2004 and Subsequent Model Year On-Road Motor Vehicles and Engines.

1. APPLICABILITY

(a) “California Certification and Installation Procedures for Alternative Fuel Retrofit Systems for 2004 and Subsequent Model Year On-Road Motor Vehicles and Engines” (these procedures) apply to alternative fuel retrofit systems designed for installation on conventional fueled on-road vehicles and engines in the passenger car, light-duty truck, medium-duty vehicle, and heavy-duty engine and vehicle classes for 2004 and subsequent model years.

(b) Only these procedures shall be used to certify alternative fuel retrofit systems to the same or a more stringent emission standard than the standards to which the base vehicle or base engine was originally certified.

(c) A certification of an alternative fuel retrofit system issued pursuant to these procedures shall have the effect of a certification of an alternative fuel retrofit system pursuant to Health and Safety Code section 43006. A certification for an alternative fuel retrofit system utilizing any fuel, issued pursuant to these procedures shall have the effect of an exemption issued pursuant to Vehicle Code Section 27156.

2. DEFINITIONS

(a) The definitions in Section 1900(b), chapter 1, title 13 of the California Code of Regulations (CCR) apply to these procedures with the following additions:

(1) "Alternative fuel" refers to liquefied petroleum gas, natural gas, alcohol, alcohol/gasoline blend, or any fuel subject to any provision of title 13, California Code of Regulations, Sections 2290– 2293.5.

(2) "Alternative fuel retrofit system" or “retrofit system” is a package of fuel storage and delivery, ignition, emission control, on board diagnostic, and engine components that are modified, removed, or added during the process of modifying a motor vehicle or engine to operate on an alternative fuel.

(3) “Base vehicle” or “base engine” means a certified configuration of a motor vehicle or motor vehicle engine prior to any modifications necessary to operate on an alternative fuel or fuels.

(4) “Baseline test” means an emissions test of a motor vehicle or motor vehicle engine in a proper state of maintenance prior to any modifications necessary to operate on an alternative fuel.

(5) “Bi-fuel vehicle or engine” is any motor vehicle or motor vehicle engine that is designed to be operated on two fuels wherein the two fuels are stored on-board in separate fuel tanks and metered separately, but in operation the two fuels are combusted together continuously or during part of normal vehicle operation (i.e. vehicle start-up).

(6) "Conventional fuel" means gasoline or diesel fuel.

(7) "Drivability" of a vehicle refers to the smooth delivery of power, as demanded by the driver. Typical causes of drivability degradation are rough idling, misfiring, surging, hesitation, or insufficient power. Conversion from gasoline to gaseous fuels usually entails a loss of volumetric efficiency, resulting in some power loss. Normal power loss shall not be considered to be drivability degradation.

(8) "Dual-fuel vehicle or engine" is any vehicle or engine that is designed to be operated on either an alternative fuel or a conventional fuel, with separate fuel tanks for each fuel on-board the vehicle. In operation, only one fuel is used at a time.

(9) “Emission warranty information report” means emission warranty information report as defined by section 2144, title 13, CCR.

(10) “Heavy-duty engine” means a heavy-duty engine as defined in Section 1900, title 13, CCR.

(11) “Heavy-duty vehicle” means a heavy-duty vehicle as defined in Section 1900, title 13, CCR.

(12) "Installer" refers to a person who installs alternative fuel retrofit systems on motor vehicles and/or engines for compensation or consideration of value; but does not necessarily include any person that assembles or produces an alternative fuel retrofit system for resale. Installers must be registered as Automotive Repair Dealers under California Business and Professions Code, section 9880 through sections 9889.68.

(13) “Light-duty motor vehicle” refers to either a passenger car or light-duty truck.

(14) “Light-duty truck” means light-duty truck as defined in Section 1900, title 13, CCR.

(15) “Medium-duty vehicle” means a medium-duty vehicle as defined in Section 1900, title 13, CCR.

(16) “Passenger car” means a passenger car as defined in Section 1900, title 13, CCR.

(17) "Retrofit system manufacturer", "manufacturer," or “converter” refers to a person or company who manufactures or assembles an alternative fuel retrofit system for sale in California and requests or is granted the Executive Order certifying the alternative fuel retrofit system.

(18) “Small volume retrofit system manufacturer” or “small volume conversion manufacturer” means a manufacturer with total California annual sales of less than 4,500 alternative fuel retrofit systems in any given calendar year. A manufacturer’s California sales shall consist of all alternative fuel retrofit systems produced by the manufacturer and delivered for sale in California, except that alternative fuel retrofit systems produced by the manufacturer and marketed in California by another manufacturer under the other manufacturer’s nameplate shall be treated as California sales of the marketing manufacturer. The annual sales from different firms shall be aggregated in the following situations: (1) alternative fuel retrofit systems produced by two or more firms, one of which is 10% or greater part owned by another, except in circumstances for which the Executive Officer determines that 10% or greater ownership by one of the firms does not result in responsibility for overall direction of both firms; or (2) alternative fuel retrofit systems produced by any two or more firms if a third party has equity ownership of 10% or more in each of the firms; or (3) alternative fuel retrofit systems produced by two or more firms having a common corporate officer(s) who is (are) responsible for the overall direction of the companies; or (4) alternative fuel retrofit systems imported or distributed by all firms where the alternative fuel retrofit systems are manufactured by the same entity and the importer or distributor is an authorized agent of the entity.

(19) “Sunset” for the purposes of these procedures shall mean after the 2017 model year and will no longer apply to alternative fuel retrofit systems for 2018 and subsequent model year vehicles or engines. For alternative fuel retrofit systems for 2004-2017 model year vehicles or engines, the applicable procedures do not expire after the 2017 calendar year.

(20) “Useful life” for purposes of these procedures, means the duration, expressed in miles or time period, of the longest durability period for the new vehicle or engine emission standards to which the base vehicle or base engine was certified.

(21) “Warrantable condition” means any condition of an alternative fuel retrofit system that triggers the responsibility of the manufacturer to take corrective action pursuant to section 8 of these procedures.

(22) “Warranted part” means any part installed on a certified alternative fuel retrofit system, or installed in a warranty repair, which affects any regulated emissions from a previously certified vehicle or engine that is subject to any of the standards prescribed in the test procedures and the documents incorporated by reference herein.

(23) “Warranty period” means the period of time and mileage that the certified alternative fuel retrofit system or part thereof are covered by the warranty provisions.

3. GENERAL REQUIREMENTS

Overview: After submitting a request for certification pursuant to these procedures, manufacturers shall submit a test plan for approval prior to initiating any testing. Manufacturers must select for testing an emission test vehicle or engine that is representative of the vehicle or engine to be retrofitted for approval by the Executive Officer. The selection of vehicle models, engines, and transmissions must be approved by the Executive Officer as being representative of the engine families for which certification is sought, prior to the commencement of any testing.

The emission test vehicle or engine is then retrofitted with the alternative fuel retrofit system and driven for 4,000 miles or operated for 125 hours to ensure emissions stability. An emissions test is then performed to demonstrate compliance with the applicable emission standards. Durability testing is required; either through vehicle mileage accumulation, engine operation, or component bench aging, and another emissions test is performed to demonstrate compliance with applicable full useful life emission standards. Manufacturers must also perform tests to demonstrate compliance with the on-board diagnostic (OBD) requirements, provide a supplemental emissions control label and owner’s manual and meets warranty and installation requirements.

In addition to all other standards or requirements imposed, the following general requirements shall apply to all alternative fuel retrofit systems to be certified under these procedures:

(a) Minimum Product Specifications: Alternative fuel retrofit systems for gaseous fuels shall be equipped with a lockoff valve, actuated by an electrical or

vacuum signal, preventing delivery of fuel to the fuel injection system while the engine is shut down and shall be equipped with or designed to operate successfully with any feed-back or feed-forward controls of the base vehicle or engine.

(b) Drivability: The drivability of a vehicle equipped with an alternative fuel retrofit system shall not be degraded in such a way as to encourage consumer tampering. To verify that the drivability of a retrofitted vehicle is acceptable, the Executive Officer may require that an independent laboratory evaluate drivability. The Executive Officer's determination that drivability is acceptable must be based on an engineering evaluation of the alternative fuel retrofit system described in the application for certification or on reports or observations that alternative fuel retrofit systems similar in design to the system for which certification is sought have caused drivability degradation. The cost of this evaluation shall be borne by the manufacturer.

(c) On-Board Diagnostic (OBD) System Compatibility: If the vehicle/engine to be retrofitted was certified with an on-board diagnostic (OBD) system, pursuant to sections 1968.2, 1971, or 1971.1, title 13, California Code of Regulations (CCR), all applicable OBD requirements (e.g., monitoring, standardization, certification, demonstration) remain applicable with the exception of the changes and allowances made in these procedures. As such, the proper function of the on-board diagnostic system shall not be impaired as a result of the installation and operation of the alternative fuel retrofit system. This includes, but is not limited to, ensuring the converted vehicle’s or engine’s OBD system robustly detects malfunctions at the required emission thresholds, meets the required minimum monitoring frequency requirements, implements required monitors for applicable added or modified electronic hardware or emission controls, complies with standardization requirements, and is subject to required demonstration and production vehicle and engine testing. These requirements may necessitate modification of the original vehicle or engine OBD system. All modifications affecting OBD compliance including added, modified, or removed original vehicle hardware, (e.g., components, wiring) or software (e.g., programming, calibration) must be fully documented and described as part of the alternative fuel retrofit system certification application.

(d) No component or calibration of the alternative fuel retrofit system that could affect emission performance shall be adjustable by the system installer or the vehicle's user.

(e) Emission Control Label: The emissions control label requirements in title 13, CCR, Section 1965, shall apply to installations of alternative fuel retrofit systems, with the following additions:

(1) The alternative fuel retrofit system manufacturer shall provide a supplemental Emission Control Information label, which shall be affixed in a permanent manner to each retrofitted vehicle, in a location adjacent to the original Emission Control Information Label. If the supplemental label cannot be placed adjacent to the original label, it shall be placed in a location where it can be seen by a person viewing the original label

(2) The supplemental label shall show the vehicle or engine model year; applicable emission standards; Executive Order number certifying the alternative fuel retrofit system; retrofit system manufacturer's name, address, and telephone number; and shall state that the retrofitted vehicle or engine complies with California emission requirements. If the retrofit system has been certified as being capable of certifying the base vehicle or engine to a more stringent emissions standard, the label shall also display the applicable vehicle emission category of the converted vehicle or engine (e.g., ULEV, SULEV, etc.) The label shall also list any parts that were added and removed during installation of the alternative fuel retrofit system, as well as any changes in tune-up specifications required for the alternative fuel retrofit system. In addition, the label shall show the installer's name, address, and telephone number; date and mileage (retrofitted vehicle odometer reading) on which the alternative fuel retrofit system was installed; and date and mileage at which the alternative fuel retrofit system warranty expires. It is not necessary for emission control labels installed with alternative fuel retrofit systems to be machine readable. The supplemental label for an alternate fuel retrofit system shall clearly state that the vehicle or engine has been equipped with an alternative fuel retrofit system designed to allow it to operate on a fuel other than gasoline or diesel and shall identify the fuel(s) that the vehicle or engine is designed to use.

(f) Owner's Manual: Each alternative fuel retrofit system installed shall include an owner's manual containing at least the following information:

(1) a brief description of the alternative fuel retrofit system, including major components and their theory of operation;

(2) the correct refueling procedure for the alternative fuel retrofit system;

(3) a listing of necessary service and service intervals, as well as tune-up data, which differ from the service requirements specified by the vehicle's or engine's original manufacturer;

(4) the name, address, phone number, and website, if available, of the manufacturer and installer, as well as a list of the names, addresses, and phone numbers of the major dealers in California who supply parts for, or service, the alternative fuel retrofit system; and

(5) warranty information.

(g) Warranty Notification: Notification to the alternative fuel retrofit system purchaser stating that installation of the alternative fuel retrofit system may affect the original equipment manufacturer's warranty. This notification must be signed by the purchaser prior to sale of the alternative fuel retrofit system and must maintained by the retrofit system manufacturer for the duration of the warranty period and must be supplied upon the request of the Executive Officer.

(h) Manufacturer Recordkeeping and Reporting Requirement: Retrofit system manufacturers shall maintain a record of the vehicle identification numbers or engine serial numbers and California license plate numbers of those vehicles or engines on which their alternative fuel retrofit systems have been installed. As part of this record, retrofit system manufacturers shall identify the installation date and the certification Executive Order number of those alternative fuel retrofit systems installed on each vehicle or engine and shall identify the vehicle or engine owner at the time of installation, including the owners' current addresses and phone numbers at the time of installation. The retrofit system manufacturer shall supply a copy of all installation information to the Executive Officer upon request. In addition, each retrofit system manufacturer shall report annual sales based on a standard calendar year for each certified alternative fuel retrofit system, identified by certification Executive Order number, to the Executive Officer by March 1 of the following calendar year.

(i) Installer Recordkeeping Requirement: Installers of alternative fuel retrofit systems shall maintain a record as specified in paragraph 3(h) of these procedures and shall provide this information to retrofit system manufacturers upon request.

4. EMISSION STANDARDS

(a) Test Vehicle or Engine: A maximum of one emission-data vehicle or engine per test group or engine family for which certification is sought shall be required. Each emission-data vehicle or engine, regardless of actual miles or hours of operation accumulated, shall be assumed to have zero miles or hours of operation accumulated at the time the

alternative fuel retrofit system is installed in the base vehicle or engine. Emission tests shall be performed on the emission-data vehicle or engine with at least 4,000 miles or 125 hours accumulated after the retrofit to stabilize emissions. Manufacturers may conduct emissions testing at zero miles or hours of operation to verify emission compliance.

(1) Mileage accumulation shall be representative of actual vehicle or engine use and may be acquired by driving the vehicle on the road or bench aging, provided that the manufacturer has prior approval by the Executive Officer.

(2) Vehicle mileage accumulation on a durability vehicle, engine hour accumulation on a durability engine, or bench aging of retrofit system components shall be conducted to determine deterioration factors. Before beginning any emission testing or bench aging, an applicant's test plan must be approved by the Executive Officer. The Executive Officer approval of bench aging procedures shall be contingent upon a demonstration by the applicant that bench aging produces deterioration factors at least as great as those resulting from durability vehicle or durability engine testing.

(3) Bench aging conducted in lieu of vehicle mileage accumulation or engine hour operation shall be conducted for a period of time such that the resulting deterioration of the alternative fuel retrofit system is equivalent to that which would occur during durability vehicle mileage accumulation over a mileage equal to the useful life applicable to the vehicle, or equivalent to that which would occur during durability engine hour operation over the useful life applicable to the engine.

(4) Manufacturers may submit proposals to utilize alternative test methods to the Executive Officer, such as the use of portable emission measurement systems (PEMS) in lieu of mileage or engine hour accumulation (e.g., manufacturers certifying systems for heavy-duty engines and vehicles that were originally certified under an engine-dynamometer test procedure may propose an alternative test method using PEMS). Manufacturers must also include in their proposals the criteria used to demonstrate equivalency to the applicable emissions standard (e.g., the level of PEMS emissions that is equivalent to the exhaust emissions standard as generated from an engine dynamometer). The Executive Officer shall approve the use of alternative test methods based on his or her determination that such test methods will generate test results that are sufficiently similar to the test results generated by a specified test method, and that the alternate test method criteria is sufficiently equivalent in stringency as the

applicable emissions standards as generated by applicable test procedures. The Executive Officer shall base his or her determination upon all information submitted by a manufacturer and upon good engineering judgment.

(b) Dual-Fuel and Bi-Fuel Vehicles:
Dual-fuel and Bi-fuel vehicles must be tested on each of the two fuels. The emissions standards of both fuels must be the same vehicle emission category that is applicable to the base vehicle (e.g., a base vehicle is a gasoline-fueled passenger car certified to the ULEV vehicle emission category of the LEV II standards in title 13, California Code of Regulations (CCR), section 1961. If that base vehicle is converted to a dual-fuel vehicle, the alternative fuel retrofit system must demonstrate compliance with the ULEV vehicle emission category standards for both fuels).

(c) Exhaust Emission Standards:
Exhaust emissions from alternative fuel retrofit systems that are manufactured for sale, sold, or offered for sale in California, or that are introduced, delivered or imported into California commerce and that are subject to any of the standards prescribed in this article must not exceed the emission standards to which the base vehicle or base engine was originally certified. The retrofit system manufacturer shall demonstrate compliance with these requirements through durability and emission testing. For heavy-duty vehicle applications where alternate test procedures have been approved by the Executive Officer, retrofit system manufacturers may propose appropriate standards for Executive Officer approval.

(d) Evaporative and Refueling Emission Standards:
Evaporative and refueling emissions from alternative fuel retrofit systems that are subject to any of the standards prescribed in this article and the documents incorporated by reference herein shall at a minimum meet the same emission standards to which the base vehicle was originally certified, except as allowed in 4(d)(1)below:

(1) Alternative Fuel Retrofit Systems with Sealed Fuel Systems: Alternative fuel retrofit systems that have sealed fuel systems which can be demonstrated to have no evaporative emissions are exempt from testing the evaporative emissions. Demonstrations may be based on an engineering evaluation of the alternative fuel retrofit system and data submitted by the retrofit system manufacturer and must show that the alternative fuel retrofit system has no evaporative-related emissions under normal operation. All such demonstrations must be approved in advance by the Executive Officer.

5. TEST PROCEDURES

(a) The test procedures used to determine the emission levels of alternative fuel retrofit systems certified for use with passenger cars, light-duty trucks, and medium duty vehicles which were originally certified to an exhaust emission standard based on a chassis-dynamometer test procedure are set forth in the following test procedures:

(1) The test procedures for determining compliance with the LEV II exhaust emission standards in title 13, CCR section 1961 are set forth in the "California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as last amended December 6, 2012, and the "California Non-Methane Organic Gas Test Procedures," as last amended December 6, 2012, which are incorporated herein by reference. In the case of hybrid electric vehicles, the certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the "California Exhaust Emission Standards and Test Procedures for 2005 through 2008 Model Zero-Emission Vehicles, and 2001 through 2008 Model Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962, the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.1, and the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes" incorporated by reference in section 1962.2.

(2) The test procedures for determining compliance with the greenhouse gas emission levels from new 2009 through 2016 model year passenger cars, light-duty trucks and medium-duty passenger vehicles in title 13, CCR section 1961.1 are set forth in "California 2001 through 2014 Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2009 through 2016 Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," incorporated by reference in section 1961(d). In the case of hybrid electric vehicles, the certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in

the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.1.

(3) The test procedures for determining compliance with the LEV III exhaust emission standards in title 13, CCR section 1961.2 are set forth in the "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as last amended December 6, 2012, the "California Non-Methane Organic Gas Test Procedures," as last amended December 6, 2012, which are incorporated herein by reference. In the case of hybrid electric vehicles, the certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.1, and the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.2.

(4) The test procedures for determining compliance with the greenhouse gas emission levels from new 2017 and subsequent model year passenger cars, light-duty trucks and medium-duty passenger vehicles in title 13, CCR section 1961.2 are set forth in "California 2015 and Subsequent Model Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," incorporated by reference in section 1961.2. In the case of hybrid electric vehicles, the certification requirements and test procedures for determining compliance with the emission standards in this section are set forth in the "California Exhaust Emission Standards and Test Procedures for 2009 through 2017 Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.1, or the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent Model Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," incorporated by reference in section 1962.2, as applicable.

(5) The test procedures for determining compliance with the evaporative emissions standards for 2001 and subsequent model year motor vehicles are set forth in “California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles” incorporated by reference in title 13, CCR section 1976(c).

(6) The test procedures for determining compliance with the vehicle refueling emissions standards for 2004 and subsequent model motor vehicles are set forth in “California Refueling Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles,” adopted August 5, 1999, and last amended March 22, 2012, which is incorporated herein by reference in title 13, CCR section 1978(b).

(b) The test procedures used to determine emission levels of alternative fuel retrofit systems certified for use with heavy-duty engines, medium-duty vehicles that are incomplete, or diesel vehicles of 8,501-14,000 pounds gross vehicle weight rating (GVWR) which were originally certified under an engine-dynamometer test procedure, are set forth in the following test procedures:

(1) The test procedures for determining compliance with the exhaust emission standards in title 13, CCR section 1956.8(a)(2)(A) are set forth in the “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel-Engines and Vehicles,” adopted December 12, 2002, as last amended April 18, 2013, and the “California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes,” adopted October 24, 2002, which are incorporated by reference herein.

(2) The test procedures for determining compliance with standards in title 13, CCR section 1956.8(c)(1)(A) or (c)(1)(B) are set forth in the “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines,” adopted December 27, 2000, as last amended April 18, 2013, the “California Non-Methane Organic Gas Test Procedures,” adopted July 12, 1991, as last amended December 6, 2012, and the “California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes,” adopted October 24, 2002, which are incorporated by reference herein.

(c) For the applicable test procedures listed in section 5 of these procedures, the following exceptions shall apply:

(1) Where applicable, retrofit system manufacturers certifying natural gas or liquefied petroleum gas alternative fuel retrofit systems may use a

multiplier of 1.5 times their measured non-methane hydrocarbon (NMHC) results to determine compliance with the non-methane organic gas (NMOG) standards.

(2) Until the sunset, manufacturers of dual-fueled vehicles or engines may request to be exempted from performing required emissions testing on the original fuel of the base vehicle or base engine. All such requests must be approved in advance by the Executive Officer. The Executive Officer shall approve a manufacturer's request for an exemption if the retrofit system manufacturer demonstrates to the Executive Officer that the alternative fuel retrofit system does not alter or interfere with the normal operation of the base vehicle or base engine's original emission control system and will not affect the operation of the base vehicle or base engine's original emission control system. Demonstrations may be based on an engineering evaluation of the alternative fuel retrofit system and data submitted by the retrofit system manufacturer. The Executive Officer shall base his or her determination upon all information submitted by a manufacturer and upon good engineering judgment.

(3) Until the sunset, the following exceptions shall apply to small volume retrofit system manufacturers:

(A) All exhaust and evaporative emission testing for natural gas alternative fuel retrofit systems may use natural gas test fuel that meets the Federal natural gas certification fuel specifications as identified in the Code of Federal Regulations (40CFR), Part 86.1313-2007, dated July 01, 2011 which is incorporated by reference herein. This option requires retrofit system manufacturers to provide a fuel analysis with their final emission results using American Society for Testing and Materials (ASTM) test method listed in 40CFR, Part 86.1313-2007, which is incorporated by reference therein, to validate that the test fuel meets the federal natural gas certification fuel specifications. Commercially available natural gas fuel may be used for service accumulation without analysis.

(B) All exhaust and evaporative emission testing for liquefied petroleum gas (LPG) may use LPG test fuel that meets ARB motor-vehicle LPG fuel specifications as identified in title 13, CCR, section 2292.6, last amended December 08, 1999 which is incorporated by reference herein. This option requires applicants to provide a fuel analysis with their final emission results using ASTM test methods listed in title 13, CCR, section 2292.6, last amended December 08, 1999 which are incorporated by reference therein, to validate that the test fuel meets ARB motor-

vehicle fuel specifications. Commercially available LPG fuel may be used for service accumulation without analysis.

(C) Deterioration factors (DF) to determine compliance with applicable emission standards may be used in lieu of intermediate or high mileage emission tests. ARB shall provide assigned DFs to manufacturers. If no ARB assigned DFs are available, manufacturers may use the assigned DF's, as published by the U.S. EPA National Vehicle and Fuel Emissions Laboratory guidance letter CD-12-07 (Revised) dated March 30, 2012 and incorporated by reference herein, where applicable or may propose another DF in the absence of a U.S. EPA assigned DF. In proposing a DF the retrofit system manufacturer must demonstrate using test data, that the proposed DF is appropriate for use in determining compliance with the applicable emission standards. All such demonstrations must be approved in advance by the Executive Officer. The Executive Officer shall base his or her determination upon all information submitted by a manufacturer and upon good engineering judgment.

(D) Test procedures other than those specified in this Procedure may be used only if prior written approval is obtained from the Executive Officer. For purposes of this procedure, a test procedure is a methodology used to determine, with a high degree of accuracy, precision, and reproducibility, the value of a specified parameter. Once the test procedure is utilized to generate test data, the results are compared to the applicable requirements. The Executive Officer shall base his or her determination whether a proposed alternate test procedure may be used upon all information submitted by a manufacturer and upon good engineering judgment.

6. ON-BOARD DIAGNOSTIC (OBD) REQUIREMENTS FOR RETROFIT CERTIFICATION

(a) All applicants must provide a Statement of Compliance, in writing, that the requirements of section 3(c) of these procedures have been met prior to receiving certification of their alternative fuel retrofit system. Specifically, except as provided in 6(b) and 6(c), manufacturers of retrofit systems must comply with section 1968.2, 1971, or 1971.1, title 13, CCR, as applicable, for OBD requirements applicable to the model year of the base engine/vehicle.

(b) Except as allowed in 6(b)(1), 6(b)(2), and 6(c) below, small volume retrofit system manufacturers of systems designed to convert gasoline base vehicles/engines subject to section 1968.2, title 13, CCR must comply with section 1968.2, title 13, CCR for OBD requirements applicable to the model

year and fuel type(s) of the converted engine. For the specific sections identified below, in lieu of complying with all applicable OBD requirements per section 1968.2, title 13, CCR, the manufacturer may use the following alternative criteria in 6(b)(1) or (2). For small volume retrofit system manufacturers certifying systems to section 1971 or 1971.1, title 13, CCR, or systems designed to convert diesel base vehicles/engines subject to section 1968.2, title 13, CCR, the manufacturer may propose a plan for Executive Officer approval to apply the provisions of 6(b)(1) and (2) below to the applicable sections of 1971, 1971.1, or 1968.2, title 13, CCR. The Executive Officer will approve the plan based on the appropriate application of these provisions to the applicable sections of 1971, 1971.1, or 1968.2.

(1) For applicants certifying to the same emission standard as the base vehicle or engine:

(A) Section 1968.2(e)(6.2.1)(C): If the OBD system on the base engine/vehicle has a dedicated monitor to detect air-fuel ratio cylinder imbalance malfunctions specified in section 1968.2(e)(6.2.1)(C), title 13, CCR, the applicant may waive detection of the malfunctions by the dedicated monitor if the applicant demonstrates that the OBD system robustly detects (e.g., meets the in-use monitoring frequency requirements, avoids false passes and false indications of malfunctions) the imbalance malfunctions by using another monitor to detect them.

(B) Section 1968.2(h)(2.3): Durability requirements for OBD test vehicles: In lieu of using a vehicle required under section 1968.2(h)(2.3), title 13, CCR, applicants may use one of the following test vehicle configurations until the sunset (i.e., up to and including the 2017 model year):

1. A vehicle with the catalyst system and oxygen sensors aged per the bench aging cycle as specified in 6(b)(1)(B)1.a. through e. below. When conducting the aging, the catalyst system and oxygen sensors shall be placed and aged consistent with the test vehicle original equipment manufacturer (OEM) catalytic converter configuration (i.e., such that the relative distance between catalytic converter(s) and oxygen sensor(s) is maintained). Notwithstanding the above, aging with the downstream catalytic converter(s) located closer to the upstream converter(s) (i.e., in a hotter environment) than in their OEM configured positions is also acceptable to the ARB. Unleaded gasoline fuels commercially available in the United States shall be used during the aging.

a. Adjust parameters until stoichiometric operation is achieved with inlet temperature, exhaust flowrate, carbon monoxide (CO) concentration, and oxygen (O_2) concentrations specified in Mode No. 1 in Table 6.1.

b. Add enrichment until CO concentration specification of Mode No. 2 is achieved to determine enrichment amount to be used for Mode Nos. 2 and 3 in Table 6.1.

c. Remove enrichment and return to stoichiometric operation at Mode No. 1 specifications in Table 6.1.

d. Add air injection until O_2 concentration of Mode No. 4 is achieved to determine air injection flow rate to be used for Mode Nos. 3 and 4 in Table 6.1.

e. Perform aging cycling through Mode Nos. 1-4 in Table 6.1 for 100 hours.

6.1 Rapid Aging Test Procedure

Mode No.	Description	Parameter	Specification
1	Stoichiometric Fuel-Air Ratio (Closed-Loop)	Inlet Temperature	$825^{o}C \pm 20^{o}C$
		Exhaust Flowrate	80 SCFM[1] per catalytic converter
		Time Duration	40 seconds
		CO concentration	≤ 1.0%
		O_2 concentration	≤ 1.0%
2	Fuel-Rich Operation (Power Enrichment) (Open-Loop)	Time Duration	6 seconds
		CO concentration set for	3.0%±0.3%
3	Fuel-Rich Operation with Air Injection	Time Duration	10 seconds
		Amount of Enrichment	same as used in Mode No. 2
		Air Injection Flow Rate	same as used in Mode No. 4
4	Stoichiometric Operation with Air Injection (Closed-Loop)	Time Duration	4 seconds
		O_2 concentration	3.0%±0.3%

2. An in-use vehicle that has been converted with the applicant's alternative fuel retrofit system and has subsequently accumulated actual in-use mileage in excess of 25,000 miles on the alternative fuel. The proposed test vehicle must be complete, intact, and representative of the test group included in the application for certification. No component/system changes of the proposed test vehicle during mileage accumulation are allowed.

(C) Section 1968.2(h)(3): Demonstration testing requirements for certification: In lieu of meeting the testing requirements in section 1968.2(h)(3), title 13, CCR, applicants may use an alternative test plan that meets the following criteria in 6(b)(1)(C)1. through 4. until the sunset (i.e., up to and including the 2017 model year). After the

[1] "SCFM" refers to standard cubic feet per minute.

sunset (i.e., for 2018 and subsequent model years), applicants may use the testing requirements in 6(b)(2)(B):

1. *Section 1968.2(h)(3.1): Exhaust Gas Sensors:* Applicants may propose a single test using the worst case slow response pattern (e.g., symmetric slow response, asymmetric slow rich to lean transition) provided they can demonstrate, using good engineering judgment, that the pattern selected is the worst case in terms of affecting vehicle emissions with the least amount of sensor degradation. This testing shall be limited to the primary sensors. If the exhaust system contains exhaust gas sensors in parallel, the test shall be performed with the "parallel" sensors equally deteriorated. For other monitors required to be tested under section 1968.2(h)(3.1) (e.g., monitors that detect other sensor parameters that can cause emissions to exceed the malfunction threshold), the applicant shall meet the criteria of 6(b)(1)(C)4. below.

2. *Section 1968.2(h)(3.4): Fuel System:* For vehicles with adaptive feedback based on the primary fuel control sensor(s), applicants shall perform tests with the adaptive feedback based on the primary fuel control sensor(s) at the rich and lean limit(s) per the requirements of section 1968.2, title 13, CCR. For other monitors required to be tested under section 1968.2(h)(3.4) (e.g., monitors that detect malfunctions of the feedback based on a secondary fuel control sensor that can cause emissions to exceed the malfunction threshold), the applicant shall meet the criteria of 6(b)(1)(C)4. below.

3. *Section 1968.2(h)(3.7): Catalyst System:* Applicants shall perform a test using a catalyst system deteriorated to the malfunction criteria per the requirements of section 1968.2, title 13, CCR. If the catalyst system contains catalysts in parallel, the test shall be performed with the "parallel" catalysts equally deteriorated. If the MIL first illuminates after emissions exceed the applicable emission threshold specified in section 1968.2(e), title 13, CCR, in lieu of the 25-percent upper and lower limits specified in section 1968.2(h)(6.4.2)(B), title 13, CCR, the manufacturer shall use upper and lower limits of 50 percent of the applicable standard.

4. *Remaining Monitors*: Applicants may request a waiver from testing the remaining monitors (i.e., monitors specified under section 1968.2(h)(3), title 13, CCR, except for the monitors demonstrated per 6(b)(1)(C)1. through 3. of these procedures). The Executive Officer shall approve the request

provided the applicant submits a statement attesting the underlying emission controls (e.g., exhaust gas recirculation (EGR) hardware and control calibration) of the waived monitors (e.g., EGR flow monitor) and the waived monitors themselves were not changed by the application of the alternative fuel retrofit system.

(2) For applicants certifying to a more stringent emission standard than the base vehicle or engine:

(A) Section 1968.2(e)(6.2.1)(C): If the OBD system on the base engine/vehicle has a dedicated monitor to detect air-fuel ratio cylinder imbalance malfunctions specified in section 1968.2(e)(6.2.1)(C), title 13, CCR, the applicant may waive detection of the malfunctions by the dedicated monitor if the applicant demonstrates that the OBD system robustly detects (e.g., meets the in-use monitoring frequency requirements, avoids false passes and false indications of malfunctions) the imbalance malfunctions by using another monitor to detect them.

(B) Section 1968.2(h)(3): Demonstration testing requirements for certification: In lieu of meeting the testing requirements in section 1968.2(h)(3), title 13, CCR, applicants may use an alternative test plan that meets the following criteria in 6(b)(2)(B)1. through 2.:

1. *Sections 1968.2(h)(3.1), (h)(3.4), and (h)(3.7): Exhaust Gas Sensors, Fuel System, Catalyst System:* Applicants may use the alternative test plans specified in 6(b)(1)(C)1. through 3. above. For other monitors required to be tested under sections 1968.2(h)(3.1) and (h)(3.4) (e.g., monitors that detect malfunctions of the feedback based on a secondary fuel control sensor that can cause emissions to exceed the malfunction threshold), the applicant shall meet the criteria of 6(b)(2)(B)2. below.

2. *Remaining Monitors*: Applicants may request to receive conditional certification based on the initial application prior to demonstrating the remaining monitors of the OBD system (i.e., monitors specified under section 1968.2(h)(3), title 13, CCR, except for the monitors demonstrated per 6(b)(2)(B)1. of these procedures). The Executive Officer shall remove the conditional status of the certification approval if the demonstration data are submitted within [90 calendar days] after conditional certification is granted and if the data show

that the monitors operate and function properly at the more stringent emission standard.

(c) Certification documentation requirements: In lieu of providing all the information required in section 1968.2(i), 1971(f), and 1971.1(j), title 13, CCR, as applicable, for certification documentation requirements, applicants may propose a documentation plan with limited OBD information for Executive Officer approval. The Executive Officer shall approve a documentation plan that includes all the modifications, deletions, and additions to the OBD system on the base vehicle/engine due to the addition of the conversion system. This plan shall include a description of how these changes are integrated into the OBD system of the base vehicle/engine to ensure compliance with the standardization requirements of sections 1968.2(d)(2) and (g), 1971(d), and 1971.1(d) and (h), title 13, CCR, as applicable (e.g., how the conversion system achieves illumination of the malfunction indicator lamp and fault code reporting on the base vehicle or engine for faults detected by an added alternate fuel conversion system computer). The plan may exclude the submission of misfire monitor data demonstrating the probability of detection of misfire events required by section 1968.2(i) and 1971.1(j), title 13, CCR if the misfire monitor calibrations are not changed on the retrofit system.

7. REQUEST FOR CERTIFICATION

(a) A request for certification of an alternative fuel retrofit system shall be submitted to ARB by the manufacturer, or its authorized representative, intending to offer the alternative fuel retrofit system for sale in California in a format approved by ARB.

(b) The request must include all the information required pursuant to these procedures, including:

(1) Identification and description of the test group or engine family for which the alternative fuel retrofit system to be certified is designed;

(2) A complete description of the alternative fuel retrofit system, including detailed schematics, wiring diagrams, and parts list; an explanation of how the alternative fuel retrofit system interacts with or integrates into the base vehicle or base engine; all the necessary modifications to the base vehicle or engine and its OBD system; supplemental emission control label; owner’s manual; warranted parts list; and warranty statements and warranty notifications;

(3) Procedures for installing and maintaining the alternative fuel retrofit system, including tune-up specifications and discussion of any special tools or techniques required for proper installation, maintenance, or operation;

(4) Names and addresses of installers;

(5) Names and addresses of the fabrication, assembly line, and test facilities where the alternative fuel retrofit system and its major components are manufactured and tested;

(6) Agreement to supply the Air Resources Board, within 45 calendar days of the Executive Officer's request, with any one or more of the vehicles used for certification testing or to provide Air Resources Board personnel with the equipment to inspect and test such vehicles at the manufacturer's facility, if requested by the Executive Officer; and

(7) All required emissions test data as specified in these procedures.

(c) Manufacturers planning to obtain ARB certification for the first time should send a "Letter of Intent" to certify alternative fuel retrofit systems in California to:

Chief
Mobile Source Operations Division
California Air Resources Board
9480 Telstar Avenue, Suite 4
El Monte, CA 91731
Attn: Alternate Fuel Retrofit System Certification

The Letter of Intent should include general information on the manufacturer's product offering and contact information including (i) base vehicle test group and/or base engine family, (ii) base vehicle or engine weight class; (iii) persons authorized to sign documents for submittal to ARB, (iv) persons authorized to submit signed documents to ARB, and (v) persons authorized to communicate with ARB staff during the certification review process. Upon receiving the "Letter of Intent", ARB will assign a manufacturer code to the manufacturer and register the authorized personnel in ARB's electronic application submittal system. Thereafter, all certification related documents must be submitted electronically according to the format described by ARB through the electronic submittal system.

8. CONFIRMATORY TESTING

ARB may conduct confirmatory tests to verify the emission test results submitted by the retrofit system manufacturer. Confirmatory tests, if required, shall be performed by ARB within 45 days of receipt from the retrofit system manufacturer of all data, materials, and vehicles or engines necessary to conduct the test. Confirmatory testing conducted by ARB shall utilize the same test vehicle or engine and procedures as those used by the retrofit system manufacturer. In the event of discrepancies between ARB's confirmatory test results and the retrofit

system manufacturer's test results, ARB's evaluation for certification may be based solely on ARB's test results.

9. WARRANTY REQUIREMENTS

(a) Requirements of Manufacturers:
Each retrofit system manufacturer shall warrant to the person having the vehicle or engine retrofitted and to each subsequent purchaser of the vehicle or engine that the alternative fuel retrofit system is designed and manufactured to conform with the applicable requirements of these procedures without causing damage to any part on the retrofitted vehicle or engine, and is free from defects in materials and workmanship which cause the alternative fuel retrofit system to fail to conform with the applicable requirements of these procedures or cause damage to any part on the retrofitted vehicle or engine. This warranty shall cover customer service and the full repair or replacement costs including the costs of diagnosis, labor, and parts, including any part on the retrofitted vehicle or engine that is damaged by the alternative fuel retrofit system. This warranty requirement will be effective from the date of installation to whichever is longer of 9(a)(1) or 9(a)(2).

(1) Three years or 50,000 miles, whichever occurs first.

(2) Remaining original emission-related equipment manufacturer warranty period.

(b) Extended Warranty Requirements:
Each retrofit system manufacturer shall identify in its application for certification the warranted parts whose individual replacement cost, at the time of certification, exceeds the cost limit defined in paragraph 9(b)(1). The replacement cost shall include the cost of the diagnosis, parts, and labor. The costs shall be those of the highest cost metropolitan area of California. Each retrofit system manufacturer shall warrant to the person having the vehicle or engine retrofitted and to each subsequent purchaser of the vehicle or engine that these parts identified in its application for certification as exceeding the cost limit defined in paragraph 9(b)(1) are free from defects in materials and workmanship which cause the alternative fuel or credit-generating conventional fuel retrofit system to fail to conform with the requirements of these procedures or cause damage to any part on the retrofitted vehicle or engine, for seven years or 70,000 miles, whichever occurs first.

(1) The cost limit shall be the same as calculated in CCR title 13 Section 2037(c), except the model year shall be applicable to the calendar year the alternative fuel retrofit system is certified.

(2) The cost limit shall be revised annually by the Executive Officer. The highest cost metropolitan area in California shall be identified by the Executive Officer.

(3) Each manufacturer shall submit to the Executive Officer the documentation used to identify the warranted parts required in this subsection. The documentation shall include the estimated retail parts costs, labor rates in dollars per hour, and the labor hours necessary to diagnose and replace the parts, using the highest cost metropolitan area in California.

(c) Requirements of Installers:
Each installer of an alternative fuel retrofit system shall warrant to the person having the vehicle or engine retrofitted and to each subsequent purchaser of the vehicle or engine that the alternative fuel retrofit system will not fail to conform with the applicable requirements of these procedures due to incorrect installation, and that no part on the retrofitted vehicle or engine will be damaged due to incorrect installation. Installers of alternative fuel retrofit systems shall install only those systems of a certified configuration and shall agree to indemnify the person having the vehicle or engine retrofitted and to each subsequent purchaser of the vehicle or engine for the cost of repair of any vehicle or engine upon which a noncertified configuration was installed. In addition, the installer shall agree to indemnify the person having the vehicle or engine retrofitted and to each subsequent purchaser of the vehicle or engine for any tampering fines that may be imposed as a result of improper installation of the alternative fuel retrofit system. The warranties and agreements to indemnify shall be effective for 3 years or 50,000 miles, whichever occurs first, of customer service, and shall cover the full repair or replacement costs including the costs of diagnosis, labor, and parts (including any part on the retrofitted vehicle or engine that is damaged due to incorrect installation of the alternative fuel retrofit system).

Prior to installation each installer must submit to ARB the warranty statement to be provided by the installer to the purchaser in accordance with the following paragraph 9.(c)(1).

(1) Warranty Review and Reporting Requirements. Each manufacturer shall monitor its warranty claims and retain them for a period of at least three years from the date of installation of the conversion. Manufacturers shall maintain the records in both hard copy and electronic format. Upon request by ARB, manufacturers shall make available the warranty claims or a report summarizing the warranty claims by production year, conversion system, vehicle

or engine model and model year, total production, and individual component. Manufacturers may include in the report an explanation of the root cause of the component failure, if known, and whether or not an improved component has been developed. If warranty claims for an individual component exceed one (1) percent or 25 components for any specific application of its certified conversion kits, ARB may use the information to initiate confirmatory or in-use enforcement testing.

10. INSTALLATION REQUIREMENTS

(a) Prior to releasing a converted vehicle or engine to the consumer, the installer of an alternative fuel retrofit system for light and medium-duty vehicles shall submit the converted vehicle to a Bureau of Automotive Repair Referee Smog Check Station for inspection and testing, except as provided in section 10(a)(1). The installer shall not release the converted vehicle to the consumer without the issuance of Certificate of Compliance for the vehicle by a Bureau of Automotive Repair Referee Smog Check Station. The installer shall keep a copy of the Vehicle Inspection Report and provide a copy to the vehicle owner upon the vehicle's release.

(1) For fleet installations of multiple retrofit systems, the installer may transfer responsibility for the required inspections directly to the fleet owner. The installer must notify the fleet owner, in writing, of the requirements to submit the converted vehicles to a Bureau of Automotive Repair Referee Smog Check Station for inspection and testing. If the fleet owner agrees to perform the required inspections, they must submit copies of the certificates of compliance to the Executive Officer by December 31 of each year for the installation of the alternative fuel retrofit systems that year.

11. APPROVAL

(a) Issuance of Executive Orders:
If, after reviewing the test data and other information submitted by the retrofit system manufacturer, the Executive Officer determines that the alternative fuel retrofit system meets the requirements of these procedures or the criteria of an approved test plan, as applicable, he or she shall issue an Executive Order certifying the alternative fuel retrofit system for sale and installation on the vehicles or engines with the test groups or engine families specified in the certification request.

(b) Carry-Over and Carry-Across:

(1) Carry-over of durability and emission test data from the previous model year to the following model year and from one test group or engine family to similar test groups or engine families will be allowed if the Executive Officer determines that the carry-over/carry-across data will adequately represent the durability and emission performance of the alternative fuel retrofit system to be certified.

(2) Requests for carry-over and carry-across must be accompanied by test data and an engineering analysis demonstrating that the durability and emission performance of the alternative fuel retrofit system and the test group or engine family for which certification is sought will be adequately represented by the durability and emission performance of the certified alternative fuel retrofit system and test group or engine family.

(3) Applications for carry-over and carry-across will be evaluated according to the criteria specified in EPA Advisory Circular 17F, dated November 16, 1982, updated January 21, 1988 which is incorporated by reference herein. The Executive Officer shall permit the use of federal durability data vehicles if he or she determines that the federal data will adequately represent the durability characteristics of the California configuration. This determination shall be based upon similarity of catalyst location and configuration; similarity of fuel metering system; similarity of major features of emission control system logic and design; and similarity of any other features determined by the Executive Officer to be likely to affect durability.

12. IN-USE ENFORCEMENT TESTING REQUIREMENTS

(a) Retrofit system manufacturers shall, upon order by the Executive Officer, perform in-use enforcement emission testing of their products. The cost of these tests shall be borne by the manufacturer. The Executive Officer may order in-use enforcement emission testing of not more than three retrofitted vehicles or engines per certified retrofit system test group or engine family per year. For each vehicle or engine that fails to meet the applicable emission standards, two more vehicles or engines shall be selected and tested up to a total of ten vehicles or engines. Upon order by the Executive Officer, manufacturers shall perform the applicable emission tests pursuant to the following:

(1) No vehicle or engine shall be accepted by the retrofit system manufacturer as a representative vehicle or engine for in-use enforcement testing unless the following criteria are met:

(A) California certified and registered.

(B) Odometer indication of less than the certified useful life mileage and vehicle age within the useful life time period.

(C) No indication of abuse (e.g. racing, overloading, mis-fueling, or other mis-use), neglect, improper maintenance, or other factors that would have an effect on emission performance.

(D) No major repair to engine or major repair of vehicle resulting from collision.

(E) No indication of any problem that might jeopardize the safety of laboratory personnel.

(2) The retrofit system manufacturer shall, under ARB supervision, perform diagnosis or restorative maintenance on those vehicles or engines selected for in-use enforcement testing. The retrofit system manufacturer or a laboratory approved by the Executive Officer shall (1) identify part numbers of all essential emission control system components; (2) check air filter, all drive belts, all fluid levels, radiator cap, all vacuum hoses and electrical wiring related to emission control for integrity; check fuel metering and emission control system components for maladjustments and/or tampering, and record all discrepancies; (3) check ignition system where applicable and replace any defective components that are due for replacement; (4) check and adjust engine parameters to manufacturer's specifications; and (5) perform maintenance if the vehicle is within 1,000 miles of scheduled maintenance service.

(3) The retrofit system manufacturer or a laboratory approved by the Executive Officer shall perform all applicable emission test procedures set forth in these procedures. The applicable emission standards shall be the vehicle's or engine's useful life standards as stated in the Alternative Fuel Retrofit System Certification Executive Order.

(4) For heavy-duty vehicle or engine applications where alternate test procedures and standards were used, the retrofit system manufacturer or a laboratory approved by the Executive Officer shall repeat the same alternate test procedures and standards approved to obtain their Alternative Fuel Retrofit System Certification Executive Order.

(5) Retrofit system manufacturers shall complete in-use enforcement testing within six months of the issuance of the in-use enforcement testing order by the Executive Officer and shall submit all test data to the Executive Officer within 30 calendar days following completion of testing.

(6) Following review of retrofit system manufacturer in-use enforcement test data, the Executive Officer may conduct confirmatory in-use enforcement testing.

(7) If the results of the in-use enforcement tests conducted pursuant to paragraphs 12(a)(1) through 12(a)(6) of these procedures indicate that the average emissions of the test vehicles or engines for any pollutant exceed the applicable emission standard, the entire vehicle or engine population so represented shall be deemed to exceed such standard. Upon order by the Executive Officer, the manufacturer shall have 45 days to submit a recall plan in accordance with Sections 2111 through 2121, title 13, CCR. If no such recall plan is submitted, the Executive Officer may order corrective action including recall of the affected vehicles or engines in accordance with Sections 2122 through 2135, title 13, CCR. For the purpose of these procedures, the term "manufacturer" as referenced in Sections 2111 through 2135, title 13, CCR, shall mean "retrofit system manufacturer."

13. CONFIRMATORY IN-USE ENFORCEMENT TESTING REQUIREMENTS

(a) Emission Confirmatory Testing: The Air Resources Board may conduct confirmatory tests to verify the in-use enforcement emission test results submitted by the retrofit system manufacturer. Confirmatory tests, if required, shall be performed by the Air Resources Board within 45 days

of receipt from the retrofit system manufacturer all data, materials, and vehicles or engines necessary to conduct the test. Confirmatory testing conducted by the Air Resources Board shall utilize the same test vehicle or engine and procedures as those used by the retrofit system manufacturer. In the event of discrepancies between the Air Resources Board's confirmatory test results and the retrofit system manufacturer's test results, the Air Resources Board's evaluation for compliance may be based solely on the Air Resources Board's test results.

(b) OBD Confirmatory Testing: OBD confirmatory testing shall be conducted per section 1968.2 (h)(7) or 1971.1 (i)(6) as applicable.