

State of California  
AIR RESOURCES BOARD

**Final**

**CALIFORNIA EVAPORATIVE EMISSION STANDARDS AND TEST PROCEDURES  
FOR 2001 AND SUBSEQUENT MODEL MOTOR VEHICLES THROUGH 2025  
MODEL YEAR PASSENGER CARS, LIGHT-DUTY TRUCKS, MEDIUM-  
DUTY VEHICLES, AND HEAVY-DUTY VEHICLES AND 2001 AND SUBSEQUENT  
MODEL YEAR MOTORCYCLES**

Adopted: August 5, 1999  
Amended: June 22, 2006  
Amended: October 17, 2007  
Amended: December 2, 2009  
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Amended: March 22, 2012  
Amended: December 6, 2012  
Amended: September 2, 2015  
Amended: [INSERT DATE OF AMENDMENT]

[Note: This version of the Proposed Test Procedures also complies with Government Code section 11346.2 subdivision (a)(3), and 11346.8, subdivision (c). The existing, original test procedure language currently incorporated by reference in the California Code of Regulations is shown in "normal type." The proposed amendments are shown in underline to indicate additions and ~~strike through~~ to indicate deletions from the existing test procedures. The proposed amendments are being presented in two versions. For ease of readability, and to review the proposed amendments in an Accessible format that can toggle between amendments in strikeout/underline and a "clean" version with amendments incorporated into the test procedures, please refer to the Word version of this Proposed Test Procedure.

Subsections for which no changes are proposed in this rulemaking are indicated with [No change] or "\* \* \* \* \*"

NOTE: This document is incorporated by reference in section 1976(c), title 13, California Code of Regulations (CCR). Additional requirements necessary to complete an application for certification of motor vehicles are contained in other documents that are designed to be used in conjunction with this document. These other documents include:

1. "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), title 13, CCR);
2. "California 2015 ~~and Subsequent~~ through 2025 and Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Year 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 (d), title 13, CCR);
3. "California Exhaust Emission Standards and Test Procedures for 2005 – 2008 Zero-Emission Vehicles, and 2001 – 2008 Model Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck, and Medium-Duty Vehicle Classes" (incorporated by reference in section 1962(e), title 13, CCR);
4. "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(h), title 13, CCR);
5. "California Exhaust Emission Standards and Test Procedures for 2018 ~~and Subsequent~~ through 2025 Model Year 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(h), title 13, CCR);
6. "California Refueling Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles" (incorporated by reference in section 1978(b), title 13, CCR);
7. "California Exhaust Emission Standards and Test Procedures for 1987 through 2003 Model Heavy-Duty Otto-Cycle Engines and Vehicles," as incorporated by reference in section 1956.8(d), title 13, CCR;
8. "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines," as incorporated by reference in section 1956.8(d), title 13, CCR.

**CALIFORNIA EVAPORATIVE EMISSION STANDARDS AND TEST PROCEDURES FOR 2001 AND SUBSEQUENT MODEL MOTOR VEHICLES THROUGH 2025 MODEL YEAR PASSENGER CARS, LIGHT-DUTY TRUCKS, MEDIUM-DUTY VEHICLES, AND HEAVY-DUTY VEHICLES AND 2001 AND SUBSEQUENT MODEL YEAR MOTORCYCLES**

The provisions of Title 40, Code of Federal Regulations (CFR), Part 86, Subparts A and B (as adopted or amended as of July 1, 1989); Subpart S (as adopted or amended on May 4, 1999); and, such sections of these Subparts as last amended on such other date set forth next to the 40 CFR Part 86 section title listed below, insofar as those subparts pertain to evaporative emission standards and test procedures, are hereby adopted as the “California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Year through 2025 Model Year Passenger Cars, Light-Duty Trucks, Medium-Duty Vehicles, and Heavy-Duty Vehicles and 2001 and Subsequent Model Year Motorcycles,” with the following exceptions and additions:

**PART I. GENERAL CERTIFICATION REQUIREMENTS FOR EVAPORATIVE EMISSIONS**

**A. 40 CFR §86.1801-01 Applicability.**

1.1. These evaporative standards and test procedures are applicable to all new 2001 and subsequent through 2025 model gasoline-, liquefied petroleum- and alcohol-fueled passenger cars, light-duty trucks, medium-duty vehicles, heavy-duty vehicles, hybrid electric vehicles (including fuel-flexible, dual fuel and bi-fuel vehicles, and 2012 and subsequent through 2025 model-year off-vehicle charge capable hybrid electric vehicles), and to all new 2001 and subsequent model motorcycles. These standards and test procedures do not apply to motor vehicles that are exempt from exhaust emission certification, dedicated petroleum-fueled diesel vehicles, dedicated compressed natural gas-fueled vehicles, or hybrid electric vehicles that have sealed fuel systems which can be demonstrated to have no evaporative emissions. A manufacturer may elect to certify 2009 through 2011 model-year off-vehicle charge capable hybrid electric vehicles using these provisions. In cases where a provision applies only to a certain vehicle group based on its model year, vehicle class, motor fuel, engine type, or other distinguishing characteristics, the limited applicability is cited in the appropriate section.

1.2. For general certification purposes, and except as otherwise noted in these test procedures, the requirements 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,” the

"California 2015 and Subsequent through 2025 Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Year Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," the "California Exhaust Emission Standards and Test Procedures for 2005 – 2008 Model Zero-Emission Vehicles, and 2001 – 2008 Model Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck, and Medium-Duty Vehicle Classes," 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," the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent through 2025 Model Year Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," and the "California Refueling Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles," shall apply to light- and medium-duty vehicles; the "California Exhaust Emission Standards and Test Procedures for 1987 through 2003 Model Heavy-Duty Otto-Cycle Engines and Vehicles," and the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines," shall apply to heavy-duty vehicles; and, section 1958, title 13, CCR shall apply to motorcycles.

\* \* \* \* \*

## B. Definitions, Acronyms, Terminology

1. These test procedures incorporate by reference the definitions 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," the "California 2015 and Subsequent through 2025 Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Year Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," 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," and the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent through 2025 Model Year Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," including the incorporated definitions from the Code of Federal Regulations. In addition, the following definitions apply:

\* \* \* \* \*

**C. Useful Life**

1. §86.1805-17 (~~February 19, 2015~~ October 25, 2016). Delete. For vehicles certified to the emission standards in section I.E.1.(a), "useful life" shall have the same meaning as provided in section 2112, title 13, CCR. Except as provided below, for vehicles certified to the emission standards in sections I.E.1.(c), I.E.1.(d), and I.E.1.(e), the "useful life" shall be 15 years or 150,000 miles, whichever first occurs. For 2016 and previous model vehicles, 2017 and previous model vehicles >6,000 lbs. GVWR, and 2021 and previous model vehicles certified by a small volume manufacturer, the canister bleed standards are certification standards only.

**D. General Standards; increase in emissions; unsafe conditions; waivers**

**1. Light- and Medium-Duty Vehicles.**

1.1. Amend §86.1810-01 (February 19, 2015) as follows:

(a) through (g). [The provisions of these paragraphs are contained 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," and the "California 2015 ~~and Subsequent~~ through 2025 Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Year Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles."]

\* \* \* \* \*

(o) through (p). [The provisions of these paragraphs are contained 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" and the "California 2015 ~~and Subsequent~~ through 2025 Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Year Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles."]

**2. Heavy-Duty Vehicles.** Approval of heavy-duty vehicles over 14,000 lbs. GVWR and incomplete medium-duty vehicles shall be based on:

2.1. §1037.103 (c) (~~February 19, 2015~~ June 29, 2021) The provisions of this paragraph also apply to incomplete medium-duty vehicles.

\* \* \* \* \*

### 3. Auxiliary engines and fuel systems

3.1. §86.1813-17 (e) (~~February 19, 2015~~ June 29, 2021) [No change]

3.2. Except for 2017 model vehicles >6,000 lbs. GVWR and 2021 and previous model vehicles certified by a small volume manufacturer, 2017 ~~and subsequent~~ through 2025 model vehicles equipped with an auxiliary engine shall be subject to these requirements.

#### E. Emission Standards

If any discrepancies exist between the language in this section E and the corresponding provision in title 13, section 1976, the requirements in title 13, section 1976 shall apply.

#### 1. Evaporative Emission Standards for 2001 ~~and Subsequent~~ through 2025 Model Year Vehicles Other Than Motorcycles.

\* \* \* \* \*

(d) For the 2004 through 2014 model motor vehicles identified below, tested in accordance with the test procedure sequence set forth in Part III, the maximum projected total hydrocarbon evaporative emissions are:

Vehicle Type	Hydrocarbon Standards <sup>(1)(2)</sup>		
	Running Loss (grams per mile)	Three-Day Diurnal + Hot Soak (grams per test)	Two-Day Diurnal + Hot Soak (grams per test)
Passenger Cars	0.05	0.50	0.65
Light-Duty Trucks (under 8,501 lbs. GVWR)			
6,000 lbs. GVWR and under	0.05	0.65	0.85
6,001 - 8,500 lbs. GVWR	0.05	0.90	1.15
Medium-Duty Vehicles (8,501 - 14,000 lbs. GVWR)	0.05	1.00	1.25
Heavy-Duty Vehicles (over 14,000 lbs. GVWR)	0.05	1.00	1.25

(1) (a) These evaporative emission standards shall be phased-in beginning with the 2004 model year. Each manufacturer, except small volume manufacturers, shall certify at a

minimum the specified percentage of its vehicle fleet to the evaporative emission standards in this table or the optional zero-evaporative emission standards in section I.E.1.(c) according to the schedule set forth below. For purposes of this paragraph (a), each manufacturer's vehicle fleet consists of the total projected California sales of the manufacturer's gasoline-fueled, liquefied petroleum-fueled and alcohol-fueled passenger cars, light-duty trucks, medium-duty vehicles, and heavy-duty vehicles.

<i>Model Year</i>	<i>Minimum Percentage of Vehicles Certified to the Standards in Sections I.E.1.(c) and I.E.1.(d)</i>
2004	40
2005	80
2006 and subsequent through 2025	100

A small volume manufacturer shall certify 100 percent of its 2006 and subsequent through 2025 model vehicle fleet to the evaporative emission standards in the table or the optional zero-evaporative emission standards in section I.E.1.(c).

All 2004 through 2005 model-year motor vehicles which are not subject to these standards or the standards in section E.1.(c) pursuant to the phase-in schedule shall comply with the requirements of section I.E.1.(a).

\* \* \* \* \*

(e) For 2015 and subsequent through 2025 model motor vehicles, the following evaporative emission requirements apply:

(i) A manufacturer must certify all vehicles subject to this section to the emission standards specified in either Option 1 or Option 2 below.

(A) Option 1. The total hydrocarbon evaporative emissions from 2015 and subsequent through 2025 model motor vehicles, tested in accordance with the test procedure sequence set forth in Part III, shall not exceed:

Vehicle Type	Hydrocarbon Emission Standards		
	Running Loss (grams per mile)	Three-Day Diurnal + Hot Soak and Two-Day Diurnal + Hot Soak	
		Whole Vehicle (grams per test)	Fuel Only <sup>(1)</sup> (grams per test)
Passenger Cars	0.05	0.350	0.0
Light-Duty Trucks 6,000 lbs. GVWR and under	0.05	0.500	0.0
Light-Duty Trucks 6,001 - 8,500 lbs. GVWR	0.05	0.750	0.0
Medium-Duty Passenger Vehicles	0.05	0.750	0.0
Medium-Duty Vehicles (8,501 - 14,000 lbs. GVWR)	0.05	0.750	0.0
Heavy-Duty Vehicles (over 14,000 lbs. GVWR)	0.05	0.750	0.0

(1) In lieu of demonstrating compliance with the fuel-only emission standard (0.0 grams per test) over the three-day and two-day diurnal plus hot soak tests, a manufacturer may, with advance Executive Officer approval, demonstrate compliance through an alternate test plan.

(B) Option 2. The total hydrocarbon evaporative emissions from 2015 and subsequent through 2025 model motor vehicles, tested in accordance with the test procedure sequence set forth in Part III, shall not exceed:

<b>Vehicle Type</b>	<b>Hydrocarbon Emission Standards</b>		
	<b>Running Loss (grams per mile)</b>	<b>Highest Whole Vehicle Diurnal + Hot Soak<sup>(1)(2)(3)</sup> (grams per test)</b>	<b>Canister Bleed<sup>(4)</sup> (grams per test)</b>
Passenger Cars; and Light-Duty Trucks 6,000 lbs. GVWR and under, and 0 - 3,750 lbs. LVW	0.05	0.300	0.020
Light-Duty Trucks 6,000 lbs. GVWR and under, and 3,751 – 5,750 lbs. LVW	0.05	0.400	0.020
Light-Duty Trucks 6,001 - 8,500 lbs. GVWR; and Medium-Duty Passenger Vehicles	0.05	0.500	0.020
Medium-Duty Vehicles (8,501 - 14,000 lbs. GVWR); and Heavy-Duty Vehicles (over 14,000 lbs. GVWR)	0.05	0.600	0.030

\* \* \* \* \*

(ii) Phase-In Schedule. For each model year, a manufacturer shall certify, at a minimum, the specified percentage of its vehicle fleet to the evaporative emission standards set forth in section I.E.1.(e)(i), according to the implementation schedule set forth below. For the purpose of this section I.E.1.(e)(ii), the manufacturer's vehicle fleet consists of the vehicles produced and delivered for sale by the manufacturer in California that are subject to the emission standards in section I.E.1.(e)(i). All 2015 through 2022 model motor vehicles that are not subject to these standards pursuant to the phase-in schedule shall comply with the requirements for 2004 through 2014 model motor vehicles, as described in section I.E.1.(d), or the optional zero-fuel evaporative emission standards for 2001 through 2014 model motor vehicles, as described in section I.E.1.(c).

<b>Model Years</b>	<b>Minimum Percentage of Vehicle Fleet<sup>(1)(2)</sup></b>
2015, 2016, and 2017	Average of vehicles certified to section I.E.1.(c) in model years 2012, 2013, and 2014 <sup>(3)(4)</sup>
2018 and 2019	60
2020 and 2021	80
<u>2022 and subsequent through 2025</u>	100

\* \* \* \* \*

- (2) Small volume manufacturers are not required to comply with the phase-in schedule set forth in this table. Instead, they shall certify 100 percent of their 2022 and subsequent through 2025 model year vehicle fleet to the evaporative emission standards set forth in section I.E.1.(e)(i)(A) or section I.E.1.(e)(i)(B).

\* \* \* \* \*

(vi) Effective leak diameter standard and procedure

(A) Manufacturers shall demonstrate that for 2018 ~~and subsequent through 2025~~ model vehicles  $\leq 14,000$  lbs. GVWR certifying to the evaporative emission standards set forth in 1976(b)(1)(G), fuel systems do not exceed an effective leak diameter of 0.02 inches when tested in accordance with the test procedure sequence set forth in Part III of these test procedures. This requirement does not apply to 2021 and previous model vehicles certified by a small volume manufacturer. For vehicles with fuel tanks exceeding 25 gallons nominal fuel tank capacity, manufacturers may request approval from the Executive Officer for a leak standard greater than 0.020 inches, up to a maximum value of 0.040 inches.

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**PART II. DURABILITY DEMONSTRATION**

**A. Light- and Medium-Duty Vehicles**

\* \* \* \* \*

**2. Durability Demonstration Procedures for Evaporative Emissions**

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2.4. (a) In addition to the requirements of section II.A.2.3. above, for evaporative/refueling families subject to testing for exhaust emission durability, at least one evaporative emission test shall be conducted at 5,000, 40,000, 70,000, and 100,000 mile test points for all passenger car, and light-duty truck durability vehicles and at 5,000, 40,000, 70,000, 90,000, and 120,000 mile test points for all medium-duty durability vehicles. For all vehicles subject to the useful life requirement of 150,000 miles or 15 years for exhaust emissions, at least one evaporative emission test shall also be conducted at the 150,000 mile test point if the durability vehicle will be tested for exhaust emissions at the 150,000 mileage point. With prior written approval from the Executive Officer, manufacturers may terminate evaporative emissions testing at the mileage corresponding to 75 percent of the vehicle's useful life if no significant vehicle maintenance or emissions change are observed. Testing may be performed at different intervals as determined by the manufacturer using good engineering judgment. Evaporative emission testing may be performed at corresponding exhaust emission mileage points as set forth in section F.4. (40 CFR §86.1823) of 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." and the "California 2015 and ~~Subsequent~~ through 2025 Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Year Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles." The 4,000 and full useful life mile test points (or their equivalent) used in determining a DF must be within the standards of section I.E. or data will not be acceptable for use in the calculation of a DF, except for the following provision. For evaporative families certified to the emission standards in section I.E.(e)(i)(B) that utilize the fleet-average option, the 4,000 and full useful life mile test points for the highest whole vehicle diurnal plus hot soak emissions may exceed the emission standards in section I.E.(i)(B), but must be less than the maximum allowed family emission limits set forth in footnote (2) of the table in section I.E.(e)(i)(B).

(b) For evaporative families subject to the requirements of section II.A.2.4.(a), manufacturers may demonstrate compliance by conducting an exhaust and evaporative emission test sequence at the end of the useful life of the exhaust durability data vehicle if the procedure set forth in section II.A.2.3. includes on-road, useful life deterioration on the evaporative test vehicle. The evaporative test vehicle used to meet the criteria in section II.A.2.3. must be deteriorated based on typical customer use throughout the applicable useful life. The manufacturer may perform unscheduled maintenance on the evaporative test vehicle at the final test point only upon prior Executive Officer approval, which shall be granted if the Executive Officer determines that the exhaust emission control system will not be affected, and the manufacturer demonstrates that the effectiveness of the evaporative emission control system is not diminished. The unscheduled maintenance must be conducted in accordance with 40 CFR §86.1834-01 as amended by 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,” and the “California 2015 and ~~Subsequent~~through 2025 Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Year Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.”

\* \* \* \* \*

## 5. Durability and Emission Testing Requirements; waivers

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5.4. For purposes of certification, a 2012 ~~and subsequent~~through 2025 model year off-vehicle charge capable hybrid electric vehicle shall demonstrate the capability to purge its evaporative canister(s) during the exhaust emission test of the supplemental two-day diurnal plus hot soak emission test sequence.

\* \* \* \* \*

5.4.2. In lieu of conducting the demonstration described in section II.A.5.4.1., a manufacturer may optionally conduct an engineering evaluation that demonstrates the evaporative emission control system’s capability to purge its evaporative canister(s) during the exhaust emission test of the supplemental two-day diurnal plus hot soak emission test sequence. Such an evaluation shall be submitted to the Executive Officer, if requested. The manufacturer shall provide a statement of compliance in the certification application to indicate that the evaporative emission control system will purge the system’s evaporative canister(s) during the supplemental two-day diurnal plus hot-soak test sequence. The evaluation would include, but not be limited to, canister type, canister volume, canister working capacity, fuel tank volume, fuel tank geometry, fuel delivery system, description of the input parameters and software strategy used to control canister purge, and nominal purge flow volume (i.e., amount of bed volumes) achieved by a test vehicle after completing the exhaust test of a supplemental two-day diurnal plus hot soak emission test sequence.

5.4.2.1. In lieu of the optional engineering demonstration specified in section II.A.5.4.2., manufacturers of 2012 ~~and subsequent~~through 2025 model-year off-vehicle charge capable hybrid electric vehicles that are equipped with non-integrated refueling canister-only systems may attest that the system’s canister(s) shall have attained a purged condition when the vehicle has consumed at least 85% of its nominal fuel tank capacity.

\* \* \* \* \*

## B. Motorcycles

1. **Durability Requirements.** Certification of a motorcycle evaporative emission control system requires that the manufacturer demonstrate the durability of each evaporative emission control system family.

\* \* \* \* \*

1.2. Motorcycle manufacturers with annual sales of less than 2,000 units for the three displacement classes in California are not required to submit the information specified by these test procedures to the Executive Officer. However, all information required by these test procedures must be retained on file and be made available on request to the Executive Officer for inspection. These manufacturers shall submit the following information for evaporative emission certification:

\* \* \* \* \*

(ii) A statement signed by an authorized representative of the manufacturer stating "The vehicles described herein have been tested in accordance with the provisions of the "California Evaporative Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehiclest through 2025 Model Year Passengers Cars, Light-Duty Trucks, Medium-Duty Vehicles, and Heavy-Duty Vehicles and 2001 and Subsequent Model Year Motorcycles," and on the basis of those tests, are in conformance with the aforementioned standards and test procedures."

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## PART III. EVAPORATIVE EMISSION TEST PROCEDURES FOR LIGHT- AND MEDIUM-DUTY VEHICLES

### A. Instrumentation

\* \* \* \* \*

#### 2. Running Loss Measurement Facility

2.1. For all types of running loss measurement test facilities, the following shall apply:

2.1.1. The measurement of vehicle running loss fuel vapor emissions shall be conducted in a test facility which is maintained at a nominal ambient temperature of 105.0°F. Manufacturers have the option to perform running loss testing in either an

enclosure incorporating atmospheric sampling equipment, or in a cell utilizing point source sampling equipment. Confirmatory testing or in-use compliance testing may be conducted by the Executive Officer using either sampling procedure. The test facility shall have space for personnel access to all sides of the vehicle and shall be equipped with the following test equipment:

- A chassis dynamometer which meets the requirements of 40 CFR §86.108-00 or 40 CFR §1066.210 (~~April 28, 2014~~June 29, 2021), with the following addition:
  - Another dynamometer configuration may be used for running loss testing if approved in advance by the Executive Officer based on a demonstration that measured running loss emissions are equivalent to the emissions using the single-roll electric dynamometer described in 86.108-00(b)(2) or in 1066.210 (~~April 28, 2014~~June 29, 2021).

\* \* \* \* \*

**C. Road Load Power, Test Weight, Inertia Weight Class, and Running Loss Fuel Tank Temperature Profile Determination**

Amend 40 CFR §86.129-80 to include an additional section III.C.1. to read:

1. Determination of running loss test fuel tank temperature profile. The manufacturer shall establish for each combination of vehicle platform/powertrain/fuel tank submitted for certification a representative profile of fuel tank liquid and vapor temperature versus time to be used as the target temperature profile for the running loss evaporative emissions test drive cycle. If a vehicle has more than one fuel tank, a profile shall be established for each tank. If manufacturers use a vehicle model to develop a profile to represent multiple vehicle models, the vehicle model selected must have the greatest expected fuel liquid temperature and fuel vapor temperature increase during driving of all of the vehicle models it will represent. Manufacturers must select test vehicles with any available vehicle options that could increase fuel temperature during driving, such as any feature that limits underbody air flow. The profile shall be established by driving the vehicle on-road over the same driving schedule as is used for the running loss evaporative emissions test according to the following sequence:

\* \* \* \* \*

1.3. The vehicle fuel tank shall be drained and filled to 40 percent of the nominal tank capacity with fuel meeting the requirements of section III.D.1. of these procedures. For all hybrid electric vehicles, except for 2012 ~~and subsequent~~through 2025 model-year off-vehicle charge capable hybrid electric vehicles, the battery state-of-charge shall be set at a level such that the auxiliary power unit would be activated by

the vehicle's control strategy within 30 seconds of starting the first UDDS of the fuel tank temperature profile determination test sequence. If the auxiliary power unit is capable of being manually activated, the auxiliary power unit shall be manually activated at the beginning of and operating throughout the fuel tank temperature profile determination. For 2012 ~~and subsequent~~ through 2025 model-year off-vehicle charge capable hybrid electric vehicles, the battery state-of-charge shall be set at the level that results when the battery state-of-charge is initially set at the highest level allowed by the manufacturer and then decreased, as applicable, by the performance of a standard three-phase exhaust test. The vehicle shall be moved to the location where the driving cycle is to be conducted. It may be driven a maximum distance of 5.0 miles, longer distances shall require that the vehicle be transported by other means. For 2012 ~~and subsequent~~ through 2025 model-year off-vehicle charge capable hybrid electric vehicles, the vehicle shall be either only pushed or towed to avoid disturbing the battery state-of-charge setting. The vehicle shall be parked for a minimum of 12 hours in an open area on a surface that is representative of the test road. The orientation of the front of the vehicle during parking (N, SW, etc.) shall be documented. Once the 12-hour minimum parking time has been achieved and the ambient temperature and weather conditions and track surface temperature are within the allowable ranges, the vehicle engine shall be started. The vehicle air conditioning system (if so equipped) shall be set as described in 40 CFR §1066.835 (~~February 19, 2015~~ June 29, 2021). The vehicle may be operated at minimum throttle for periods up to 60 seconds prior to beginning the first UDDS cycle in order to move from the parking location onto the road surface. The driver's aid shall be started and the vehicle operated over one UDDS cycle, then two NYCCs, and another UDDS cycle. The end of each UDDS cycle and the end of the two NYCCs shall be followed by an idle period of 120 seconds during which the engine shall remain on with the vehicle in the same transmission range and clutch (if so equipped) actuation mode as specified in 40 CFR §86.128-79 (April 28, 2014) except for the following:

Revise subparagraph (c) to include: Idle modes may be run with automatic transmission in "Neutral" and shall be placed in "Drive" with the wheels braked at least 5 seconds before the end of the idle mode. Manual transmission may be in "Neutral" with the clutch engaged and shall be placed in gear with the clutch disengaged at least 5 seconds before the end of the idle mode.

\* \* \* \* \*

#### **D. Test Procedure**

The test sequence described in 40 CFR §86.130 through §86.140 shall be performed with the following modifications:

##### **1. General Requirements**

1.0. The following language shall be applicable in lieu of 40 CFR §86.130-78:

\* \* \* \* \*

1.3. The three-day diurnal test sequence shown in Figure 2 (and Figure 3A or 3B for hybrid electric vehicles) is briefly described as follows:

\* \* \* \* \*

1.3.2. For 2009 ~~and subsequent~~ through 2025 model-year hybrid electric vehicles, a manufacturer may elect to perform the All-Electric Range Test separately from the test sequences specified under these evaporative emission test procedures, and pursuant to 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," or the "California Exhaust Emission Standards and Test Procedures for 2018 ~~and Subsequent~~ through 2025 Model Year Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," as applicable.

\* \* \* \* \*

1.6. For 2012 ~~and subsequent~~ through 2025 model-year vehicles, the vehicle preconditioning shall be performed in accordance with 40 CFR §86.132-00, except as amended by section III.D.3.

1.6.1. For a 2012 ~~and subsequent~~ through 2025 model-year off-vehicle charge capable hybrid electric vehicle, the vehicle preconditioning drive shall include at least one complete UDDS performed entirely under a charge-sustaining mode of operation, The battery state-of-charge net change tolerance provisions specified in section G.10., of 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," and the "California Exhaust Emission Standards and Test Procedures for 2018 ~~and Subsequent~~ Model through 2025 Model Year Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes" shall not apply.

1.7. For 2012 ~~and subsequent~~ through 2025 model-year off-vehicle charge capable hybrid electric vehicles that are equipped with non-integrated refueling canister-only systems, the following exceptions apply.

\* \* \* \* \*

1.11. Perform exhaust emission tests in accordance with procedures as provided 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," the "California 2015 ~~and Subsequent~~ through 2025 Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Year Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," and these procedures.

1.12. For 2001 through 2008 model-year hybrid electric vehicles, a four-phase exhaust test shall be performed as shown in Figure 3A pursuant to the "California Exhaust Emission Standards and Test Procedures for 2005 – 2008 Model Zero-Emission Vehicles, and 2001 – 2008 Model Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck, and Medium-Duty Vehicle Classes."

1.12.1. For 2009 ~~and subsequent~~ through 2025 model-year hybrid electric vehicles, a manufacturer may elect to perform the four-phase exhaust emission test separately from the test sequence specified under these evaporative emission test procedures, and pursuant to 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," or the "California Exhaust Emission Standards and Test Procedures for 2018 ~~and Subsequent~~ through 2025 Model Year Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," as applicable.

\* \* \* \* \*

1.12.5. For 2009 ~~and subsequent~~ through 2025 model-year hybrid electric vehicles, except for 2012 ~~and subsequent~~ through 2025 model-year off-vehicle charge capable hybrid electric vehicles, battery state-of-charge setting prior to the standard three-phase test shall be performed pursuant to the supplemental requirements specified in section F.6.1.5 of 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," or the "California Exhaust Emission Standards and Test Procedures for 2018 ~~and Subsequent~~ through 2025 Model Year Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," as applicable.

1.12.6. For 2012 ~~and subsequent~~ through 2025 model-year off-vehicle charge capable hybrid electric vehicles, battery state-of-charge setting prior to the

standard three-phase test shall be at the highest level allowed by the manufacturer in order to eliminate or minimize the cumulative amount of the auxiliary power unit activation during either of the ensuing three-phase exhaust or running loss tests. This requirement shall be applicable regardless of a vehicle's ability to allow, or not to allow, manual activation of the auxiliary power unit. If off-vehicle charging is required to increase the battery state-of-charge for the proper setting, then this charging shall occur during the 12-to-36 hour soak period. The battery state-of-charge net change tolerance provisions specified in section G.10., of 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," and the "California Exhaust Emission Standards and Test Procedures for 2018 ~~and Subsequent~~ through 2025 Model Year Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes" shall not apply.

\* \* \* \* \*

1.18. The supplemental two-day diurnal sequence in Figure 2 (and Figure 3A or 3B for hybrid electric vehicles) shall be conducted according to sections III.D.1.4. through III.D.1.17., with the following exceptions:

\* \* \* \* \*

1.18.5. For 2009 ~~and subsequent~~ through 2025 model-year hybrid electric vehicles, except for 2012 ~~and subsequent~~ through 2025 model-year off-vehicle charge capable hybrid electric vehicles, battery state-of-charge setting prior to the standard three-phase test in the supplemental two-day diurnal test sequence shall be performed pursuant to the supplemental requirements specified in section F.6.1.5 of 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," or the "California Exhaust Emission Standards and Test Procedures for 2018 ~~and Subsequent~~ through 2025 Model Year Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," as applicable.

1.18.6. For 2012 ~~and subsequent~~ through 2025 model-year off-vehicle charge capable hybrid electric vehicles, battery state-of-charge setting prior to the standard three-phase exhaust test in the supplemental two-day diurnal sequence shall be at the highest level allowed by the manufacturer in order to eliminate or minimize the cumulative amount of the auxiliary power unit activation during either of the ensuing three-phase exhaust or running loss tests. This requirement shall be applicable regardless of a vehicle's ability to allow, or not to allow, manual activation of the auxiliary power unit. If off-vehicle charging is required to increase the battery state-of-charge for the proper setting, then this charging shall occur during the 12-to-

36 hour soak period. The battery state-of-charge net change tolerance provisions specified in section G.10., of 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," and the "California Exhaust Emission Standards and Test Procedures for 2018 ~~and Subsequent~~through 2025 Model Year Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes" shall not apply.

\* \* \* \* \*

1.19. The Executive Officer may conduct certification confirmatory tests and in-use compliance tests of 2012 ~~and subsequent~~through 2025 model off-vehicle charge capable hybrid electric vehicles using any of the following battery state-of-charge levels:

\* \* \* \* \*

### 3. Vehicle Preconditioning

\* \* \* \* \*

3.1.2. For supplemental vehicle preconditioning requirements for 2009 ~~and subsequent~~through 2025 model-year hybrid electric vehicles, refer to 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," or the "California Exhaust Emission Standards and Test Procedures for 2018 ~~and Subsequent~~through 2025 Model Year Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," as applicable.

3.2. The following language shall be applicable in lieu of 40 CFR §86.132-90(a)(4) for 2001 through 2011 model-year vehicles; and, in lieu of 40 CFR §86.132-00(e) for 2012 ~~and subsequent~~through 2025 model-year vehicles.

\* \* \* \* \*

3.3. The following language shall be applicable in lieu of 40 CFR §86.132-90(b) for 2001 through 2011 model-year vehicles. For 2012 ~~and subsequent~~through 2025 model-year vehicles, the vehicle preconditioning shall be performed in accordance with 40 CFR §86.132-00(f) through (j), except when amended by the following language.

\* \* \* \* \*

3.3.2. Except for 2012 ~~and subsequent~~ through 2025 model-year off-vehicle charge capable hybrid electric vehicles that are equipped with non-integrated refueling canister-only systems, the fuel tank(s) of the prepared vehicle shall undergo the second fuel drain and fill step of the test sequence, with the applicable test fuel, as specified in section III.F. of these procedures, to the prescribed tank fuel volume of 40 percent of the manufacturer's nominal fuel tank capacity, as defined in 40 CFR §86.1803-01. The vehicle shall be refueled within 1 hour of completion of the preconditioning drive.

3.3.2.1. For 2012 ~~and subsequent~~ through 2025 model-year off-vehicle charge capable hybrid electric vehicles that are equipped with non-integrated refueling canister-only systems, the exceptions specified in sections III.D.1.7.1 through III.D.1.7.10., shall apply, along with the applicable test fuel specified in section III.F.

3.3.3. Following the second fuel drain and fill described in section III.D.3.3.2. above, the test vehicle shall be allowed to soak for a period of not less than 12 and not more than 36 hours prior to the exhaust emissions test. Except for 2012 ~~and subsequent~~ through 2025 model-year off-vehicle charge capable hybrid electric vehicles that are equipped with non-integrated refueling canister-only systems, during the soak period, the canister shall be connected to a pump or compressor and loaded with butane as described in section III.D.3.3.4. below for the three-day diurnal sequence and in section III.D.3.3.5. below for the supplemental two-day diurnal sequence. For all vehicles subjected to exhaust emissions testing only, the canister loading procedure as set forth in section III.D. 3.3.4. below shall be used. For 2012 ~~and subsequent~~ through 2025 model-year off-vehicle charge capable hybrid electric vehicles that are equipped with non-integrated refueling canister-only systems, the canister shall be loaded according to the fuel-tank-refill canister-loading method specified in section III.D.3.3.6., for both the three-day diurnal sequence and the supplemental two-day diurnal sequence.

\* \* \* \* \*

3.3.4. For the three-day diurnal sequence, the evaporative emissions storage canister(s) shall be preloaded with an amount of butane equivalent to 1.5 times the nominal working capacity. For vehicles with multiple canisters in a series configuration, the set of canisters must be preconditioned as a unit. For vehicles with multiple canisters in a parallel configuration, each canister shall be preconditioned separately. For vehicles equipped with a non-integrated refueling emission control system, the non-integrated canisters shall be preconditioned for the three-day diurnal test sequence according to the procedure in section III.D.3.3.5.1. All 2012 ~~and subsequent~~ through 2025 model-year off-vehicle charge capable hybrid electric vehicles equipped with non-integrated refueling canister-only systems shall be

preconditioned for the three-day diurnal test sequence according to the procedure specified in section III.D.3.3.6., unless a manufacturer is conducting only an exhaust emission test sequence, in which case the optional canister preconditioning and loading method allowed by section III.D.1.7.10. may apply. If a vehicle is designed to actively control evaporative or refueling emissions without a canister, the manufacturer shall devise an appropriate preconditioning procedure subject to the approval of the Executive Officer. If canisters on both certification and production vehicles are equipped with purge and load service ports, the service port shall be used for the canister preconditioning. The nominal working capacity of a carbon canister shall be established by determining the mass of butane required to load a stabilized canister to a 2-gram breakthrough. The 2-gram breakthrough is defined as the point at which the cumulative quantity of hydrocarbons emitted is equal to 2 grams, as defined in section I.B.1.3. The determination of nominal capacity shall be based on the average capacity of no less than five canisters which are in a stabilized condition. For stabilization, each canister must be cycled no less than 10 times and no more than 100 times to a 2-gram breakthrough with a 50/50 mixture by volume of butane and nitrogen, at a rate of 15 ± 2 grams butane per hour. Each canister loading step must be preceded by canister purging with 300 canister bed volume exchanges at 48 SCFH. The following procedure shall be used to preload the canister:

\* \* \* \* \*

3.3.6. After the soak period specified in section III.D.1.7.5., is completed, the canister for a 2012 ~~and subsequent~~ through 2025 model-year off-vehicle charge capable hybrid electric vehicle equipped with a non-integrated refueling canister-only system shall be preconditioned and loaded according to the following steps. Prior to conducting the applicable test sequence, the canister shall have already achieved a stabilized state, such as is accomplished using the stabilization method described in section III.D.3.3.4. Good engineering practice and safety considerations, such as, but not limited to, adequate ventilation and appropriate electrical groundings, shall apply.

\* \* \* \* \*

#### **4. Dynamometer Procedure.**

\* \* \* \* \*

4.3. For 2009 ~~and subsequent~~ through 2025 model-year hybrid electric vehicles, the dynamometer procedure shall be performed pursuant to 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," or the "California Exhaust Emission Standards and Test Procedures for 2018 ~~and Subsequent~~ through 2025 Model Year Zero-Emission

Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," as applicable.

\* \* \* \* \*

**6. Dynamometer Test Run, Gaseous and Particulate Emissions.**

\* \* \* \* \*

6.3. For 2009 and subsequent through 2025 model-year hybrid electric vehicles, the dynamometer test run, gaseous and particulate emissions shall be performed pursuant to 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," or the "California Exhaust Emission Standards and Test Procedures for 2018 and Subsequent through 2025 Model Year Zero-Emission Vehicles and Hybrid Electric Vehicles, in the Passenger Car, Light-Duty Truck and Medium-Duty Vehicle Classes," as applicable.

**7. Vehicle Fuel Tank Temperature Stabilization**

\* \* \* \* \*

7.3. The vehicle air conditioning system (if so equipped) shall be set as described in 40 CFR §1066.835. (~~February 19, 2015~~June 29, 2021)

**8. Running Loss Test**

\* \* \* \* \*

8.1. If running loss testing is conducted using an enclosure which incorporates atmospheric sampling equipment, the manufacturer shall perform the following steps for each test:

\* \* \* \* \*

8.1.5. The fuel tank temperature sensor and the ambient temperature sensor shall be connected to the temperature recording system and, if required, to the air management and temperature controllers. The vehicle cooling fan shall be positioned as described in 40 CFR §86.135-90(b). During the running loss test, the cover of the vehicle engine compartment shall be closed as much as possible, windows shall be closed, and air conditioning system (if so equipped) shall be set as described in 40 CFR §1066.835 (~~February 19, 2015~~June 29, 2021). Vehicle coolant

temperature shall be monitored to ensure adequate vehicle coolant air to the radiator intake(s). The temperature recording system and the hydrocarbon and alcohol emission data recording system shall be started

\* \* \* \* \*

8.1.10. Tank pressure shall not exceed 10 inches of water during the running loss test unless a pressurized system is used and the manufacturer demonstrates in a separate test that vapor would not be vented to the atmosphere if the fuel fill pipe cap was removed at the end of the test. For 2012 and ~~subsequent~~ through 2025 model-year off-vehicle charge capable hybrid electric vehicles that are equipped with non-integrated refueling canister-only systems, a manufacturer shall demonstrate in either a separate test or an engineering evaluation, that vapor would not be vented to the atmosphere if the fuel fill pipe cap was removed at the end of the test. Transitory incidents of the pressure exceeding 10 inches of water, not greater than 10 percent of the total driving time, shall be acceptable during the running loss test if the manufacturer can demonstrate that the tank pressure does not exceed 10 inches of water during in-use operation. No pressure checks of the evaporative system shall be allowed. If the manufacturer suspects faulty or malfunctioning instrumentation, a repair of the test instrumentation may be performed. Under no circumstances will any changes/repairs to the evaporative emissions control system be allowed.

\* \* \* \* \*

8.2. If running loss testing is conducted using a cell which incorporates point source sampling equipment, the manufacturer shall perform the following steps for each test:

\* \* \* \* \*

8.2.5. Tank pressure shall not exceed 10 inches of water during the running loss test unless a pressurized system is used and the manufacturer demonstrates in a separate test that vapor would not be vented to the atmosphere if the fuel fill pipe cap was removed at the end of the test. For 2012 and ~~subsequent~~ through 2025 model-year off-vehicle charge capable hybrid electric vehicles that are equipped with non-integrated refueling canister-only systems, a manufacturer shall demonstrate in either a separate test or an engineering evaluation, that vapor would not be vented to the atmosphere if the fuel fill pipe cap was removed at the end of the test. Transitory incidents of the pressure exceeding 10 inches of water, not greater than 10 percent of the total driving time, shall be acceptable during the running loss test if the manufacturer can demonstrate that the tank pressure does not exceed 10 inches of water during in-use operation. No pressure checks of the evaporative system shall be allowed. If the manufacturer

suspects faulty or malfunctioning instrumentation, a repair of the test instrumentation may be performed. Under no circumstances will any changes/repairs to the evaporative emissions control system be allowed.

\* \* \* \* \*

## 10. Diurnal Breathing Loss Test

\* \* \* \* \*

10.3. Revise 40 CFR §86.133-90 to read as follows:

\* \* \* \* \*

10.3.14. Add subparagraph (v) to read: The manufacturer shall specify the time interval of auxiliary power unit operation necessary to purge the evaporative emission control canister, and shall submit an engineering analysis to demonstrate that the canister will be purged to within five percent of its working capacity over the time interval. For 2012 ~~and subsequent~~ through 2025 model-year off-vehicle charge capable hybrid electric vehicles that are equipped with non-integrated refueling canister-only systems, a manufacturer may satisfy this requirement under the optional provision specified in section II.A.5.4.2.

\* \* \* \* \*

## 12. Bleed Emission Test Procedure (BETP)

12.1. Carbon Canister System Stabilization. The carbon canister system shall be stabilized to a 4,000-mile test condition using one of the following methods:

12.1.1. Stabilization on a vehicle. The canister system shall be installed on a representative vehicle, and the vehicle shall be driven for 4,000 miles using the gasoline set forth in part II., section A.100.3.1.2. of the "California 2015 ~~and Subsequent~~ through 2025 Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Year Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles." The last part of this drive shall consist of an Urban Dynamometer Driving Schedule (UDDS), specified in appendix I of 40 CFR §86.

\* \* \* \* \*

## 13. Effective Leak Diameter Test

13.1 To be conducted according to 40 CFR §1066.985 (~~February 19, 2015~~October 25, 2016).

**E. Liquefied Petroleum Gas-fueled Vehicles**

1. For 1983 ~~and subsequent~~through 2025 model-year LPG-fueled motor vehicles, the introduction of 40 percent by volume of chilled fuel and the heating of the fuel tank under the diurnal part of the evaporative test procedures shall be eliminated.

\* \* \* \* \*

**F. Fuel Specifications**

\* \* \* \* \*

2. All 2014 through 2019 model gasoline-fueled motor vehicles certifying to evaporative emission standards set forth in the section I.E.1.(e) (except those vehicles produced by a small volume manufacturer, as noted below, and those vehicles belonging to carry-over families allowed per section I.E.1.(e)(iii)) shall be tested for evaporative emissions on the gasoline set forth in part II., section A.100.3.1.2. of the "California 2015 ~~and Subsequent~~through 2025 Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Year Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles." All 2014 through 2019 gasoline-fueled model motor vehicles not certifying to evaporative emission standards set forth in the section I.E.1.(e) that are not tested using this gasoline shall conduct evaporative emission testing with the test fuel specified in section III.F.1.

All 2020 ~~and subsequent~~through 2025 model gasoline-fueled motor vehicles (except those vehicles produced by a small volume manufacturer) shall be tested for evaporative emissions on the gasoline set forth in part II., section A.100.3.1.2. of the "California 2015 ~~and Subsequent~~through 2025 Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Year Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles"; evaporative emission testing by the Executive Officer will be performed using said test fuel.

A small volume manufacturer shall certify all 2022 ~~and subsequent~~through 2025 model motor vehicles to the evaporative emission requirements using the gasoline set forth in part II., section A.100.3.1.2. of the "California 2015 ~~and Subsequent~~through 2025 Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Year Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles"; evaporative emission testing by the Executive Officer will be performed

using said test fuel. All 2015 to 2021 model motor vehicles produced by a small volume manufacturer that are not tested using this gasoline shall conduct evaporative emission testing with the test fuel in section III.F.1.

3. For 2015 ~~and subsequent~~ through 2025 model motor vehicles other than gasoline-fueled vehicles (except for flexible fuel vehicles certifying to evaporative emission standards set forth in the section I.E.1.(d), as noted below), the evaporative emission test fuel shall be the applicable fuel specified for evaporative emission testing in part II. section A.100.3.3 – A.100.3.6 of the “California 2015 ~~and Subsequent~~ through 2025 Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Year Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.”

For 2015 ~~and subsequent~~ through 2025 model flexible fuel vehicles certifying to the evaporative emission standards set forth in the section I.E.1.(d), the evaporative emission test fuel shall be either the fuel specified for exhaust emission testing in part II. section A.100.3. of 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,” or the applicable fuel specified for evaporative emission testing in part II. section A.100.3.4 of the “California 2015 ~~and Subsequent~~ through 2025 Model Year Criteria Pollutant Exhaust Emission Standards and Test Procedures and 2017 and Subsequent Model Year Greenhouse Gas Exhaust Emission Standards and Test Procedures for Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.”

## **G. Alternative Test Procedures**

1. For vehicles that are required to be certified using the test fuel in section III.F.1., a manufacturer may alternatively demonstrate compliance with the applicable evaporative emission standards using a gasoline test fuel meeting the specifications set forth in 40 CFR §86.113-04(a)(1) (~~February 19, 2015~~ June 29, 2021) if the manufacturer also uses the evaporative emission test procedures set forth in 40 CFR §§86.107-96 through 86.143-96 in place of the test procedures set forth in these test procedures.

2. For vehicles that are required to be certified using California gasoline test fuel, a manufacturer may alternatively demonstrate compliance with the applicable evaporative emission standards using a gasoline test fuel meeting the specifications set forth in 40 CFR §1065.710-15(b) (~~February 19, 2015~~ June 29, 2021) if the manufacturer also uses the evaporative emission test procedures set forth in 40 CFR §§86.107-96 through 86.143-96 in place of the test procedures set forth in these test procedures.

2.1. If gasoline test fuel meeting the specifications set forth in 40 CFR §1065.710-15(b) (~~February 19, 2015~~ June 29, 2021) is used in the Bleed Emission Test Procedure (BETP), then both the fuel tank soak set forth in section III.D.12.2 and the fuel tank/canister assembly soak set forth in section III.D.12.6 shall occur at  $72 \pm 3^{\circ}\text{F}$ , and the diurnal temperature profile shall be as specified in 40 CFR Appendix II. Otherwise, the BETP procedure, as specified in these test procedures, shall be used.

\* \* \* \* \*

4. If the manufacturer uses for certification a test procedure other than section III.D., the Executive Officer has the option to conduct confirmatory and in-use compliance testing with the test procedures set forth in section III.D. of this "California Evaporative Emission Standards and Test Procedures for 2001 through 2025 Model Year Passenger Cars, Light-Duty Trucks, Medium-Duty Vehicles, and Heavy-Duty Vehicles and 2001 and Subsequent Model Year Motorcycles."

\* \* \* \* \*