

State of California
AIR RESOURCES BOARD

Executive Order G-812

WHEREAS, on January 14, 1993, the Air Resources Board (ARB/Board) conducted a public hearing, which had been postponed from November 12, 1992 and December 10, 1992, to consider amendments to certification requirements and procedures for low-emission passenger cars, light-duty trucks, and medium-duty vehicles;

WHEREAS, following the public hearing, the Board adopted Resolution 93-3, in which the Board approved amendments to Title 13, California Code of Regulations, sections 1960.1, 1976 and 2061, as set forth in Attachment A thereto; amendments to the "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles," as set forth in Attachment B thereto; amendments to the "California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Motor Vehicles," as set forth in Attachment C thereto; amendments to the "California Assembly-Line Test Procedures for 1983 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles," as set forth in Attachment D thereto; and amendments to the "California Non-Methane Organic Gas Test Procedures," as set forth in Attachment E thereto, with the modifications to said attachments as described in Attachment F thereto;

WHEREAS, Resolution 93-3 directed the Executive Officer to incorporate into the approved regulatory amendments the modifications described in Attachment F thereto, with such other conforming modifications as may be appropriate, and to adopt the amendments after making the modified language available to the public for a period of 15 days, provided that the Executive Officer shall consider such written comments as may be submitted during this period, shall make such modifications as may be appropriate in light of the comments received, and shall present the regulations to the Board for further consideration if he determines that this is warranted;

WHEREAS, the approved regulations were available for public comment for a period of at least 15 days in accordance with the provisions of Title 1, California Code of Regulations, section 44, with the changes to the originally proposed text clearly indicated;

WHEREAS, several comment letters were received during the 15-day comment period, and the comments were considered by the Executive Officer;

WHEREAS, in light of the comments received during the 15-day comment period, the Executive Officer determined it was necessary and appropriate to make additional modifications to the "California Non-Methane Organic Gas Test Procedures;" portions of the text of this document were made available for supplemental public comment for a period of at least 15 days in accordance

with the provisions of Title 1, California Code of Regulations, section 44, with the additional modifications clearly indicated;

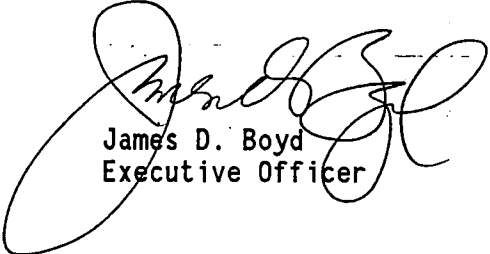
WHEREAS, several comment letters were received during the supplemental 15-day comment period, and the comments have been considered by the Executive Officer;

WHEREAS, the definition of "zero-emission vehicle" in section 1900(b)(15) of Title 13, California Code of Regulations, does not reflect the amendments adopted herein to the otherwise identical definition of "zero-emission vehicle" in section 2.Ae. of the "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles," and the definition of "medium-duty vehicle" in section 1900(b)(9) does not reflect recent amendments to the otherwise identical definition of "medium-duty vehicle" as set forth in section 2.h. of the "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles"; Attachment A hereto includes nonsubstantial editorial corrections to Title 13, California Code of Regulations, section 1900(b)(9) and (b)(15) to conform the definitions of "medium-duty vehicle" and "zero-emission vehicle" to the definitions of these terms in the "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles" as amended herein;

NOW, THEREFORE, IT IS ORDERED that the recitals and findings contained in Resolution 93-3 are incorporated herein.

IT IS FURTHER ORDERED, in accordance with Resolution 93-3 and the above findings, that the amendments to sections 1960.1, 1976, 2061 and 1900, Title 13, California Code of Regulations, are adopted as set forth in Attachment 1 hereto, and the amendments to the incorporated test procedures are amended as set forth in Attachments 2, 3, 4, 5, and 6 hereto.

Executed this 22nd day of September, 1993 at Sacramento, California.



James D. Boyd
Executive Officer

Attachments

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ATTACHMENT 1

SECTION 1960.1, TITLE 13, CCR

Amend Title 13, California Code of Regulations, section 1960.1 to read as follows:

1960.1. Exhaust Emission Standards and Test Procedures - 1981 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles.

(a) through (d) [No Change]

(e)(1) and (e)(2) [No Change]

(e)(3) The exhaust emissions from 1992 and subsequent model-year transitional low-emission vehicles, low-emission vehicles, and ultra-low-emission vehicles, including fuel-flexible and dual-fuel vehicles, shall meet all the requirements of (g)(1) and (h)(2) with the following additions:

1. The regulatory amendments originally proposed in this rulemaking are shown in underline to indicate additions and ~~strikeout~~ to indicate deletions from existing regulations.

EXHAUST EMISSION STANDARDS FOR
TRANSITIONAL LOW-EMISSION VEHICLES, LOW-EMISSION VEHICLES,
AND ULTRA-LOW-EMISSION VEHICLES IN THE
LIGHT-DUTY AND MEDIUM-DUTY VEHICLE WEIGHT CLASSES (5)(6)(7)
["milligrams per mile" (or "mg/mi")]

Vehicle Type (1)	Vehicle Weight (lbs.)(2)	Durability Vehicle Basis (mi)	Vehicle Emission Category(3)	Formaldehyde (mg/mi)(4)(5)
PC and LDT	All 0-3750	50,000	TLEV	15 (23)
			LEV	15 (15)
			ULEV	8 (12)
		100,000	TLEV	18
			LEV	18
			ULEV	11
LDT	3751-5750	50,000	TLEV	18 (27)
			LEV	18 (18)
			ULEV	9 (14)
		100,000	TLEV	23
			LEV	23
			ULEV	13
MDV	0-3750	50,000	LEV	15 (15)
			ULEV	8 (12)
		120,000	LEV	22
			ULEV	12
MDV	3751-5750	50,000	LEV	18 (18)
			ULEV	9 (14)
		120,000	LEV	27
			ULEV	13
MDV	5751-8500	50,000	LEV	22 (22)
			ULEV	11 (17)
		120,000	LEV	32
			ULEV	16
MDV	8501-10,000	50,000	LEV	28 (28)
			ULEV	14 (21)
		120,000	LEV	40
			ULEV	21
MDV	10,001-14,000	50,000	LEV	36 (36)
			ULEV	18 (27)
		120,000	LEV	52
			ULEV	26

- (1) "PC" means passenger cars.
"LDT" means light-duty trucks.
"MDV" means medium-duty vehicles.
- (2) For light-duty or medium-duty vehicles, Vehicle Weight shall mean "Loaded Vehicle Weight" (or "LVW") or "Test Weight" (or "TW"), respectively.
- (3) "TLEV" means transitional low-emission vehicle.
"LEV" means low-emission vehicle.
"ULEV" means ultra-low-emission vehicle.
- (4) Formaldehyde exhaust emission standards apply to vehicles certified to operate on any available fuel, including fuel-flexible and dual-fuel vehicles.
- (5) The standards in parentheses are intermediate in-use compliance standards for 50,000 miles.
 - a. For PCs and LDTs from 0-5750 lbs. LVW, including fuel-flexible and dual-fuel vehicles, intermediate in-use compliance standards shall apply to TLEVs through the 1995 model year, LEVs and ULEVs through the 1998 model year. In-use compliance with standards beyond 50,000 miles shall be waived through 1995 for TLEVs, and through 1998 for LEVs and ULEVs.
 - b. For MDVs from 0-14,000 lbs. TW, including fuel-flexible and dual-fuel vehicles, intermediate in-use compliance standards shall apply to LEVs and ULEVs through the 1999 model year. In-use compliance with standards beyond 50,000 miles shall be waived through the 1999 model year for LEVs and ULEVs.
- (6) Manufacturers shall demonstrate compliance with the above standards for formaldehyde at 50 degrees F according to the procedures specified in section 11k of the "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" as incorporated by reference in section 1960.1(k). Hybrid electric, natural gas, and diesel-fueled vehicles shall be exempt from 50 degrees F test requirements.
- (7) In-use compliance testing shall be limited to PCs and LDTs with fewer than 75,000 miles and MDVs with fewer than 90,000 miles.

(f)(1) The exhaust emissions from new 1993 and 1994 model passenger cars and light-duty trucks, except those produced by a small volume manufacturer, shall not exceed:

1993 AND 1994 MODEL-YEAR PASSENGER CAR AND
LIGHT-DUTY TRUCK EXHAUST EMISSIONS STANDARDS (5)(8)(9)
(grams per mile)

Vehicle Type(1)	Loaded Vehicle Weight (lbs.)	Durability Vehicle Basis (mi)	Non-Methane Hydrocarbons (2)(7)	Carbon Monoxide (7)	Oxides of Nitrogen (1)(3)(4)
PC	All	50,000	0.39 (0.25)	7.0 (3.4)	0.4
PC(6)	All	50,000	0.39 (0.25)	7.0 (3.4)	0.7
PC	All	100,000	(0.31)	(4.2)	n/a
Diesel PC (Option 2)	All	100,000	0.46 (0.31)	8.3 (4.2)	1.0
LDT	0-3750	50,000	0.39 (0.25)	9.0 (3.4)	0.4
LDT (6)	0-3750	50,000	0.39 (0.25)	9.0 (3.4)	0.7
LDT	0-3750	100,000	(0.31)	(4.2)	n/a
Diesel LDT (Option 2)	0-3750	100,000	0.46 (0.31)	10.6 (4.2)	1.0
LDT	3751-5750	50,000	0.50 (0.32)	9.0 (4.4)	1.0
LDT	3751-5750	100,000	(0.40)	(5.5)	n/a
Diesel LDT (Option 1)	3751-5750	100,000	0.50 (0.40)	9.0 (5.5)	1.5

- (1) "PC" means passenger cars.
"LDT" means light-duty trucks.
"n/a" means not applicable.

- (2) For methanol-fueled vehicles certifying to these standards, including fuel-flexible-fueled vehicles when certifying on methanol, "Non-Methane Hydrocarbons" shall mean "Organic Material Hydrocarbon Equivalent" (or "OMHCE"). For methanol- or ethanol-fueled vehicles certifying to the phase-in standards in parenthesis, including fuel-flexible vehicles when certifying on methanol or ethanol, "Non-Methane Hydrocarbons" shall mean "Organic Material Non-Methane Hydrocarbon Equivalent" (or "OMNMHCE").

- (3) The maximum projected emissions of oxides of nitrogen measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600 Subpart B) shall be not greater than 1.33 times the applicable passenger car standards and 2.00 times the applicable light-duty truck and medium-duty vehicle standards shown in the table. Both the projected emissions and the HWFET standard shall be rounded

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in accordance with ASTM E29-67 to the nearest 0.1 g/mi before being compared.

- (4) The standard for in-use compliance for passenger cars and light-duty trucks certifying to the 0.4 g/mi NOx standard shall be 0.55 g/mi NOx for 50,000 miles. If the in-use compliance level is above 0.4 g/mi NOx but does not exceed 0.55 g/mi NOx, and based on a review of information derived from a statistically valid and representative sample of vehicles, the Executive Officer determines that a substantial percentage of any class or category of such vehicles exhibits, prior to 50,000 miles or 5 years, whichever occurs first, an identifiable, systematic defect in a component listed in section 1960.1.5(c)(2), Title 13, California Code of Regulations, which causes a significant increase in emissions above those exhibited by vehicles free of such defects and of the same class or category and having the same period of use and mileage, then the Executive Officer may invoke the enforcement authority under subchapter 2.5, Title 13, California Code of Regulations, commencing with section 2111, to require remedial action by the vehicle manufacturer. Such remedial action shall be limited to owner notification and repair or replacement of the defective component. As used in this section, the term "defect" shall not include failures which are the result of abuse, neglect, or improper maintenance. This provision is applicable for the 1993 model year only.
- (5) Diesel passenger cars and light-duty trucks certifying to these standards are subject to a particulate exhaust emission standard of 0.08 g/mi, determined on a 50,000 mile durability vehicle basis.
- (6) This set of standards is optional. A manufacturer may choose to certify to these standards pursuant to the conditions set forth in section 1960.1.5.
- (7) The emission standards in parenthesis are phase-in standards. For the 1993 model year, each manufacturer must certify a minimum of 40% of their vehicles to the phase-in standards or the more stringent standards in section 1960.1, (g)(1). For the 1994 model year, each manufacturer must certify a minimum of 80% of their vehicles to the phase-in standards or the more stringent standards in section 1960.1, (g)(1). The percentages shall be applied to the manufacturer's total projected sales of California-certified passenger cars and light-duty trucks for the 1993 model year. For 1994 and subsequent model years, each manufacturer shall comply with the fleet average requirements specified in section 1960.1, (g)(2).
- (8) The following conditions shall apply to the in-use compliance standards for 1993 and 1994 model-year passenger cars and light-duty trucks only.
 - a. The in-use compliance standards for those passenger cars and light-duty trucks certifying to the 0.25 g/mi non-methane hydrocarbon and 3.4 g/mi carbon monoxide standards shall be 0.32 g/mi non-methane hydrocarbon and 5.2 g/mi carbon monoxide for 50,000 miles.
 - b. The in-use compliance standards for those light-duty trucks certifying to the 0.32 g/mi non-methane hydrocarbon and 4.4 g/mi carbon monoxide standards shall be 0.41 g/mi non-methane hydrocarbon and 6.7 g/mi carbon monoxide for 50,000 miles.

c. In-use compliance standards shall be waived beyond 50,000 miles.

- (9) All passenger cars and light-duty trucks, except those diesel vehicles certifying to optional 100,000 mile standards, are subject to non-methane hydrocarbon, carbon monoxide, and oxides of nitrogen standards determined on a 50,000 mile durability basis and non-methane hydrocarbon and carbon monoxide standards determined on a 100,000 mile basis.

(f)(2) The exhaust emissions from new 1995 and subsequent model passenger cars and light-duty trucks shall not exceed:

1995 AND SUBSEQUENT MODEL-YEAR PASSENGER CAR AND
LIGHT-DUTY TRUCK EXHAUST EMISSIONS STANDARDS (5)(6)(8)(10)
(grams per mile)

Vehicle Type(1)	Loaded Vehicle Weight (lbs.)	Durability Vehicle Basis (mi)	Non-Methane Hydrocarbons (2)(7)	Carbon Monoxide (7)	Oxides of Nitrogen (1)(3)
PC	All	50,000	0.25	3.4	0.4(4)
PC	All	100,000	0.31	4.2	0.6(9)n/a
Diesel PC (Option 2)	All	100,000	0.31	4.2	1.0
LDT	0-3750	50,000	0.25	3.4	0.4(4)
LDT	0-3750	100,000	0.31	4.2	0.6(9)n/a
Diesel LDT (Option 2)	0-3750	100,000	0.31	4.2	1.0
LDT	3751-5750	50,000	0.32	4.4	0.7
LDT	3751-5750	100,000	0.40	5.5	0.97(9)n/a
Diesel LDT (Option 1)	3751-5750	100,000	0.40	5.5	1.5

- (1) "PC" means passenger cars.
"LDT" means light-duty trucks.
"n/a" means not applicable.
- (2) For methanol- or ethanol-fueled vehicles certifying to these standards, including fuel-flexible-fueled vehicles when certifying on methanol or ethanol, "Non-Methane Hydrocarbons" shall mean "Organic Material Non-Methane Hydrocarbon Equivalent" (or "OMNMHCE").
- (3) The maximum projected emissions of oxides of nitrogen measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600 Subpart B) shall be not greater than 1.33 times the applicable passenger car standards and 2.00 times the applicable light-duty truck standards shown in the table. Both the projected emissions and the HWFET standard shall be rounded in accordance with ASTM E29-67 to the nearest 0.1 g/mi before being compared.
- (4) Small volume manufacturers may choose to certify to an optional 0.7 g/mi NOx standard for the 1995 model year only, pursuant to the conditions set forth in sections 1960.1 (f)(1) and 1960.1.5.

- (5) Diesel passenger cars and light-duty trucks certifying to these standards are subject to a particulate exhaust emission standard of 0.08 g/mi, determined on a 50,000 mile durability vehicle basis.
- (6) For all vehicles, except those certifying to optional diesel standards, in-use compliance with the exhaust emission standards shall be limited to vehicles with less than 75,000 miles.
- (7) For the 1995 and 1996 model years, all manufacturers, except those certifying to optional diesel standards, are permitted alternative in-use compliance. Alternative in-use compliance is permitted for 60% of a manufacturer's vehicles in the 1995 model year and 20% of a manufacturer's vehicles in the 1996 model year. For the 1995 and 1996 model years, small volume manufacturers only are permitted alternative in-use compliance for 100% of the fleet. The percentages shall be applied to the manufacturers' total projected sales of California-certified passenger cars and light-duty trucks for the model year. "Alternative in-use compliance" shall consist of the following:
 - a. For all passenger cars and those light-duty trucks from 0-3750 lbs., loaded vehicle weight, except those diesel vehicles certifying to optional 100,000 mile standards, in-use compliance standards shall be 0.32 g/mi non-methane hydrocarbon and 5.2 g/mi carbon monoxide for 50,000 miles.
 - b. For light-duty trucks from 3751-5750 lbs., loaded vehicle weight, except those diesel light-duty trucks certifying to optional 100,000 mile standards, in-use compliance standards shall be 0.41 g/mi non-methane hydrocarbon and 6.7 g/mi carbon monoxide for 50,000 miles.
 - c. In-use compliance standards shall be waived beyond 50,000 miles.
- (8) All passenger cars and light-duty trucks, except those diesel vehicles certifying to optional standards, are subject to non-methane hydrocarbon, carbon monoxide, and oxides of nitrogen standards determined on a 50,000 mile durability basis and non-methane hydrocarbon and carbon monoxide standards determined on a 100,000 mile durability basis.
- (9) 100,000 mile NOx standards are applicable for 1996 and subsequent model-year vehicles.
- (10) Each manufacturer shall also comply with the requirements specified in section 1960.1, (g)(2).

(g)(1) The exhaust emissions from new 1992 and subsequent model-year light-duty transitional low-emission vehicles, low-emission vehicles, and ultra-low-emission vehicles shall not exceed:

EXHAUST EMISSION STANDARDS
FOR TRANSITIONAL LOW-EMISSION VEHICLES, LOW-EMISSION VEHICLES
AND ULTRA-LOW-EMISSION VEHICLES IN PASSENGER CAR
AND LIGHT-DUTY TRUCK VEHICLE CLASSES (6)(7)(8)(9)(10)
[grams per mile (or "g/mi")]

Vehicle Type (1)	Loaded Vehicle Weight (lbs.)	Durability Vehicle Basis (mi)	Vehicle Emission Category (2)	Non-Methane Organic Gases (3)(4)	Carbon Monoxide	Oxides of Nitrogen (5)
PC and LDT	All 0-3750	50,000	TLEV	0.125 (0.188)	3.4 (3.4)	0.4 (0.4)
			LEV	0.075 (0.100)	3.4 (3.4)	0.2 (0.3)
			ULEV	0.040 (0.058)	1.7 (2.6)	0.2 (0.3)
		100,000	TLEV	0.156	4.2	0.6
			LEV	0.090	4.2	0.3
			ULEV	0.055	2.1	0.3
LDT	3751-5750	50,000	TLEV	0.160 (0.238)	4.4 (4.4)	0.7 (0.7)
			LEV	0.100 (0.128)	4.4 (4.4)	0.4 (0.5)
			ULEV	0.050 (0.075)	2.2 (3.3)	0.4 (0.5)
		100,000	TLEV	0.200	5.5	0.9
			LEV	0.130	5.5	0.5
			ULEV	0.070	2.8	0.5

- (1) "PC" means passenger cars.
"LDT" means light-duty trucks.
- (2) "TLEV" means transitional low-emission vehicle.
"LEV" means low-emission vehicle.
"ULEV" means ultra-low-emission vehicle.
- (3) "Non-Methane Organic Gases" (or "NMOG") shall mean the total mass of oxygenated and non-oxygenated hydrocarbon emissions. To demonstrate compliance with an NMOG standard, NMOG emissions shall be measured in accordance with the "California Non-Methane Organic Gas Test Procedures" as adopted July 12, 1991 and last amended September 22, 1993, which is incorporated herein by reference. For TLEVs, LEVs, and ULEVs certified to operate exclusively on any fuel other than conventional gasoline, and for fuel-flexible and dual-fuel TLEVs, LEVs, and ULEVs when certifying on a fuel other than conventional gasoline, manufacturers shall multiply NMOG exhaust certification mass emission levels at 50,000 and 100,000 miles by the applicable reactivity adjustment factor set forth in section 13 of the "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" as incorporated by reference in section 1960.1(k), or established by the Executive Officer pursuant to Appendix VIII of the foregoing test procedures. In addition, natural gas vehicles certifying to TLEV, LEV or ULEV standards shall calculate a reactivity-adjusted methane exhaust emission value by multiplying the methane exhaust certification level by the applicable methane reactivity adjustment factor set forth in section 13 of the above-referenced test procedures. The product of the NMOG exhaust

emission levels and the reactivity adjustment factor shall be compared to the exhaust NMOG mass emission standards established for the particular vehicle emission category to determine compliance. For natural gas vehicles, the reactivity-adjusted NMOG value shall be added to the reactivity-adjusted methane value and then compared to the exhaust NMOG mass emission standards established for the particular vehicle emission category to determine compliance.

- a. Each manufacturer shall certify PCs or LDTs to meet the exhaust mass emission standards for TLEVs, LEVs, ULEVs, or the exhaust emission standards of sections 1960.1 (e)(1), 1960.1 (f)(1), or 1960.1 (f)(2), Title 13, California Code of Regulations, or as Zero-Emission Vehicles such that the manufacturer's fleet average NMOG values for California-certified PCs and LDTs from 0-3750 lbs. "Loaded Vehicle Weight" (or "LVW"), and LDTs from 3751-5750 lbs. LVW sold produced and delivered for sale in California are less than or equal to the requirement for the corresponding Model Year, Vehicle Type, and LVW Class in section 1960.1 (g)(2), Title 13, California Code of Regulations.
- (4) Fuel-flexible and dual-fuel PCs and LDTs from 0-5750 lbs. LVW shall be certified to exhaust mass emission standards for NMOG established for the operation of the vehicle on any available fuel other than conventional gasoline, and conventional gasoline.
 - a. For TLEVs, LEVs, and ULEVs, when certifying for operation on a fuel other than conventional gasoline, manufacturers shall multiply exhaust NMOG certification mass emission levels at 50,000 and 100,000 miles by the applicable reactivity adjustment factor. In addition to multiplying the exhaust NMOG certification levels by the applicable reactivity adjustment factor, natural gas vehicles shall multiply the exhaust methane certification level by the applicable methane reactivity adjustment factor and add that value to the reactivity-adjusted NMOG value. The exhaust NMOG certification levels for fuel-flexible or dual-fuel vehicles when certifying on gasoline shall not be multiplied by a reactivity adjustment factor.
 - b. For PCs and LDTs from 0-3750 lbs. LVW, the applicable exhaust mass emission standard for NMOG when certifying the vehicle for operation on conventional gasoline shall be:
 - (i) For TLEVs, 0.25 g/mi and 0.31 g/mi for 50,000 and 100,000 miles, respectively.
 - (ii) For LEVs, 0.125 g/mi and 0.156 g/mi for 50,000 and 100,000 miles, respectively.
 - (iii) For ULEVs, 0.075 g/mi and 0.090 g/mi for 50,000 and 100,000 miles, respectively.
 - c. For LDTs from 3751-5750 lbs. LVW, the applicable exhaust mass emission standard for NMOG when certifying the vehicle for operation on conventional gasoline shall be:
 - (i) For TLEVs, 0.32 g/mi and 0.40 g/mi for 50,000 and 100,000 miles, respectively.
 - (ii) For LEVs, 0.160 g/mi and 0.200 g/mi for 50,000 and 100,000 miles, respectively.
 - (iii) For ULEVs, 0.100 g/mi and 0.130 g/mi for 50,000 and 100,000 miles, respectively.
- (5) The maximum projected emissions of "Oxides of Nitrogen" (or "NOx") measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR 600

- Subpart B) shall be not greater than 1.33 times the applicable light-duty vehicle standards shown in the table. Both the projected emissions and the HWFET standard shall be rounded in accordance with ASTM E29-67 to the nearest 0.1 g/mi before being compared.
- (6) The standards in parentheses are intermediate in-use compliance standards for 50,000 miles. For PCs and LDTs from 0-5750 lbs. LVW, including fuel-flexible and dual-fuel vehicles when operating on any available fuel other than ~~conventional~~ gasoline, intermediate in-use compliance standards shall apply to TLEVs through the 1995 model year, and LEVs and ULEVs through the 1998 model year. In-use compliance with standards beyond 50,000 miles shall be waived through the 1995 model year for TLEVs, and through the 1998 model year for LEVs and ULEVs.
 - a. For TLEVs, LEVs, and ULEVs designed to operate on any fuel other than conventional gasoline, including fuel-flexible and dual-fuel vehicles when operating on any fuel other than ~~conventional~~ gasoline, exhaust NMOG mass emission results levels shall be multiplied by the applicable reactivity adjustment factor to determine compliance with intermediate in-use compliance standards for NMOG. In addition to multiplying the exhaust NMOG emission results by the applicable reactivity adjustment factor, natural gas vehicles shall multiply the exhaust methane emission results by the applicable methane reactivity adjustment factor and add that value to the reactivity-adjusted NMOG value. Exhaust NMOG mass emissions from fuel-flexible or dual-fuel vehicles when operating on gasoline shall not be multiplied by a reactivity adjustment factor.
 - b. For fuel-flexible and dual-fuel PCs and LDTs from 0-3750 lbs. LVW, intermediate in-use compliance standards for NMOG emissions at 50,000 miles, when the vehicle is operated on ~~conventional~~ gasoline, shall be 0.32 g/mi, 0.188 g/mi, and 0.100 g/mi for TLEVs, LEVs, and ULEVs, respectively.
 - c. For fuel-flexible and dual-fuel PCs and LDTs from 3751-5750 lbs. LVW, intermediate in-use compliance standards for NMOG emissions at 50,000 miles, when the vehicle is operated on ~~conventional~~ gasoline, shall be 0.41 g/mi, 0.238 g/mi, and 0.128 g/mi for TLEVs, LEVs, and ULEVs, respectively.
 - (7) Manufacturers of diesel vehicles shall also certify to particulate standards at 100,000 miles. For all PCs and LDTs from 0-5750 lbs LVW, the particulate standard is 0.08 g/mi, 0.08 g/mi, and 0.04 g/mi for TLEVs, LEVs, and ULEVs, respectively.
 - (8) Manufacturers shall demonstrate compliance with the above standards for NMOG, CO, and NOx at 50 degrees F according to the procedure specified in section 11k of the "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" as incorporated by reference in section 1960.1(k). For Hybrid electric, natural gas, and diesel-fueled vehicles shall be exempt from 50 degrees F test requirements, compliance with the particulate standard shall also be demonstrated as specified in section 11k of the foregoing test procedures.
 - (9) In-use compliance testing shall be limited to vehicles with fewer than 75,000 miles.
 - (10) Deterioration factors for hybrid electric vehicles shall be based on the emissions and mileage accumulation of the auxiliary power unit.

For certification purposes only, Type A hybrid electric vehicles shall demonstrate compliance with 50,000 mile emission standards (using 50,000 mile deterioration factors), and demonstrating compliance with 100,000 mile emission standards shall not be required. For certification purposes only, Type B hybrid electric vehicles shall demonstrate compliance with 50,000 mile emission standards (using 50,000 mile deterioration factors) and 100,000 mile emission standards (using 75,000 mile deterioration factors). For certification purposes only, Type C hybrid electric vehicles shall demonstrate compliance with 50,000 mile emission standards (using 50,000 mile deterioration factors) and 100,000 mile emission standards (using 100,000 mile deterioration factors).

(g)(2) The fleet average non-methane organic gas exhaust emission values from a manufacturer's sales of the passenger cars and light-duty trucks produced and delivered for sale in California by a manufacturer each model year shall not exceed:

FLEET AVERAGE NON-METHANE ORGANIC GAS EXHAUST EMISSION REQUIREMENTS
FOR LIGHT-DUTY VEHICLE WEIGHT CLASSES (7)(8)(9)
[grams per mile (or "g/mi")]

Vehicle Type (1)	Loaded Vehicle Weight (lbs.)	Durability Vehicle Basis (mi)(7)	Model Year	Fleet Average Non-Methane Organic Gases (2)(3)(4)(5)(6)
PC and LDT	All 0-3750	50,000	1994	0.250
			1995	0.231
			1996	0.225
			1997	0.202
			1998	0.157
			1999	0.113
			2000	0.073
			2001	0.070
			2002	0.068
			2003 & subsequent	0.062
LDT	3751-5750	50,000	1994	0.320
			1995	0.295
			1996	0.287
			1997	0.260
			1998	0.205
			1999	0.150
			2000	0.099
			2001	0.098
			2002	0.095
			2003 & subsequent	0.093

- (1) "PC" means passenger cars.
"LDT" means light-duty trucks.
- (2) "Non-Methane Organic Gases" (or "NMOG") shall mean the total mass of oxygenated and non-oxygenated hydrocarbon emissions.
- (3) For the purpose of calculating fleet average NMOG values, a manufacturer may adjust the certification levels of hybrid electric vehicles (or "HEVs") based on the range of the HEV without the use of the engine. For the purpose of calculating the adjusted NMOG emissions, the following definitions shall apply:
 "Type A HEV" shall mean an HEV which achieves a minimum range of 60 miles over the Dynamometer Driving Cycle as defined by the All-Electric Range Test as defined in "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles" as incorporated by reference in section 1960.1 (k). "Federal Highway Fuel Economy Test Procedure"

(HWFET: 40 CFR 600 Subpart B) without the use of the engine. Use of vehicle accessories cannot lower the battery-only range below 60 miles. This definition shall also apply to vehicles which have no tailpipe emissions, but use fuel fired heaters, regardless of the operating range of the vehicle.

"Type B HEV" shall mean an HEV which achieves a range of 40 - 59 miles over the Dynamometer Driving Cycle as defined by the "Federal Highway Fuel Economy Test Procedure" (HWFET: 40 CFR 600 Subpart B) without the use of the engine. Use of vehicle accessories cannot lower the battery-only range below 40 miles. All-Electric Range Test as defined in "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles" as incorporated by reference in section 1960.1(k).

"Type C HEV" shall mean an HEV which achieves a range of 0 - 39 miles over the All-Electric Range Test Dynamometer Driving Cycle as defined by the "Federal Highway Fuel Economy Test Procedure" (HWFET: 40 CFR 600 Subpart B) without the use of the engine, an HEV which enables the vehicle operators to control the engine time and modes of operation either directly or indirectly, an HEV which can be operated solely through the use of the engine, and all other HEVs excluding "Type A" and "Type B" HEVs as defined in "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" as incorporated by reference in section 1960.1(k).

a. For the purpose of calculating fleet average NMOG values, vehicles which have no tailpipe emissions but use fuel-fired heaters and which are not certified as ZEVs shall be treated as "Type A HEV ULEVs."

(4) Each manufacturer's fleet average NMOG value for the total number of PCs and LDTs from 0-3750 lbs. "Loaded Vehicle Weight" (or "LVW") sold produced and delivered for sale in California shall be calculated in units of g/mi NMOG according to the following equation, where the term "Produced" means produced and delivered for sale in California as:
$$\frac{\{[(\text{No. of Vehicles Certified to the Exhaust Emission Standards in section 1960.1 (e)(1) and Produced Sold} \times (0.39)) + [(\text{No. of Vehicles Certified to the Exhaust Emission Standards in section 1960.1 (f)(1) and Produced} \times (0.25))] + [(\text{No. of Vehicles Certified to the Exhaust Emission Standards in section 1960.1 (f)(2) and Produced Sold} \times (0.25))] + [(\text{No. of Transitional Low-Emission Vehicles (or "TLEVs") excluding HEVs and Produced Sold} \times (0.125))] + [(\text{No. of Low-Emission Vehicles (or "LEVs") excluding HEVs and Produced Sold} \times (0.075))] + [(\text{No. of Ultra-Low-Emission Vehicles (or "ULEVs") excluding HEVs and Produced Sold} \times (0.040))] + (\text{HEV contribution factor})\}}{(\text{Total No. of Vehicles Produced Sold, Including Zero-Emission Vehicles and HEVs})}$$

a. "HEV contribution factor" shall mean the NMOG emission contribution of HEVs to the fleet average NMOG value. The HEV contribution factor shall be calculated in units of g/mi as follows, where the term "Produced" means produced and delivered for sale in California:

HEV contribution factor = $\{[\text{No. of "Type A HEV" TLEVs Produced Sold}] \times (0.100) + [\text{No. of "Type B HEV" TLEVs Produced Sold}] \times (0.113) + [\text{No. of "Type C HEV" TLEVs Produced Sold}] \times (0.125)\} + \{[\text{No. of "Type A HEV" LEVs Produced Sold}] \times (0.057) + [\text{No. of "Type B HEV" LEVs Produced Sold}] \times (0.066) + [\text{No. of "Type C HEV" LEVs Produced Sold}] \times (0.075)\} + \{[\text{No. of "Type A HEV" ULEVs Produced Sold}] \times (0.020) + [\text{No. of "Type B HEV" ULEVs Produced Sold}] \times (0.030) + [\text{No. of "Type C HEV" ULEVs Produced Sold}] \times (0.040)\}$

- b. "Zero-Emission Vehicles" (or "ZEVs") classified as LDTs 3751-5750 lbs. LVW which have been counted toward the ZEV requirements for PCs and LDTs 0-3750 lbs. LVW as specified in note (9) shall be included in the equation of note (4). medium-duty vehicles by weight may be designated as light-duty vehicles for the purpose of calculating fleet average NMOG values.

- c. Beginning with the 1996 model year, manufacturers that produce and deliver for sale in California PCs and LDTs 0-3750 lbs. LVW that are certified to federal Tier I exhaust emission standards in 40 CFR 86.094-8 and 86.094-9 shall add the following term to the numerator of the fleet average NMOG equation in note (4) and calculate their fleet average NMOG values accordingly:

$[(\text{No. of Vehicles Certified to federal Tier I exhaust emission standards and Produced}) \times (0.25)]$

- (5) Manufacturers that certify LDTs from 3751-5750 lbs. LVW, shall calculate a fleet average NMOG value in units of g/mi NMOG according to the following equation, where the term "Produced" means produced and delivered for sale in California as:
 $\{[(\text{No. of Vehicles Certified to the Exhaust Emission Standards in section 1960.1 (e)(1), and Produced Sold} \times (0.50))] + [(\text{No. of Vehicles Certified to the Phase-In Exhaust Emission Standards in section 1960.1 (f)(1), and Produced} \times (0.32))] + [(\text{No. of Vehicles Certified to the Exhaust Emission Standards in section 1960.1 (f)(2), and Produced Sold} \times (0.32))] + [(\text{No. of TLEVs Produced Sold excluding HEVs}) \times (0.160)] + [(\text{No. of LEVs Produced Sold excluding HEVs}) \times (0.100)] + [(\text{No. of ULEVs Produced Sold excluding HEVs}) \times (0.050)] + (\text{HEV contribution factor})\} / (\text{Total No. of Vehicles Produced Sold, Including ZEVs and HEVs}).$

- a. "HEV contribution factor" shall mean the NMOG emission contribution of HEVs to the fleet average NMOG. The HEV contribution factor shall be calculated in units of g/mi as follows, where the term "Produced" means produced and delivered for sale in California:

HEV contribution factor = $\{[\text{No. of "Type A HEV" TLEVs Produced Sold}] \times (0.130) + [\text{No. of "Type B HEV" TLEVs Produced Sold}] \times (0.145) + [\text{No. of "Type C HEV" TLEVs Produced Sold}] \times (0.160)\} + \{[\text{No. of "Type A HEV" LEVs Produced Sold}] \times (0.075) + [\text{No. of "Type B HEV" LEVs Produced Sold}] \times (0.087) + [\text{No. of "Type C HEV" LEVs Produced Sold}] \times (0.100)\} + \{[\text{No. of "Type A HEV" ULEVs Produced Sold}] \times (0.025) + [\text{No. of "Type B HEV" ULEVs Produced Sold}] \times (0.030) + [\text{No. of "Type C HEV" ULEVs Produced Sold}] \times (0.040)\}$

- Produced Sold] x (0.037) + [No. of "Type C HEV" ULEVs
Produced Sold] x (0.050)]
- b. Only ZEVs which have been certified as LDTs 3751-5750 lbs. LVW and which have not been counted toward the ZEV requirements for PCs and LDTs 0-3750 lbs. LVW as specified in note (9) shall be included in the equation of note (5).
 - c. Beginning with the 1996 model year, manufacturers that produce and deliver for sale in California LDTs 3751-5750 lbs. LVW that are certified to the Tier I exhaust emission standards in 40 CFR 86.094-9 shall add the following term to the numerator of the fleet average NMOG equation in note (5) and calculate their fleet average NMOG values accordingly:
[(No. of Vehicles Certified to federal Tier I exhaust emission standards and Produced and Delivered for Sale in California) x (0.32)]
- (6) As used in this subsection, the term "small volume manufacturer" shall mean any vehicle manufacturer with California sales less than or equal to 3000 new LDVs PCs, LDTs and MDVs per model year based on the average number of vehicles sold by the manufacturer each model year from 1989 to 1991, except as noted below. For manufacturers certifying for the first time in California, model-year sales shall be based on projected California sales. In 2000 and subsequent model years, small volume manufacturers shall comply with the fleet average NMOG requirements set forth below.
- a. Prior to the model year 2000, compliance with the specified fleet average NMOG requirements shall be waived.
 - b. In 2000 and subsequent model years, small volume manufacturers shall not exceed a fleet average NMOG value of 0.075 g/mi for PCs and LDTs from 0-3750 lbs. LVW calculated in accordance with note (4) for 50,000 miles.
 - c. In 2000 and subsequent model years, small volume manufacturers shall not exceed a fleet average NMOG value of 0.100 g/mi for LDTs from 3751-5750 lbs. LVW calculated in accordance with note (5) for 50,000 miles.
 - d. If a manufacturer's average California sales exceeds 3000 units of new PCs, LDTs, and MDVs based on the average number of vehicles sold for any three consecutive model years, the manufacturer shall no longer be treated as a small volume manufacturer and shall comply with the fleet average requirements applicable for larger manufacturers as specified in section 1960.1 (g)(2) beginning with the fourth model year after the last of the three consecutive model years.
 - e. If a manufacturer's average California sales falls below 3000 units of new PCs, LDTs, and MDVs based on the average number of vehicles sold for any three consecutive model years, the manufacturer shall be treated as a small volume manufacturer and shall be subject to requirements for small volume manufacturers as specified in section 1960.1 (g)(2) beginning with the next model year.
- (7) In 1994 1992 and subsequent model years, manufacturers that achieve fleet average NMOG values lower than the fleet average NMOG requirement for the corresponding model year shall receive

credits in units of g/mi NMOG determined as: $\{[(\text{Fleet Average NMOG Requirement}) - (\text{Manufacturer's Fleet Average NMOG Value})] \times (\text{Total No. of Vehicles Produced and Delivered for Sale in California Sold, Including ZEVs and HEVs})\}$.

- a. Manufacturers with fleet average NMOG values greater than the fleet average requirement for the corresponding model year shall receive debits in units of g/mi NMOG equal to the amount of negative credits determined by the aforementioned equation. For any given model year, the total g/mi NMOG credits or debits earned for PCs and LDTs 0-3750 lbs. LVW and for LDTs 3751-5750 lbs. LVW shall be summed together. The resulting amount shall constitute the g/mi NMOG credits or debits accrued by the manufacturer for the model year.
- b. For the 1994 through 1997 model years, manufacturers shall equalize emission debits within three model years and prior to the end of the 1998 model year by earning g/mi NMOG emission credits in an amount equal to their g/mi NMOG debits, or by submitting a commensurate amount of g/mi NMOG credits to the Executive Officer that were earned previously or acquired from another manufacturer. For 1998 and subsequent model years, manufacturers shall equalize emission debits by the end of the following model year. If emission debits are not equalized within the specified time period, the manufacturer shall be subject to the Health and Safety Code section 43211 civil penalty applicable to a manufacturer which sells a new motor vehicle that does not meet the applicable emission standards adopted by the state board. The cause of action shall be deemed to accrue when the emission debits are not equalized by the end of the specified time period. For the purposes of Health and Safety Code section 43211, the number of vehicles not meeting the state board's emission standards shall be determined by dividing the total amount of g/mi NMOG emission debits for the model year by the g/mi NMOG fleet average requirement for PCs and LDTs 0-3750 lbs. LVW applicable for the model year in which the debits were first incurred.
- c. The g/mi NMOG emission credits earned in any given model year shall retain full value through the subsequent model year.
- d. The g/mi NMOG value of any credits not used to equalize the previous model-year's debit, shall be discounted by 50% at the beginning of the second model year after being earned, discounted to 25% of its original value if not used by the beginning of the third model year after being earned, and will have no value if not used by the beginning of the fourth model year after being earned.
- e. Any g/mi NMOG emission credits earned by a manufacturer may be applied toward either the fleet average requirement for passenger cars and light-duty trucks from 0-3750 lbs. LVW, or the fleet average requirement for light-duty trucks from 3751-5750 lbs. LVW, at the manufacturer's discretion.

- (8) Manufacturers that produce and deliver for sale in California sell vehicles certified to the phase-in exhaust emission standards in section 1960.1 (f)(1), or vehicles certified to the

exhaust emission standards in sections 1960.1 (f)(2) or 1960.1 (g)(1) and/or ZEVs, in the 1992 and 1993 model years, shall receive emission credits for the sale of these vehicles as determined by the equations in footnotes (4), or (5), and (7) depending upon Vehicle Weight Class, and footnote (7).

- a. For PCs and LDTs from 0-3750 lbs. LVW, the fleet average NMOG requirement for calculating a manufacturer's emission credits shall be 0.390 and 0.334 g/mi NMOG for vehicles certified for the 1992 and 1993 model years, respectively.
- b. For LDTs from 3751-5750 lbs. LVW, the fleet average NMOG requirement for calculating a manufacturer's emission credits shall be 0.500 and 0.428 g/mi NMOG for vehicles certified for the 1992 and 1993 model years, respectively.
- c. Emission credits earned prior to the 1994 model year shall be considered as earned in the 1994 model year and discounted in accordance with the schedule specified in footnote (7).

- (9) While meeting the fleet average requirements, each manufacturer shall certify, produce, and deliver for sale in California its sales fleet of passenger cars and light-duty trucks from 0-3750 lbs. LVW shall be composed of at least 2% ZEVs each model year from 1998 through 2000, 5% ZEVs in 2001 and 2002, and 10% ZEVs in 2003 and subsequent model years. These percentages shall be applied to the manufacturer's total production of PCs and LDTs 0-3750 lbs. LVW delivered for sale in California.

- a. Manufacturers which produce for sale in California more ZEVs than required in a given model year shall earn ZEV credits, which shall have units of g/mi NMOG. The amount of ZEV credits earned shall be equal to the number of ZEVs required to be produced and delivered for sale in California for the model year subtracted from the number of ZEVs produced and delivered for sale in California by the manufacturer for the model year and then multiplied by the fleet average requirement for PCs and LDTs 0-3750 lbs. LVW for the model year. All ZEVs credits earned prior to the 1998 model year shall be treated as if earned in the 1998 model year and shall be discounted in accordance with notes (7)c and (7)d.
- a b. A manufacturer may meet the ZEV requirements in any given model year by submitting to the Executive Officer a commensurate amount of ZEV credits, g/mi NMOG emission credits earned exclusively from the sale of ZEVs. These credits may be earned previously by the manufacturer or acquired from another manufacturer. The amount of ZEV credits required to be submitted shall be calculated by subtracting the number of ZEVs produced and delivered for sale in California by the manufacturer for the model year from the number of ZEVs required to be produced by the manufacturer for the model year and then multiplying by the fleet average requirement for PCs and LDTs 0-3750 lbs. LVW for that model year.
- b c. Manufacturers which certify, produce, and deliver for sale in California sell fewer ZEVs than required in a given model year shall make up the deficit by the end of the next model year by selling an additional number of ZEVs equal to

their deficit or by submitting to the Executive Officer a commensurate amount of ZEV g/mi NM0G credits earned exclusively from the sale of ZEVs. The amount of ZEV credits required to be submitted shall be calculated by subtracting the number of ZEVs produced and delivered for sale in California by the manufacturer for the model year from the number of ZEVs required to be produced by the manufacturer for the model year and then multiplying by the fleet average requirement for PCs and LDTs 0-3750 lbs. LVW for the model year in which the deficit is incurred.

- d. Any manufacturer which fails to produce and deliver for sale in California the required number of ZEVs or submit an appropriate amount of ZEV credits and does not make up ZEV deficits within the specified time period shall be subject to the Health and Safety Code section 43211 civil penalty applicable to a manufacturer which sells a new motor vehicle that does not meet the applicable emission standards adopted by the state board. The cause of action shall be deemed to accrue when the ZEV deficits are not balanced by the end of the specified time period. For the purposes of Health and Safety Code section 43211, the number of vehicles not meeting the state board's standards shall be calculated according to the following equation: (No. of ZEVs required to be produced and delivered for sale in California for the model year) - (No. of ZEVs actually produced and delivered for sale in California for the model year) - [(Amount of ZEV credits submitted for the model year) / (the fleet average requirement for PCs and LDTs 0-3750 lbs. LVW for the model year)].
- e. ZEVs classified as MDVs or as LDTs 3751-5750 lbs. LVW may be counted toward the ZEV requirement for PCs and LDTs 0-3750 lbs. LVW and included in the calculation of ZEV credits as specified in note (9)a., if the manufacturer so designates.
- e f. Small volume manufacturers shall not be required to meet the percentage ZEV requirements. However, small volume manufacturers may earn and market credits for ZEVs they produce and sell deliver for sale in California.
- d g. Intermediate volume manufacturers as defined in section 1960.1 (o) shall not be required to meet the percentage ZEV requirements before the 2003 model year.

(h)(1) The exhaust emissions from new 1995 and subsequent model medium-duty vehicles shall not exceed:

1995 AND SUBSEQUENT MODEL-YEAR
MEDIUM-DUTY VEHICLE EXHAUST EMISSIONS STANDARDS (1)(2)(3)(7)(8)
(grams per mile)

Test Weight(lbs.)	Durability Vehicle Basis(mi)	Non-Methane Hydrocarbons(4)	Carbon Monoxide	Oxides of Nitrogen(5)	Particulates (6)
0-3,750	50,000	0.25	3.4	0.4	n/a
0-3,750	120,000	0.36	5.0	0.55	0.08
3,751-5,750	50,000	0.32	4.4	0.7	n/a
3,751-5,750	120,000	0.46	6.4	0.98	0.10
5,751-8,500	50,000	0.39	5.0	1.1	n/a
5,751-8,500	120,000	0.56	7.3	1.53	0.12
8,501-10,000	50,000	0.46	5.5	1.3	n/a
8,501-10,000	120,000	0.66	8.1	1.81	0.12
10,001-14,000	50,000	0.60	7.0	2.0	n/a
10,001-14,000	120,000	0.86	10.3	2.77	0.12

- (1) "n/a" means not applicable.
"Test Weight" shall mean the average of the vehicle's curb weight and gross vehicle weight.
- (2) Manufacturers have the option of certifying engines used in incomplete and diesel medium-duty vehicles from 8501-14,000 pounds, gross vehicle weight to the heavy-duty engine standards and test procedures set forth in section 1956.8(e), Title 13, California Code of Regulations. Manufacturers certifying incomplete or diesel medium-duty vehicles to the heavy-duty engine standards and test procedures shall specify, in the application for certification, an in-use compliance test procedure, as provided in section 2139(c), Title 13, California Code of Regulations.
- (3) For the 1995 model year only, manufacturers of medium-duty vehicles may certify a maximum of 50 percent of their vehicles to the applicable 1994 model-year standards and test procedures. For the 1995 model year only, small volume manufacturers may certify 100 percent of their vehicles to the applicable 1994 model-year standards and test procedures. The percentage shall be based upon each manufacturer's projected sales of California-certified medium-duty vehicles.
- (4) For ~~methanol- and ethanol-~~ fueled vehicles certifying to these standards, including flexible-fueled vehicles when certifying on methanol or ethanol, "Non-Methane Hydrocarbons" shall mean "Organic Material Non-Methane Hydrocarbon Equivalent" (or "OMNMHCE").
- (5) The maximum projected emissions of oxides of nitrogen measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600 Subpart B) shall be not greater than 2.00 times the applicable medium-duty vehicle standards shown in the table. Both the projected emissions and the HWFET standard shall be rounded in

accordance with ASTM E29-67 to the nearest 0.1 g/mi before being compared.

- (6) Particulate standards are only applicable for diesel vehicles and shall be determined on a 120,000 mile basis.
- (7) In-use compliance testing shall be limited to vehicles with less than 90,000 miles. For the 1995 through 1997 models, alternative in-use compliance is available for medium-duty vehicle manufacturers. A manufacturer may use alternative in-use compliance for up to 100 percent of its fleet in the 1995 and 1996 model years and up to 50 percent of its fleet in the 1997 model year. Small volume manufacturers may use alternative in-use compliance for up to 100 percent of their fleets in the 1995 through 1997 model years. The percentages shall be determined from the manufacturers' projected California sales of medium-duty vehicles. For vehicles certified to the standards and test procedures of this subsection, "alternative in-use compliance" shall consist of an in-use allowance of 25 percent over the applicable 1995 model-year non-methane hydrocarbon, carbon monoxide, and oxides of nitrogen 50,000 mile emission standards and a waiver of the emission standards beyond 50,000 miles.
- (8) All medium-duty vehicles, except diesel-fueled vehicles and those incomplete and diesel vehicles certifying to heavy-duty engine test procedures, are subject to 50,000 mile and 120,000 mile non-methane hydrocarbon, carbon monoxide, and oxides of nitrogen standards. Diesel-fueled vehicles shall be subject to 120,000 mile non-methane hydrocarbon, carbon monoxide, oxides of nitrogen, and particulate standards only.

(h)(2) The exhaust emissions from new 1992 and subsequent model-year medium-duty low-emission vehicles, and ultra-low-emission vehicles shall not exceed:

EXHAUST EMISSION STANDARDS FOR LOW-EMISSION VEHICLES,
AND ULTRA-LOW-EMISSION VEHICLES IN THE
MEDIUM-DUTY VEHICLE WEIGHT CLASS (8)(9)(10)(11)(12)(13)(14)(15)(16)
[grams per mile (or "g/mi")]

Test Weight lbs.) (1)	Durability Vehicle Basis (mi)	Vehicle Emission Category (2)	Non-Methane Organic Gases (3)(4)	Carbon Monoxide	Oxides of Nitrogen (5)	Particulates (6)(7)
0-3750	50,000	LEV	0.125 (0.188)	3.4 (3.4)	0.4 (0.4)	n/a
		ULEV	0.075 (0.100)	1.7 (2.6)	0.2 (0.3)	n/a
	120,000	LEV	0.180	5.0	0.6	0.08
		ULEV	0.107	2.5	0.3	0.04
3751-5750	50,000	LEV	0.160 (0.238)	4.4 (4.4)	0.7 (0.7)	n/a
		ULEV	0.100 (0.128)	2.2 (3.3)	0.4 (0.5)	n/a
	120,000	LEV	0.230	6.4	1.0	0.10
		ULEV	0.143	3.2	0.5	0.05
5751-8500	50,000	LEV	0.195 (0.293)	5.0 (5.0)	1.1 (1.1)	n/a
		ULEV	0.117 (0.156)	2.5 (3.8)	0.6 (0.8)	n/a
	120,000	LEV	0.280	7.3	1.5	0.12
		ULEV	0.167	3.7	0.8	0.06
8501-10000	50,000	LEV	0.230 (0.345)	5.5 (5.5)	1.3 (1.3)	n/a
		ULEV	0.138 (0.184)	2.8 (4.2)	0.7 (1.0)	n/a
	120,000	LEV	0.330	8.1	1.8	0.12
		ULEV	0.197	4.1	0.9	0.06
10,001-14000	50,000	LEV	0.300 (0.450)	7.0 (7.0)	2.0 (2.0)	n/a
		ULEV	0.180 (0.240)	3.5 (5.3)	1.0 (1.5)	n/a
	120,000	LEV	0.430	10.3	2.8	0.12
		ULEV	0.257	5.2	1.4	0.06

- (1) "Test Weight" (or "TW") shall mean the average of the vehicle's curb weight and gross vehicle weight.
- (2) "LEV" means low-emission vehicle.
"ULEV" means ultra-low-emission vehicle.
- (3) "Non-Methane Organic Gases" (or "NMOG") shall mean the total mass of oxygenated and non-oxygenated hydrocarbon emissions. To determine compliance with an NMOG standard, NMOG emissions shall be measured in accordance with "California Non-Methane Organic Gas Test Procedures" as adopted July 12, 1991 and last amended September 22, 1993, which is incorporated herein by reference.
 - a. For LEVs and ULEVs certified to operate on any available fuel other than conventional gasoline, including fuel-flexible or dual-fuel vehicles when certifying on a fuel other than conventional gasoline, manufacturers shall multiply the exhaust NMOG certification mass emission levels at 50,000 and 120,000 miles by the applicable reactivity adjustment factor set forth in section 13 of the "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" as incorporated by

reference in section 1960.1(k), or established by the Executive Officer pursuant to Appendix VIII of the foregoing test procedures. In addition, natural gas vehicles certifying to LEV or ULEV standards shall calculate a reactivity-adjusted methane exhaust emission value by multiplying the methane exhaust certification level by the applicable methane reactivity adjustment factor set forth in section 13 of the above-referenced test procedures. The product of the exhaust NMOG certification mass emission levels and the reactivity adjustment factor shall be compared to the exhaust NMOG mass emission standard established for the particular vehicle emission category to determine compliance. For natural gas vehicles, the reactivity-adjusted NMOG value shall be added to the reactivity-adjusted methane value and then compared to the exhaust NMOG mass emission standards established for the particular vehicle emission category to determine compliance.

- (4) Fuel-flexible and dual-fuel medium-duty vehicles (or "MDVs") from 0-14,000 lbs. TW shall be certified to exhaust mass emission standards for NMOG established for the operation of the vehicle on any fuel other than conventional gasoline, and conventional gasoline.
- a. For LEVs and ULEVs when certifying on the fuel other than gasoline, manufacturers shall multiply the exhaust NMOG certification mass emission levels at 50,000 and 120,000 miles by the applicable reactivity adjustment factor. In addition to multiplying the exhaust NMOG certification levels by the applicable reactivity adjustment factor, natural gas vehicles shall multiply the exhaust methane certification level by the applicable methane reactivity adjustment factor and add that value to the reactivity-adjusted NMOG value. When certifying on gasoline, the exhaust NMOG certification levels of fuel-flexible and dual-fuel vehicles shall not be multiplied by a reactivity adjustment factor.
 - b. For MDVs from 0-3750 lbs. TW, the applicable exhaust mass emission standard for NMOG when certifying the vehicle for operation on conventional gasoline shall be:
 - (i) For LEVs, 0.25 g/mi and 0.36 g/mi for 50,000 and 120,000 miles, respectively.
 - (ii) For ULEVs, 0.125 g/mi and 0.180 ~~0.190~~ g/mi for 50,000 and 120,000 miles, respectively.
 - c. For MDVs from 3751-5750 lbs. TW, the applicable exhaust mass emission standard for NMOG when certifying the vehicle for operation on conventional gasoline shall be:
 - (i) For LEVs, 0.32 g/mi and 0.46 g/mi for 50,000 and 120,000 miles, respectively.
 - (ii) For ULEVs, 0.160 g/mi and 0.230 g/mi for 50,000 and 120,000 miles, respectively.
 - d. For MDVs from 5751-8500 lbs. TW, the applicable exhaust mass emission standard for NMOG when certifying the vehicle for operation on conventional gasoline shall be:
 - (i) For LEVs, 0.39 g/mi and 0.56 g/mi for 50,000 and 120,000 miles, respectively.
 - (ii) For ULEVs, 0.195 g/mi and 0.280 g/mi for 50,000 and 120,000 miles, respectively.

- e. For MDVs from 8501-10,000 lbs. TW, the applicable exhaust mass emission standard for NMOG when certifying the vehicle for operation on conventional gasoline shall be:
 - (i) For LEVs, 0.46 g/mi and 0.66 g/mi for 50,000 and 120,000 miles, respectively.
 - (ii) For ULEVs, 0.230 g/mi and 0.330 g/mi for 50,000 and 120,000 miles, respectively.
- f. For MDVs from 10,001-14,000 lbs. TW, the applicable exhaust mass emission standard for NMOG when certifying the vehicle for operation on conventional gasoline shall be:
 - (i) For LEVs, 0.60 g/mi and 0.86 g/mi for 50,000 and 120,000 miles, respectively.
 - (ii) For ULEVs, 0.300 g/mi and 0.430 g/mi for 50,000 and 120,000 miles, respectively.
- (5) The maximum projected emissions of "Oxides of Nitrogen" (or "NO_x") measured on the federal Highway Fuel Economy Test (HWFET; 40 CFR Part 600 Subpart B) shall not be greater than 2.00 times the applicable MDV standards shown in the table. Both the projected emissions and the HWFET standard shall be rounded in accordance with ASTM E29-67 to the nearest 0.1 g/mi before being compared.
- (6) Particulate standards are only applicable for diesel vehicles and shall be determined on a 120,000 mile basis.
- (7) "n/a" means not applicable.
- (8) Manufacturers have the option of certifying engines used in incomplete and diesel MDVs to the heavy-duty engine standards and test procedures set forth in section 1956.8(h), Title 13, California Code of Regulations. Manufacturers certifying incomplete or diesel MDVs to the heavy-duty engine standards and test procedures shall specify in the application for certification an in-use compliance procedure as provided in section 2139(c), Title 13, California Code of Regulations.
- (9) The standards in parenthesis are intermediate in-use compliance standards for 50,000 miles. For MDVs from 0-14,000 lbs. TW, including fuel-flexible and dual-fuel vehicles when operating on any available fuel other than conventional gasoline, intermediate in-use compliance standards shall apply to LEVs and ULEVs through the 1999 model year. In-use compliance with standards beyond 50,000 miles shall be waived through the 1999 model year for LEVs and ULEVs.
 - a. For LEVs and ULEVs designed to operate on any available fuel other than conventional gasoline, including fuel-flexible and dual-fuel vehicles when operating on any available fuel other than conventional gasoline, NMOG emission results levels shall be multiplied by the applicable reactivity adjustment factor. In addition to multiplying the exhaust NMOG emission results by the applicable reactivity adjustment factor, natural gas vehicles shall multiply the exhaust methane emission results by the applicable methane reactivity adjustment factor and add that value to the reactivity-adjusted NMOG value. For fuel-flexible and dual-fuel vehicles when operating on gasoline, NMOG emission results shall not be multiplied by a reactivity adjustment factor.
 - b. For fuel-flexible and dual-fuel MDVs from 0-3750 lbs. TW, intermediate in-use compliance standards for NMOG emissions at 50,000 miles, when the vehicle is operated on conventional gasoline, shall be 0.32 g/mi and 0.188 g/mi for LEVs and ULEVs, respectively.

- c. For fuel-flexible and dual-fuel MDVs from 3751-5750 lbs. TW, intermediate in-use compliance standards for NMOG emissions at 50,000 miles, when the vehicle is operated on conventional gasoline, shall be 0.41 g/mi and 0.238 g/mi for LEVs and ULEVs, respectively.
 - d. For fuel-flexible and dual-fuel MDVs from 5751-8500 lbs. TW, intermediate in-use compliance standards for NMOG emissions at 50,000 miles, when the vehicle is operated on conventional gasoline, shall be 0.49 g/mi and 0.293 g/mi for LEVs and ULEVs, respectively.
 - e. For fuel-flexible and dual-fuel MDVs from 8501-10,000 lbs. TW, intermediate in-use compliance standards for NMOG emissions at 50,000 miles, when the vehicle is operated on conventional gasoline, shall be 0.58 g/mi and 0.345 g/mi for LEVs and ULEVs, respectively.
 - f. For fuel-flexible and dual-fuel MDVs from 10,001-14,000 lbs. TW, intermediate compliance standards for NMOG emissions at 50,000 miles, when the vehicle is operated on conventional gasoline, shall be 0.75 g/mi and 0.450 g/mi for LEVs and ULEVs, respectively.
- (10) Each manufacturer's MDV fleet shall be defined as the total number of MDVs from 0-14,000 lbs. TW certified and sold produced and delivered for sale in California.
- a. Manufacturers of MDVs shall certify an equivalent of 25% of their MDV fleet to LEV standards in the 1998 model year, 50% of their MDV fleet to LEV standards in the 1999 model year, 75% of their MDV fleet to LEV standards in the 2000 model year, 95% of their MDV fleet to LEV standards in the 2001 model year, 90% of their MDV fleet to LEV standards in the 2002 model year, and 85% of their MDV fleet to LEV standards in the 2003 and subsequent model years.
 - b. Manufacturers of MDVs shall certify an equivalent of 2% of their MDV fleet to ULEV standards in each model year from 1998 through 2000, 5% of their MDV fleet to ULEV standards in the 2001 model year, 10% of their MDV fleet to ULEV standards in the 2002 model year, and 15% of their MDV fleet to ULEV standards in the 2003 and subsequent model years.
 - c. These requirements shall not apply to small volume manufacturers. Small volume manufacturers shall comply with the requirements of note (16) below.
- (11) For the purpose of calculating "Vehicle Equivalent Credits" (or "VECs"), the contribution of hybrid electric vehicles (or "HEVs") will be calculated based on the range of the HEV without the use of the engine. For the purpose of calculating the contribution of HEVs to the VECs, the following definitions shall apply:
- "Type A HEV" shall mean an HEV which achieves a minimum range of 60 miles over the All-Electric Range Test as defined in the "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" as incorporated by reference in section 1960.1 (k), Dynamometer Driving Cycle as defined by the "Federal Highway Fuel Economy Test Procedure" (HWFET; 40 CFR Part 600 Subpart B) without the use of the engine. Use of vehicle accessories cannot lower the battery-only range below 60 miles. This definition shall also apply to vehicles which have no tailpipe

emissions, but use fuel fired heaters, regardless of the operating range of the vehicle.

"Type B HEV" shall mean an HEV which achieves a range of 40 - 59 miles over the All-Electric Range Test as defined in the "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" as incorporated by reference in section 1960.1 (k). Dynamometer Driving Cycle as defined by the "Federal Highway Fuel Economy Test Procedure" (HWFET; 40 CFR part 600 Subpart B) without the use of the engine. Use of vehicle accessories cannot lower the battery-only range below 40 miles.

"Type C HEV" shall mean an HEV which achieves a range of 0 - 39 miles over the All-Electric Range Test Dynamometer Driving Cycle as defined by the "Federal Highway Fuel Economy Test Procedure" (HWFET; 40 CFR Part 600 Subpart B) without the use of the engine, an HEV which enables the vehicle operators to control the engine time and modes of operation either directly or indirectly, an HEV which can be operated solely through the use of the engine, and all other HEVs excluding "Type A" and "Type B" HEVs as defined in the "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" as incorporated by reference in section 1960.1 (k).

a. For the purpose of calculating VECs, electric vehicles which utilize fuel fired heaters and which are not otherwise certified as ZEVs shall be treated as "Type A HEV ULEVs."

(12) In 1992 and subsequent model years, manufacturers that produce and deliver for sale in California sell MDVs in excess of the equivalent requirements for LEVs and/or ULEVs shall receive VECs calculated in accordance with the following equation, where the term "Produced" means produced and delivered for sale in California as: $\{[(\text{No. of LEVs Produced Sold excluding HEVs}) + (\text{No. of "Type C HEV" LEVs Produced Sold})] + [(\text{No. of "Type B HEV" LEVs Produced Sold}) \times (1.1)] + [(\text{No. of "Type A HEV" LEVs Produced Sold}) \times (1.2)] - (\text{Equivalent No. of LEVs Required to be Produced Sold})\} + \{[(\text{No. of ULEVs Produced Sold excluding HEVs}) \times (1.4)] + [(\text{No. of "Type C HEV" ULEVs Produced Sold}) \times (1.4)] + [(\text{No. of "Type B HEV" ULEVs Produced Sold}) \times (1.5)] + [(\text{No. of "Type A HEV" ULEVs Produced Sold}) \times (1.7)] - [(\text{Equivalent No. of ULEVs Required to be Produced Sold}) \times (1.4)]\} + [(\text{No. of ZEVs Produced Sold as MDVs}) \times (2.0)]$.

a. Manufacturers that fail to produce and deliver for sale in California sell the equivalent quantity of MDVs certified to LEV and/or ULEV exhaust emission standards, shall receive "Vehicle-Equivalent Debits" (or "VEDs") equal to the amount of negative VECs determined by the aforementioned equation.

b. Manufacturers shall equalize emission debits within one model year by earning VECs in an amount equal to their previous model-year's total of VEDs, or by submitting a commensurate amount of VECs to the Executive Officer that were earned previously or acquired from another manufacturer. Any manufacturer which fails to equalize emission debits within the specified time period shall be subject to the Health and Safety Code civil penalty applicable to a manufacturer which sells a new motor vehicle that does not meet the applicable emission standards adopted by the state board. The cause of action shall be deemed to accrue when the emission debits

- are not equalized by the end of the specified time period. for the purposes of Health and Safety Code section 43211, the number of vehicles not meeting the state board's emission standards shall be equal to the amount of VEDs incurred.
- c. The VECs earned in any given model year shall retain full value through the subsequent model year.
 - d. The value of any VECs not used to equalize the previous model-year's debit, shall be discounted by 50% at the beginning of second model year after being earned, discounted to 25% of its original value if not depleted by the beginning of the third model year after being earned, and will have no value if not depleted by the beginning of the fourth model year after being earned.
 - e. Any VECs earned prior to the 1998 model year shall be treated as earned in the 1998 model year and discounted in accordance with the schedule specified in note (12)(d).
 - e f. Only ZEVs certified as MDVs shall be included in the calculation of VECs.
- (13) Manufacturers shall demonstrate compliance with the above standards for NMOG, carbon monoxide, and oxides of nitrogen at 50 degrees F according to the procedure specified in section 11k of the "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles" as incorporated by reference in section 1960.1(k). Hybrid electric, natural gas, and diesel-fueled vehicles shall be exempt from 50 degrees F test requirements. For diesel vehicles, compliance with the particulate standard shall also be demonstrated as specified in section 11k of the foregoing test procedures.
- (14) In-use compliance testing shall be limited to vehicles with fewer than 90,000 miles.
- (15) Deterioration factors for hybrid electric vehicles shall be based on the emissions and mileage accumulation of the auxiliary power unit. For certification purposes only, Type A hybrid electric vehicles shall demonstrate compliance with 50,000 mile emission standards (using 50,000 mile deterioration factors), and demonstrating compliance with 120,000 mile emission standards shall not be required. For certification purposes only, Type B hybrid electric vehicles shall demonstrate compliance with 50,000 mile emission standards (using 50,000 mile deterioration factors) and 120,000 mile emission standards (using 90,000 mile deterioration factors). For certification purposes only, Type C hybrid electric vehicles shall demonstrate compliance with 50,000 mile emission standards (using 50,000 mile deterioration factors) and 120,000 mile emission standards (using 120,000 mile deterioration factors).
- (16) As used in 1960.1 (h)(2), Title 13, CCR, the term "small volume manufacturer" shall mean any vehicle manufacturer with California sales less than or equal to 3000 new PCs, LDTs, and MDVs per model year based on the average number of vehicles sold by the manufacturer each model year from 1992 to 1994, except as otherwise noted below. For manufacturers certifying for the first time in California, model-year sales shall be based on projected California sales. In 2001 and subsequent model years, small volume manufacturers shall comply with the requirements set forth below.
- a. Prior to the model year 2001, small volume manufacturers shall not be required to certify, produce, or deliver LEVs and ULEVs for sale in California.

- b. In 2001 and subsequent model years, small volume manufacturers shall certify, produce, and deliver for sale in California LEVs in a quantity equivalent to 100% of their MDV fleet .
- c. If a manufacturer's average California sales exceeds 3000 units of new PCs, LDTs, and MDVs based on the average number of vehicles sold for any three consecutive model years, the manufacturer shall no longer be treated as a small volume manufacturer and shall comply with the LEV and ULEV requirements applicable for larger manufacturers as specified in 1960.1 (h)(2) beginning with the fourth model year after the last of the three consecutive model years.
- e. If a manufacturer's average California sales falls below 3000 units of new PCs, LDTs, and MDVs based on the average number of vehicles sold for any three consecutive model years, the manufacturer shall be treated as a small volume manufacturer and shall be subject to requirements for small volume manufacturers as specified in 1960.1 (h)(2) beginning with the next model year.

(i) and (j) [No Change]

(k) The test procedures for determining compliance with these standards are set forth in "California Exhaust Emission Standards and Test Procedures for 1981 through 1987 Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles", adopted by the State Board on November 23, 1976, as last amended May 20, 1987, and in "California Exhaust Emission Standards and Test Procedures for 1988 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles", adopted by the state board on May 20, 1987 as last amended August 19, 1992 [INSERT], both of which are incorporated herein by reference.

(l) through (o) [No Change]

(p) The cold temperature exhaust carbon monoxide emission levels from new 1996 and subsequent model-year passenger cars, light-duty trucks, and medium-duty vehicles shall not exceed:

1996 AND SUBSEQUENT MODEL-YEAR COLD TEMPERATURE CARBON MONOXIDE
EXHAUST EMISSIONS STANDARDS FOR PASSENGER CARS,
LIGHT-DUTY TRUCKS, AND MEDIUM-DUTY VEHICLES (1)(2)
(grams per mile)

<u>Vehicle Type</u>	<u>Loaded Vehicle Weight (lbs.)</u>	<u>Durability Vehicle Basis (mi)</u>	<u>Carbon Monoxide</u>
<u>Passenger Car</u>	<u>All</u>	<u>50,000</u>	<u>10.0</u>
<u>Light-Duty Truck</u>	<u>0-3750</u>	<u>50,000</u>	<u>10.0</u>
<u>Light-Duty Truck</u>	<u>3751-5750</u>	<u>50,000</u>	<u>12.5</u>
<u>Medium-Duty Vehicle</u>	<u>0-3750</u>	<u>50,000</u>	<u>10.0</u>
<u>Medium-Duty Vehicle</u>	<u>3751-8500 (3)</u>	<u>50,000</u>	<u>12.5</u>

- (1) These standards are applicable to vehicles tested in accordance with 40 CFR Part 86 Subpart C, at a nominal temperature of 20°F (-7°C).
- (2) Natural gas vehicles, diesel-fueled vehicles, hybrid electric vehicles, and zero-emission vehicles are exempt from these standards.
- (3) Medium-duty vehicles with a gross vehicle weight rating greater than 8,500 lbs. are exempt from this standard.

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43104, and 43105, Health and Safety Code. Reference: Sections 39002, 39003, 43000, 43009.5, 43013, 43018, 43100, 43101, 43101.5, 43102, 43103, 43104, 43105, 43106, 43107, 43204-43205.5, Health and Safety Code.

SECTION 1976, TITLE 13, CCR

Amend Title 13, California Code of Regulations, section 1976, to read as follows:

1976. Standards and Test Procedures for Motor Vehicle Fuel Evaporative Emissions .

(a) Fuel evaporative emissions from 1970 through 1977 model passenger cars and light-duty trucks are set forth in Title 40, Code of Federal Regulations, Part 86, Subparts A and C, as it existed on June 20, 1973. These standards are enforced in California pursuant to section 43008 of the Health and Safety Code.

(b)(1) Evaporative emissions for 1978 and subsequent model gasoline-fueled, 1983 and subsequent model liquefied petroleum gas-fueled, and 1993 and subsequent model ~~methanol~~ alcohol-fueled motor vehicles and hybrid electric vehicles subject to exhaust emission standards under this article, except petroleum-fueled diesel vehicles, hybrid electric vehicles that have sealed fuel systems which can be demonstrated to have no evaporative emissions. and motorcycles, shall not exceed:

<u>Vehicle Type</u>	<u>Model Year</u>	<u>Hydrocarbons or OMHCE (1)</u>	
		<u>Hot Soak + Diurnal (grams per test) 50K Useful Life(2)</u>	<u>Running Loss (grams/mile) Useful Life(2)</u>
Passenger cars Light-duty trucks Medium-duty vehicles Heavy-duty vehicles	1978 and 1979	6.0	
Passenger cars Light-duty trucks Medium-duty vehicles Heavy-duty vehicles	1980 - 1994	2.0	
Passenger cars Light-duty trucks Medium-duty vehicles (6,000-8,500 lbs. GVWR (8,501-14,000 lbs. GVWR) (4) Heavy-duty vehicles	1995 and subsequent (3)	2.0	0.05

1. The regulatory amendments proposed in this rulemaking are shown in underline to indicate additions and ~~strikeout~~ to indicate deletions from existing regulations.

(over 14,000 lbs. GVWR)

Hybrid Electric Passenger Car	1993 and	2.0	0.05
Hybrid Electric Light-Duty Trucks	subsequent (5)		
Hybrid Electric Medium-Duty Vehicles			

- (1) Organic Material Hydrocarbon Equivalent, for methane alcohol vehicles.
- (2) For purposes of this section, "useful life" shall have the same meaning as provided in section 2112, Title 13, California Code of Regulations. Approval of vehicles which are not exhaust emission tested using a chassis dynamometer pursuant to section 1960.1, Title 13, California Code of Regulations shall be based on an engineering evaluation of the system and data submitted by the applicant.
- (3) The running loss and useful life diurnal plus hot soak evaporative emission standards (hereinafter "running loss and useful life standards") shall be phased-in beginning with the 1995 model year. Each manufacturer, except small volume manufacturers, shall certify the specified percent of passenger cars and of light-duty trucks, medium-duty vehicles and heavy-duty vehicles to the running loss and useful life evaporative emission standards according to the following schedule:

<u>Model Year</u>	<u>Number of Vehicles Certified to Running Loss* and Useful Life Standards</u>
1995	10 percent
1996	30 percent
1997	50 percent

* The number of motor vehicles of each vehicle type required to be certified to the running loss and useful life standards shall be determined by applying the specified percentage to the manufacturer's projected California model-year sales of passenger cars and of light-duty trucks, medium-duty vehicles and heavy-duty vehicles.

Beginning with the 1998 model year, all motor vehicles subject to the running loss and useful life standards, including those produced by small volume manufacturers, shall be certified to the specified standards.

All 1995 through 1997 model year motor vehicles which are not subject to running loss and useful life standards pursuant to the phase-in schedule shall comply with the 50,000-mile standards in effect for 1980 through 1994 model-year vehicles.

(4) Compliance with the evaporative emission standards for complete vehicles in this weight range shall be based on the Sealed Housing for Evaporative Determination (SHED) conducted in accordance with the procedures set forth in Title 40, Code of Federal Regulations, sections 86.130-78 through 86.143-90 as they existed July 1, 1989.

(5) The running loss and useful life diurnal plus hot soak evaporative emission standards (hereinafter "running loss and useful life standards") for all hybrid electric vehicles shall be effective in the 1993 and subsequent model years.

(2) Evaporative emissions for gasoline-fueled motorcycles subject to exhaust emission standards under this article shall not exceed:

<u>Motorcycle Class</u>	<u>Model Year</u>	<u>Hydrocarbons (grams per test)</u>
Class I and II (50-279cc)	1983 and 1984	6.0
	1985 and subsequent	2.0
Class III (280cc and larger)	1984 and 1985	6.0
	1986 and subsequent	2.0
Class III (280cc and larger) (Optional Standard for Small- Volume Manufacturers)	1986-88	6.0

(c) The procedure for determining compliance with the standards in subsection (b) above is set forth in "California Evaporative Emission Standards and Test Procedures for 1978 and Subsequent Model Motor Vehicles," adopted by the state board on April 16, 1975, as last amended November 20, 1991, effective January 16, 1992.

(d) Motorcycle engine families certified to 0.2 grams per test or more below the applicable standards shall be exempted from the state board's "Specifications for Fill Pipes and Openings of Motor Vehicle Fuel Tanks" pursuant to section 2290, Title 13, California Code of Regulations.

(e) Small volume motorcycle manufacturers electing to certify 1986, 1987, or 1988 model-year Class III motorcycles in accordance with the optional 6.0 gram per test evaporative emission standard shall submit, with the certification application, a list of the motorcycle models for which it intends to seek California certification and estimated sales data for such models. In addition, each such manufacturer shall, on or before July 1 of each year in which it certifies motorcycles under the optional standard, submit a report describing its efforts and progress toward meeting the more stringent evaporative emission standards. The report shall also contain a description of the manufacturer's current hydrocarbon evaporative emission control development status, along with supporting test data, and shall summarize future planned development work.

(f) For purposes of this section, a small volume manufacturer means a manufacturer which sells less than 5,000 new motorcycles per year in California.

NOTE: Authority cited: Sections 39600, 39601, 39667, 43013, 43018, 43101, 43104 and 43107, Health and Safety Code. Reference: Sections 39003, 39500, 39667, 43000, 43013, 43018, 43100, 43101, 43102, 43104 and 43107, Health and Safety Code.

SECTION 2061, Title 13, CCR

Amend Title 13, California Code of Regulations, section 2061 to read as follows:

2061. Assembly-Line Test Procedures - 1983 and Subsequent Model-Years.

New 1983 and subsequent model-year passenger cars, light-duty trucks, and medium-duty vehicles, excluding zero-emission vehicles and medium-duty vehicles certified according to the optional standards and test procedures of section 1956.8, Title 13, California Code of Regulations, subject to certification and manufactured for sale in California shall be tested in accordance with the "California Assembly-Line Test Procedures for 1983 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles," adopted November 24, 1981, as last amended August 21, 1984 September 22, 1993, which is incorporated herein by reference, including federally certified light-duty motor vehicles, except as provided in "Guidelines for Certification of 1983 and Subsequent Model-Year Federally Certified Light-Duty Motor Vehicles for Sale in California," adopted July 20, 1982, as last amended July 12, 1991, which is incorporated herein by reference. For vehicles certified to NMOG standards, any reference to NMHC standards in "California Assembly-Line Test Procedures for 1983 and Subsequent Model-Year Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles" shall imply NMOG standards.

NOTE: Authority cited: Sections 39515, 39600, 39601, 43013, 43018, 43101, 43104 and 43210, Health and Safety Code. Reference: Sections 39002, 39003, 39500, 43000, 43013, 43018, 43100, 43101, 43101.5, 43102, 43103, 43104, 43105, 43106, 43204, 43210, 43211 and 43212, Health and Safety Code.

SECTION 1900, TITLE 13, CCR

Amend Title 13, California Code of Regulations, section 1900, as follows:

1900. Definitions.

(a) and (b)(1) through (b)(8) [No change]

(b)(9) "Medium-duty vehicle" means any pre-1995 model year heavy-duty vehicle having a manufacturer's gross vehicle weight rating of 8,500 pounds or less, any 1992 and subsequent model-year heavy-duty low-emission vehicle, or ultra-low-emission, or zero-emission vehicle having a manufacturer's gross vehicle weight rating of 14,000 pounds or less, or any 1995 and subsequent model year heavy duty vehicle having a manufacturer's gross vehicle weight rating of 14,000 pounds or less.

(b)(15) "Zero-emission vehicle" (or "ZEV") means any vehicle which is certified by the Executive Officer to produce/ zero emissions of any criteria pollutants under any and all possible operational modes and conditions. Incorporation of a fuel fired heater shall not preclude a vehicle from being certified as a ZEV provided the fuel fired heater cannot be operated at ambient temperatures above 40 degrees Fahrenheit and the heater is demonstrated to have zero evaporative emissions under any and all possible operational modes and conditions.

(b)(16) [No change]

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, and 43104, Health and Safety Code. Reference: Sections 39002, 39003, 39010, 39500, 40000, 43000, 43013, 43100, 43101, 43101.5, 43102, 43103, 43104, 43106, and 43204, Health and Safety Code; and Section 27156, Vehicle Code.