

**SECTION 1956.8, TITLE 13, CCR**

Amend Title 13, California Code of Regulations, section 1956.8, as follows<sup>1</sup>:

**1956.8 Exhaust Emission Standards and Test Procedures - 1985 and Subsequent Model Heavy-Duty Engines and Vehicles.**

(a) through (b) [No Change]

(c)(1) The exhaust emissions from (A) new 1987 and subsequent model heavy-duty Otto-cycle engines; (except methanol-fueled engines; and *except* heavy-duty Otto-cycle natural-gas-fueled and liquified-petroleum-gas-fueled Otto-cycle engines derived from diesel-cycle engines;) and (B) from new 1993 and subsequent model heavy-duty methanol-fueled Otto-cycle engines; (except in all cases engines used in medium-duty vehicles); shall not exceed:-;

Exhaust Emission Standards  
(grams per brake horsepower-hour)

Model Year	Total Hydrocarbons or OMHCE <sup>A</sup>	Optional Non-Methane Hydrocarbons <sup>A</sup>	Carbon Monoxide <sup>B</sup>	Oxides of Nitrogen
1987 <sup>C</sup>	1.1 <sup>D</sup> 1.9 <sup>E</sup>		14.4 <sup>D</sup> 37.1 <sup>E</sup>	10.6 10.6
1988-1989	1.1 <sup>D</sup> 1.9 <sup>E</sup>		14.4 <sup>D</sup> 37.1 <sup>E</sup>	6.0 6.0
1990	1.1 <sup>D</sup> 1.9 <sup>E</sup>	0.9 <sup>D</sup> 1.7 <sup>E</sup>	14.4 <sup>D</sup> 37.1 <sup>E</sup>	6.0 6.0
1991-1994	1.1 <sup>D</sup> 1.9 <sup>E</sup>	0.9 <sup>D</sup> 1.7 <sup>E</sup>	14.4 <sup>D</sup> 37.1 <sup>E</sup>	5.0 5.0

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The regulatory amendments proposed in this rulemaking are shown in underline to indicate additions and ~~strikeout~~ to indicate deletions from existing regulations. In June, 1995, staff proposed modifications to the heavy-duty Otto-cycle regulations. For that rulemaking, added text are identified herein by *italics*; deletions are shown in *italicized strikeout*. Modifications to the originally noticed text (August, 1995) are designated by ***bold italics*** and ~~***bold strikeout***~~ to represent additions and deletions, respectively. Modifications to the modified text are designated by ***underlined bold italics*** and ~~***underlined bold strikeout***~~, to indicate additions and deletions, respectively.

<i>1995 and subsequent - 1997</i>	1.9 <sup>E</sup>	1.7 <sup>E</sup>	37.1 <sup>E</sup>	5.0
<i>1995-1997</i>	1.9 <sup>E</sup>	1.7 <sup>E</sup>	37.1 <sup>E</sup>	2.5-0.5 <sup>F</sup>
<i>1998 and subsequent - 2003</i>	1.9 <sup>E</sup>	1.7 <sup>E</sup>	37.1 <sup>E</sup>	4.0
<i>1998 and subsequent - 2003</i>	1.9 <sup>E</sup>	1.7 <sup>E</sup>	37.1 <sup>E</sup>	1.5-0.5 <sup>F</sup>
<i>2004 and subsequent<sup>G</sup></i>	<b>0.7</b>	<b>0.5</b>	<b>14.4</b>	<b>2.0</b>

- A The total or optional non-methane hydrocarbon standards apply to petroleum-fueled, natural-gas-fueled and liquified-petroleum-gas-fueled engines. The Organic Material Hydrocarbon Equivalent, or OMHCE, standards apply to methanol-fueled engines.
- B Carbon Monoxide emissions from engines utilizing exhaust aftertreatment technology shall also not exceed 0.5 percent of the exhaust gas flow at curb idle.
- C Manufacturers with existing heavy-duty Otto-cycle engines certified to the California 1986 steady-state emission standards and test procedures may as an option certify those engines, for the 1987 model year only, in accordance with the standards and test procedures for 1986 heavy-duty Otto-cycle engines established in Section 1956.7.
- D These standards are applicable to Otto-cycle engines intended for use in all heavy-duty vehicles.
- E Applicable to heavy-duty Otto-cycle engines intended for use only in vehicles with a gross vehicle weight rating greater than 14,000 pounds. Also, as an option, a manufacturer may certify one or more 1988-1994 Otto-cycle heavy-duty engine configurations intended for use in all heavy-duty vehicles to these emission standards provided that the total model-year sales of such configurations(s) being certified to these emission standards represent no more than 5 percent of total model-year sales of all Otto-cycle heavy-duty engines intended for use in vehicles with a Gross Vehicle Weight Rating of up to 14,000 pounds by the manufacturer.
- F *These are optional standards and apply to all heavy-duty engines intended for use only in vehicles with a gross vehicle weight greater than 14,000 pounds. A manufacturer*

may elect to certify to an optional standard between the values, inclusive, by 0.5 grams per brake horsepower-hour increments.

G ~~Manufacturers may choose to certify incomplete medium-duty vehicles from 8,501-14,000 pounds gross vehicle weight to these emission standards as an alternative to the primary standards and test procedures specified in Section 1960.1, Title 13, CCR beginning with the 2004 model year. Manufacturers certifying medium-duty vehicles to these optional heavy-duty 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, CCR.~~

(2) [No Change]

(3) *The exhaust emissions from new 2004 and subsequent model heavy-duty Otto-cycle engines shall not exceed<sup>A</sup>:*

*(a) Non-Methane Hydrocarbons plus Oxides of Nitrogen: 2.5 grams per brake horsepower-hour with non-methane hydrocarbons not to exceed 0.5 grams per brake horsepower-hour; or 2.4 grams per brake horsepower-hour;*

*(b) Carbon Monoxide: ~~14.4~~ 37.1 grams per brake horsepower-hour.*

A. [The U.S. EPA is considering the adoption of federal emission standards for heavy-duty Otto-cycle engines. If the U.S. EPA promulgates a Final Rule establishing emission standards for this category, the ARB will hold a noticed public hearing within one year of such promulgation to consider the adoption of similar or identical standards in California.]

(d) The test procedures for determining compliance with standards applicable to 1987 and subsequent model heavy-duty Otto-cycle engines and vehicles are set forth in the "California Exhaust Emission Standards and Test Procedures for 1987 and Subsequent Model Heavy-Duty Otto-Cycle Engines and Vehicles," adopted April 25, 1986, as last amended [INSERT DATE OF ADOPTION], which is incorporated by reference herein.

(e) through (g) [No Change]

(h) The exhaust emissions from new 1992 and subsequent model-year engines used in incomplete medium-duty low-emission vehicles, **and** ultra-low-emission vehicles, **and super-ultra-low-emission vehicles**, and for diesel engines used in medium-duty low-emission vehicles, **and** ultra-low-emission vehicles **and super-ultra-low-emission vehicles** shall not exceed:

**Exhaust Emission Standards for Engines Used in Incomplete Medium-Duty  
Low-Emission Vehicles, and Ultra-Low-Emission Vehicles, and Super  
Ultra-Low-Emission Vehicles, and for Diesel Engines Used in Medium-Duty  
Low-Emission Vehicles, and Ultra-Low-Emission Vehicles, and  
Super Ultra-Low-Emission Vehicles<sup>A,F</sup>**

(grams per brake horsepower-hour)

Model Year	Vehicle Emissions Category <sup>B</sup>	Carbon Monoxide	Non-Methane Hydrocarbons and Oxides of Nitrogen <sup>C</sup>		Formaldehyde	Particulates
1992 <sup>E</sup> and subsequent - 2001	LEV	14.4	3.5		0.050	0.10
<u>2002-2003<sup>E,H</sup></u>	<u>LEV</u>	<u>14.4</u>	<u>3.0</u>		<u>0.050</u>	<u>0.10</u>
1992-2003 <sup>E,H</sup>	ULEV	<del>7.2</del> 14.4	2.5		<del>0.025</del> 0.050	<del>0.05</del> 0.10
2004 and subsequent <sup>G</sup>	ULEV	14.4	NMHC	NOx	0.050	0.10
			0.5	2.0		
2004 and subsequent	ULEV - Opt. A.	14.4	2.5 <sup>G,I</sup>		0.050	0.10
2004 and subsequent	ULEV - Opt. B	14.4	2.4 <sup>G,I</sup>		0.050	0.10
1992 and subsequent	SULEV	7.2	2.0		0.025	0.05

- A. This set of standards is optional. Manufacturers of engines used in incomplete medium-duty vehicles or diesel engines used in medium-duty vehicles from 8501-14,000 pounds, gross vehicle weight may choose to comply with these standards as an alternative to the primary emission standards and test procedures specified in section 1960.1, Title 13, California Code of Regulations. Manufacturers that choose to comply with these optional heavy-duty 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.
- B. "LEV" means low-emission vehicle.  
 "ULEV" means ultra-low-emission vehicle.  
"SULEV" means super *ultra*-low-emission vehicle.

- C. This standard is the sum of the individual non-methane hydrocarbon emissions and oxides of nitrogen emissions. For methanol-fueled engines, non-methane hydrocarbons shall mean organic material hydrocarbon equivalent ("OMHCE").
- D. This standard shall only apply to diesel engines and vehicles.
- E. Manufacturers may certify engines used in incomplete medium-duty vehicles or diesel engines used in medium-duty vehicles to these standards to meet the requirements of section 1956.8(g), Title 13, California Code of Regulations.
- F. In-use compliance testing shall be limited to vehicles or engines with fewer than 90,000 miles.
- G. [The U.S. EPA is considering the adoption of federal emission standards for engines used in incomplete medium-duty vehicles or diesel engines used in medium-duty vehicles. If the U.S. EPA promulgates a Final Rule establishing emission standards for this category, the ARB will hold a noticed public hearing within one year of such promulgation to consider the adoption of similar or identical standards in California.]
- H. ***For engines certified to the 3.5 grams per brake horsepower-hour (g/bhp-hr) LEV standards, the in-use compliance standard shall be 3.7 g/bhp-hr for the first two model years of introduction. For engines certified to the 2002 and 2003 model year LEV standards, the in-use compliance standard shall be 3.2 g/bhp-hr. For engines certified to the 1992 through 2003 model year ULEV standards, the in-use compliance standard shall be 2.7 g/bhp-hr for the first two model years of introduction. For engines certified to the 1992 and subsequent SULEV standards, the in-use compliance standard shall be 2.2 g/bhp-hr for the first two model years of introduction.***
- I. ***Manufacturers have the option of certifying to either option A or B. Manufacturers electing to certify to Option A must demonstrate that the NMHC emissions do not exceed 0.5 g/bhp-hr.***

NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43103, 43104, and 43806, Health and Safety Code, and Vehicle Code section 28114. Reference: Sections 39002, 39003, 43000, 43013, 43018, 43100, 43101, 43101.5, 43102, 43103, 43104, 43106, 43204, and 43806, Health and Safety Code.