

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

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(b) *Test Procedures.* The test procedures for determining compliance with standards applicable to 1985 and subsequent model heavy-duty diesel engines and vehicles and the requirements for participating in the averaging, banking and trading programs, are set forth in the "California Exhaust Emission Standards and Test Procedures for 1985 through 2003 Model Heavy-Duty Diesel Engines and Vehicles," adopted April 8, 1985, as last amended December 12, 2002, the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," adopted December 12, 2002, as last amended ~~December 22, 2011~~ March 22, 2012, and the "California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes," adopted October 24, 2002, which are incorporated by reference herein.

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(c)(1)(B) The exhaust emissions from new 2005 and subsequent model heavy-duty Otto-cycle engines, except for Otto-cycle medium- and heavy-duty engines subject to the alternative standards in 40 CFR §86.005-10(f), shall not exceed:

**California Emission Standards for 2005 and Subsequent Model  
Heavy-Duty Otto-Cycle Engines<sup>A</sup>**  
(in g/bhp-hr)

Model Year	Emission Category	NMHC + NO <sub>x</sub>	NMHC	NO <sub>x</sub>	CO <sup>F,G</sup>	HCHO	PM
<b>Standards for Heavy-Duty Otto-Cycle Engines Used in 2005 through 2019 Model Incomplete Medium-Duty Vehicles 8,501 to 10,000 44,000 pounds GVW<sup>B</sup> and 2005 and Subsequent Model Incomplete Medium-Duty Vehicles 10,001 to 14,000 pounds GVW<sup>C</sup></b>							
2005 through 2007	ULEV	1.0 <sup>C,E</sup>	n/a	n/a	14.4	0.05	n/a
	SULEV	0.5	n/a	n/a	7.2	0.025	n/a
2008 and subsequent	ULEV	n/a	0.14 <sup>E</sup>	0.20 <sup>E</sup>	14.4	0.01	0.01
	SULEV	n/a	0.07 <sup>E</sup>	0.10 <sup>E</sup>	7.2	0.005	0.005
<b>Standards for Heavy-Duty Otto-Cycle Engines Used In Heavy-Duty Vehicles Over 14,000 pounds GVW</b>							
2005 through 2007	n/a	1.0 <sup>C,E,D,F</sup>	n/a	n/a	37.1	0.05 <sup>DE</sup>	n/a
2008 and subsequent	n/a	n/a	0.14 <sup>E</sup>	0.20 <sup>E</sup>	14.4	0.01	0.01

<sup>A</sup> These standards apply to petroleum-fueled, alcohol-fueled, liquefied petroleum gas-fueled and natural gas-fueled Otto-cycle engines.

<sup>B</sup> For the 2020 and subsequent model years, medium-duty vehicles 8,501 to 10,000 pounds GVW must certify to the primary emission standards and test procedures for complete vehicles specified in section 1961.2, title 13, CCR.

<sup>B,C</sup> A manufacturer of engines used in incomplete medium-duty vehicles may choose to comply with these standards as an alternative to the primary emission standards and test procedures for complete vehicles specified in section 1961 or 1961.2, title 13, CCR. A manufacturer that chooses to comply with these optional heavy-duty engine standards and test procedures shall specify, in the Part I application for certification, an in-use compliance test procedure, as provided in section 2139(c), title 13 CCR.

<sup>C,D</sup> A manufacturer may request to certify to the Option 1 or Option 2 federal NMHC + NO<sub>x</sub> standards as set forth in 40 CFR § 86.005-10(f). However, for engines used in medium-duty vehicles, the formaldehyde level must meet the standard specified above.

<sup>DE</sup> This standard only applies to methanol-fueled Otto-cycle engines.

<sup>EE</sup> A manufacturer may elect to include any or all of its medium- and heavy-duty Otto-cycle engine families in any or all of the emissions ABT programs for HDEs, within the restrictions described in section 1.15 of the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines," incorporated by reference in section 1956.8(d). For engine families certified to the Option 1 or 2 federal standards, the FEL must not exceed 1.5 g/bhp-hr. If a manufacturer elects to include engine families certified to the 2005 and subsequent model year standards, the NO<sub>x</sub> plus NMHC FEL must not exceed 1.0 g/bhp-hr. For engine families certified to the 2008 and subsequent model year standards, the FEL is the same as set forth in 40 CFR 86.008-10(a)(1).

<sup>FG</sup> Idle carbon monoxide: For all Otto-cycle heavy-duty engines utilizing aftertreatment technology, and not certified to the on-board diagnostics requirements of section 1968, et seq, as applicable, the CO emissions shall not exceed 0.50 percent of exhaust gas flow at curb idle.

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(3) Optional Standards for Complete Heavy-Duty Vehicles that Use Heavy-Duty Otto-Cycle Engines. Manufacturers may request to group complete heavy-duty Otto-cycle vehicles into the same test group as Otto-cycle vehicles certifying to the LEV III exhaust emission standards and test procedures specified in title 13, CCR, §1961.2, so long as those complete heavy-duty Otto-cycle vehicles meet the most stringent LEV III standards to which any vehicle within that test group certifies.

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(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 through 2003 Model Heavy-Duty Otto-Cycle Engines and Vehicles," adopted April 25, 1986, as last amended December 27, 2000, the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines," adopted December 27, 2000, as last amended ~~September 27, 2010~~ March 22, 2012, the "California Non-Methane Organic Gas Test Procedures," adopted July 12, 1991, as last amended ~~July 30, 2002~~ March 22, 2012, and the "California Interim Certification Procedures for 2004 and Subsequent Model Hybrid-Electric Vehicles, in the Urban Bus and Heavy-Duty Vehicle Classes," adopted October 24, 2002, which are incorporated by reference herein.

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(h) The exhaust emissions from new:

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(2) 1992 and subsequent model diesel engines used in medium-duty low-emission vehicles, ultra-low-emission vehicles and super-ultra-low-emission vehicles shall not exceed:

**Exhaust Emission Standards for Engines Used in 1992 through 2004 Model  
Incomplete Otto-Cycle Medium-Duty Low-Emission Vehicles, Ultra-Low-  
Emission Vehicles, and Super Ultra-Low-Emission Vehicles, and for 1992  
and Subsequent Model Diesel Engines Used in  
Medium-Duty Low-Emission Vehicles, 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	NMHC + NOx <sup>C</sup>	Non-Methane Hydrocarbons	Oxides of Nitrogen	Formaldehyde	Particulates <sup>D</sup>
1992 <sup>E</sup> - 2001	LEV	14.4	3.5 <sup>K</sup>	n/a	n/a	0.050	0.10 <sup>K</sup>
2002-2003 <sup>E</sup>	LEV	14.4	3.0 <sup>K</sup>	n/a	n/a	0.050	0.10 <sup>K</sup>
1992-2003 <sup>E,H</sup>	ULEV	14.4	2.5 <sup>K</sup>	n/a	n/a	0.050	0.10 <sup>K</sup>
2004-2006 and subsequent <sup>L</sup>	ULEV - Opt A	14.4	2.5 <sup>I,J,K</sup>	n/a	n/a	0.050	0.10 <sup>J,K</sup>
2004-2006 and subsequent <sup>L</sup>	ULEV - Opt. B	14.4	2.4 <sup>I,J,K</sup>	n/a	n/a	0.050	0.10 <sup>J,K</sup>
2007 and subsequent <sup>D</sup> (diesel only)	ULEV	15.5	n/a	0.14	0.20	0.050	0.01
1992-2006 and subsequent <sup>L</sup>	SULEV	7.2	2.0 <sup>K</sup>	n/a	n/a	0.025	0.05 <sup>K</sup>
2007 and subsequent <sup>D</sup> (diesel only)	SULEV	7.7	n/a	0.07	0.10	0.025	0.005

<sup>A</sup> This set of standards is optional. For the 1992 through 2019 model years, manufacturers of engines used in incomplete medium-duty vehicles or diesel engines used in medium-duty vehicles from 8501-10,000 14,000 pounds gross vehicle weight rating may choose to comply with these standards as an alternative to the primary emission standards and test procedures specified in section 1960.1, or section 1961, or section 1961.2, Title 13, California Code of Regulations. For the 1992 and subsequent model years, manufacturers of engines used in incomplete medium-duty vehicles or diesel engines used in medium-duty vehicles from 10,001-14,000 pounds gross vehicle weight rating may choose to comply with these standards as an alternative to the primary emission standards and test procedures specified in section 1960.1, section 1961, or section 1961.2, Title 13, California Code of Regulations. For the 2020 and subsequent model years, both incomplete medium-duty vehicles and

medium-duty vehicles that use a diesel engine 8,501 to 10,000 pounds GVW must certify to the primary emission standards and test procedures for complete vehicles specified in section 1961.2, title 13, CCR. 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 These standards apply only 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 [Reserved]
- 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.
- J Emissions averaging may be used to meet these standards for diesel engines, using the requirements for participation in averaging, banking and trading programs, as set forth in the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," incorporated by reference in section 1956.8 (b), above.
- K Engines of 1998 and subsequent model years may be eligible to generate averaging, banking and trading credits based on these standards according to the requirements of the averaging, banking and trading programs described in the "California Exhaust Emission Standards and Test Procedures for 1985 through 2003 Model Heavy-Duty Engines and Vehicles" and the "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," incorporated by reference in section 1956.8(b), above.
- L For the 2005 and 2006 model years, these emission standards only apply to diesel engines and vehicles. For 2007 and subsequent model year diesel engines used in medium-duty vehicles, these emission standards are not applicable.

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(5) Optional Standards for Complete Heavy-Duty Vehicles that Use Heavy-Duty Diesel Engines. Manufacturers may request to group complete heavy-duty diesel vehicles into the same test group as medium-duty diesel vehicles certifying to the LEV III exhaust emission standards and test procedures specified in title 13, CCR, §1961.2, so long as those complete heavy-duty diesel

vehicles meet the most stringent LEV III standards to which any vehicle within that test group certifies.

NOTE: Authority cited: Sections 39500, 39600, 39601, 43013, 43018, 43100, 43101, 43102, 43104, 43105, 43106, 43107 and 43806, Health and Safety Code; and Section 28114, Vehicle Code. Reference: Sections 39002, 39003, 39500, 39667, 43000, 43009.5, 43013, 43017, 43018, 43100, 43101, 43101.5, 43102, 43104, 43105, 43106, 43107, 43202, 43204, 43205, 43205.5, 43206, 43210, 43211, 43212, 43213 and 43806, Health and Safety Code; and Section 28114, Vehicle Code.