State of California
AIR RESOURCES BOARD

CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR
2004 AND SUBSEQUENT MODEL
HEAVY-DUTY OTTO-CYCLE ENGINES

Adopted: December 27, 2000
Amended: December 12, 2002
Amended: July 26, 2007
Amended: October 17, 2007
Amended: September 27, 2010
Amended: March 22, 2012
Amended: December 6, 2012

Note: The proposed amendments to this document are shown in underline to indicate
additions and strikeout to indicate deletions compared to the test procedures as
adopted March 22, 2012. [No change] indicates proposed federal provisions that are
also proposed for incorporation herein without change. Existing intervening text that is
not amended in this rulemaking is indicated by “* * *”. 
CALIFORNIA EXHAUST EMISSION STANDARDS AND TEST PROCEDURES FOR 2004 AND SUBSEQUENT MODEL HEAVY-DUTY OTTO-CYCLE ENGINES

Part I. GENERAL PROVISIONS FOR CERTIFICATION AND IN-USE VERIFICATION OF EMISSIONS


10. Emission standards for Otto-cycle heavy-duty engines and vehicles. [§86.xxx-10]
B. California provisions.

1. Exhaust emissions from new 2004 and later model year Otto-cycle medium- and heavy-duty 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 2004 and Subsequent Model
Heavy-Duty Otto-Cycle Engines

(in g/bhp-hr)

<table>
<thead>
<tr>
<th>Model Year</th>
<th>Emission Category</th>
<th>NMHC + NOx</th>
<th>NMHC</th>
<th>NOx</th>
<th>CO&lt;sup&gt;H&lt;/sup&gt;</th>
<th>HCHO</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standards for Heavy-Duty Otto-Cycle Engines Used In 2004 through 2021 Model Medium-Duty Vehicles 8,501 to 10,000 pounds GVW&lt;sup&gt;B&lt;/sup&gt; and 2004 and Subsequent Model Medium-Duty Vehicles 10,001 to 14,000 pounds GVW&lt;sup&gt;C&lt;/sup&gt;</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2004</td>
<td>ULEV 2.4 or 2.5 with 0.5 NMHC cap&lt;sup&gt;D&lt;/sup&gt;</td>
<td>n/a</td>
<td>n/a</td>
<td>14.4</td>
<td>0.05</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SULEV 2.0</td>
<td>n/a</td>
<td>n/a</td>
<td>7.2</td>
<td>0.025</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>2005 through 2007&lt;sup&gt;F&lt;/sup&gt;</td>
<td>ULEV 1.0&lt;sup&gt;D,F&lt;/sup&gt;</td>
<td>n/a</td>
<td>n/a</td>
<td>14.4</td>
<td>0.05</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SULEV 0.5&lt;sup&gt;D,F&lt;/sup&gt;</td>
<td>n/a</td>
<td>n/a</td>
<td>7.2</td>
<td>0.025</td>
<td>n/a</td>
<td></td>
</tr>
<tr>
<td>2008 and subsequent&lt;sup&gt;G&lt;/sup&gt;</td>
<td>ULEV n/a</td>
<td>0.14&lt;sup&gt;F&lt;/sup&gt;</td>
<td>0.20&lt;sup&gt;F&lt;/sup&gt;</td>
<td>14.4</td>
<td>0.01</td>
<td>0.01</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SULEV n/a</td>
<td>0.07&lt;sup&gt;F&lt;/sup&gt;</td>
<td>0.10&lt;sup&gt;F&lt;/sup&gt;</td>
<td>7.2</td>
<td>0.005</td>
<td>0.005</td>
<td></td>
</tr>
</tbody>
</table>

**Standards for Heavy-Duty Otto-Cycle Engines Used In Heavy-Duty Vehicles Over 14,000 pounds GVW**

<table>
<thead>
<tr>
<th>Model Year</th>
<th>Emission Category</th>
<th>NMHC + NOx</th>
<th>NMHC</th>
<th>NOx</th>
<th>CO&lt;sup&gt;H&lt;/sup&gt;</th>
<th>HCHO</th>
<th>PM</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>n/a</td>
<td>2.4 or 2.5 with 0.5 NMHC cap&lt;sup&gt;D&lt;/sup&gt;</td>
<td>n/a</td>
<td>n/a</td>
<td>37.1</td>
<td>0.05&lt;sup&gt;E&lt;/sup&gt;</td>
<td>n/a</td>
</tr>
<tr>
<td>2005 through 2007&lt;sup&gt;F&lt;/sup&gt;</td>
<td>n/a</td>
<td>1.0&lt;sup&gt;C,E&lt;/sup&gt;</td>
<td>n/a</td>
<td>n/a</td>
<td>37.1</td>
<td>0.05&lt;sup&gt;E&lt;/sup&gt;</td>
<td>n/a</td>
</tr>
<tr>
<td>2008 and subsequent&lt;sup&gt;G&lt;/sup&gt;</td>
<td>n/a</td>
<td>n/a</td>
<td>0.14&lt;sup&gt;F&lt;/sup&gt;</td>
<td>0.20&lt;sup&gt;E&lt;/sup&gt;</td>
<td>14.4</td>
<td>0.01</td>
<td>0.01</td>
</tr>
</tbody>
</table>

* * * *

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

* * * *
2. Optional Standards for Complete and Incomplete Heavy-Duty Vehicles.

Manufacturers may request to group complete and incomplete heavy-duty vehicles into the same test group as vehicles certifying to the LEV III exhaust emission standards and test procedures specified in title 13, CCR, §1961.2, so long as those complete and incomplete 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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