

Appendix A-2.1

Proposed Regulation Order

Zero-Emission Forklift Regulation

Amendments to

Title 13, California Code of Regulations, Section 2433

[Note: This version of the Proposed Regulation Order complies with Government Code section 11346.2 subdivision (a)(3). The proposed amendments are shown in underline to indicate additions and ~~striethrough~~ to indicate deletions from the existing regulatory text. For ease of readability, CARB has also provided a version of the proposed amendments that can toggle between amendments in ~~strikeout~~/underline and a "clean" version with amendments incorporated into the regulatory text, which can be found in Appendix A-2.2]

Chapter 9. Off-Road Vehicles and Engines Pollution Control Devices

Section 2433. Emission Standards and Test Procedures - Off-Road Large Spark-Ignition Engines.

Proposed Regulation Order

Title 13, California Code of Regulations

Amend Section 2433 of title 13, California Code of Regulations, to read as follows:

§ 2433. Emission Standards and Test Procedures - Off-Road Large Spark-Ignition Engines.

- (a) This section applies to new off-road large spark-ignition engines produced on or after January 1, 2001. For the purpose of this section, these engines are also referred to as "new off-road LSI engines."
- (b) *Standards.*
 - (1)
 - (A) *Exhaust Emission Standards.* Exhaust emissions from off-road large spark-ignition engines manufactured for sale, sold, or offered for sale in California, or that are introduced, delivered or imported into California for introduction into commerce, must not exceed:

Exhaust Emission Standards
(grams per brake horsepower-hour)
[grams per kilowatt-hour]⁽¹⁾

Model Year	Engine Displacement	Durability Period	HC + NOx	Carbon Monoxide
2002-2010	≤1.0 liter	1,000 hours or 2 years	9.0 [12.0]	410 [549]
2011 and subsequent	≤ 825 cc	1,000 hours or 2 years	6.0 [8.0]	410 [549]
2011-2014	> 825 cc - ≤ 1.0 liter	1,000 hours or 2 years	4.8 [6.5]	280 [375]
2015 and subsequent	> 825 cc - ≤ 1.0 liter	1,000 hours or 2 years	0.6 [0.8]	15.4 [20.6]

2001-2003 ^{(2),(3)}	> 1.0 liter	N/A	3.0 [4.0]	37.0 [49.6]
2004-2006 ⁽⁴⁾	> 1.0 liter	3500 hours or 5 years	3.0 [4.0]	37.0 [49.6]
2007-2009	> 1.0 liter	5000 hours or 7 years	2.0 [2.7]	3.3 [4.4]
2010 and subsequent ^{(5),(6)}	> 1.0 liter	5000 hours or 7 years	0.6 [0.8]	15.4 [20.6]
<u>2026 and subsequent⁽⁷⁾</u>	<u>N/A</u>	<u>N/A</u>	<u>0.0 [0.0]</u>	<u>0.0 [0.0]</u>

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Note:

(1) For 2006 and previous model years, standards in grams per kilowatt-hour are given only as a reference. For 2007 and subsequent model years, pollutant emissions reported to ARB by manufacturers must be in grams per kilowatt-hour.

(2) Small volume manufacturers are not required to comply with these emission standards.

(3) Manufacturers must show that at least 25 percent of its California engine sales comply with the standards in 2001, 50 percent in 2002, and 75 percent in 2003.

(4) The standards for in-use compliance for engine families certified to the standards in the row noted are 4.0 g/bhp-hr (5.4 g/kW-hr) hydrocarbon plus oxides of nitrogen and 50.0 g/bhp-hr (67.0 g/kW-hr) carbon monoxide, with a useful life of 5000 hours or 7 years. In-use averaging, banking, and trading credits may be generated for engines tested in compliance with these in-use compliance standards. If the in-use compliance level is above 3.0 but does not exceed 4.0 g/bhp-hr hydrocarbon plus oxides of nitrogen or is above 37.0 but does not exceed 50.0 g/bhp-hr carbon monoxide, and based on a review of information derived from a statistically valid and representative sample of engines, the Executive Officer determines that a substantial percentage of any class or category of such engines exhibits within the warranty periods noted in Section 2435, an identifiable, systematic defect in a component listed in that section, which causes a significant increase in emissions above those exhibited by engines free of such defects and of the same class or category and having the same period of use and hours, then the Executive Officer may invoke the enforcement authority under Section 2439, Title 13, California Code of regulations to require remedial action by the engine manufacturer. Such remedial action is limited to owner notification and repair or replacement of defective components, without regard to the requirements set forth in Section 2439(b)(5) or Section 2439(c)(5)(B)(vi). As used in the section, the term "defect" does not include failures that are the result of abuse, neglect, or improper maintenance.

(5) For severe-duty engines, the HC+NOx standard is 2.7 g/kW-hr and the CO standard is 130.0 g/kW-hr.

(6) Small volume manufacturers are required to comply with these emission standards in 2013.

(7) Starting January 1, 2026, the manufacturer of a forklift shall not produce for sale or offer for sale a Class IV large spark-ignition forklift in California and starting

January 1, 2029, the manufacturer of a forklift shall not produce for sale or offer for sale a Class V large spark-ignition forklift with a rated capacity up to 12,000 pounds in California unless the large-spark ignition engine or powertrain meets the zero-emission standards set forth in this Section.

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NOTE: Authority cited: Sections 39600, 39601, 43013, 43018, 43101, 43102 and 43104, Health and Safety Code. Reference: Sections 43013, 43017, 43018, 43101, 43102, 43104, 43105, 43150, 43151, 43152, 43153, 43154, 43205.5, 43210, 43210.5, 43211 and 43212, Health and Safety Code.