

State of California
AIR RESOURCES BOARD

CALIFORNIA EXHAUST AND EVAPORATIVE EMISSION STANDARDS AND TEST
PROCEDURES FOR NEW 2010 AND LATER OFF-ROAD LARGE SPARK-IGNITION
ENGINES

(2010 and Later Test Procedure 1048)

Adopted: March 2, 2007

Amended: [insert date of amendment]

NOTE: This document is printed in a style to indicate changes from the existing provisions. All existing language is indicated by plain type. All additions to language are indicated by underlined text. All deletions to language are indicated by ~~strikeout~~. Only those sections containing the suggested modifications from the existing language are included. All other portions remain unchanged and are indicated by the symbol “* * * * *” for reference.

PART 1048 – CONTROL OF EMISSIONS FROM NEW, LARGE NONROAD SPARK-IGNITION ENGINES

Subpart A—Overview and Applicability

§1048.1 Does this part apply to me?

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~~(d) Engines with a maximum engine power at or below 19 kW are covered by Title 13, California Code of Regulations, Chapter 9, Article 1, Small Off-Road Engines.~~

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§1048.15 Do any other regulation parts affect me?

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(b) (6) Procedures for In-Use Engine Recalls for Large Off-Road Spark-Ignition Engines ~~with an Engine Displacement Greater Than 1.0 Liter~~, Chapter 9, Article 4.5, section 2439, Title 13, California Code of Regulations.

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§1048.101 What exhaust emission standards must my engines meet?

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(a) (2) *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 + NO _x	Carbon Monoxide
2010 and subsequent - 2013	≤1.0 liter	1000 hours or 2 years	9.04.8 [12.06.5]	410280 [549375]
<u>2014 and subsequent</u>	<u>≤1.0 liter</u>	<u>5000 hours or 7 years</u>	<u>0.6</u> <u>[0.8]</u>	<u>15.4</u> <u>[20.6]</u>
2010 and subsequent ⁽²⁾	> 1.0 liter	5000 hours or 7 years	0.6 [0.8]	15.4 [20.6]

- Note: (1) Pollutant emissions reported to ARB by manufacturers must be in grams per kilowatt-hour.
(2) Small volume manufacturers are required to comply with these emission standards in 2013.

For severe-duty engines, the HC+NOx standard is 2.7 g/kW-hr and the CO standard is 130.0 g/kW-hr. The following engines are not subject to the transient standards in this paragraph (a):

- A. High-load engines.
- B. Engines with maximum engine power above 560 kW.
- C. Engines with maximum test speed above 3400 rpm.
- D. Constant-speed engines and severe-duty engines.

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§1048.120 What emission-related warranty requirements apply to me?

PART 1

(a) Applicability.

(1) This section applies to new 2001 and later model year off-road large spark-ignition engines with an engine displacement greater than 1.0 liter that are certified to the applicable emission standards. The warranty period begins on the date the engine or equipment is delivered to an ultimate purchaser. The use of alternative fuels must not void the warranties on any engine certified to use such fuel. 2002 and later model year LSI engines with an engine displacement less than or equal to 1.0 liter must comply with the applicable warranty requirements set forth in the California Code of Regulations, Title 13, Section 2405.

(2) Notwithstanding Section 1048.120 PART 1 (a)(1), commencing with the 2014 model year, this section applies to all new LSI engines that are certified to the applicable emission standards pursuant to Section 1048.101.

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(b) (2) Free from defects in materials and workmanship which cause the failure of a warranted part to be identical in all material respects to the part as described in the engine manufacturer's application for certification for a period of 3 years or 2,500 hours, whichever occurs first-, for 2004 and later model year engines having an engine displacement greater than 1.0 liter and 2014 and later model year engines having an engine displacement less than or equal to one liter.

(3) Free from defects in materials and workmanship which cause the failure of a high-cost warranted part to be identical in all material respects to the part as described in the engine manufacturer's application for 2004 and later model year engines having an engine displacement greater than 1.0 liter and 2014 and later model year engines

having an engine displacement less than or equal to one liter, for a period of five years or 3,500 hours of operation, whichever occurs first.

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PART 2

(a) (1) Each manufacturer must furnish a copy of the following statement with each new ~~off-road large spark-ignition~~LSI engine with an engine displacement greater than 1.0 liter, that has been certified to the applicable emission standards pursuant to Section ~~2433(b)~~1048.101, using those portions of the statement applicable to the engine. For the 2002 through 2013 model years, ~~E~~each manufacturer must furnish a copy of the warranty statement as set forth in the California Code of Regulations, Title 13, Section 2406(a) with each new ~~off-road large spark-ignition~~LSI engine with an engine displacement less than or equal to 1.0 liter, using those portions of the statement applicable to the engine.

(2) Notwithstanding Section 1048.120 PART 2 (a)(1), commencing with the 2014 model year, each manufacturer must furnish a copy of the following statement with each new LSI engine, that have been certified to the applicable emission standards pursuant to Section 1048.101, using those portions of the statement applicable to the engine

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(b) (2) Commencing with the 2002 model year through 2013 model year for ~~large off-road large spark-ignition~~LSI engines with an engine displacement less than or equal to 1.0 liter, each manufacturer must furnish with each new engine a warranty statement as set forth in the California Code of Regulations, Title 13, Section 2406(b).

(3) Notwithstanding Section 1048.120 PART 2 (b)(2), commencing with the 2014 model year for all new LSI engines, each manufacturer must furnish with each new engine a warranty statement that generally describes the obligations and rights of the engine manufacturer and owner under this article. Engine manufacturers must also include in the warranty statement a phone number the customer may use to obtain their nearest franchised service center.

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§1048.301 When must I test my production-line engines?

(a) Compliance Test Procedures

(1) (A) These procedures apply, commencing with the 2001 model year, to any ~~large off-road spark-ignition~~LSI engine family group (as defined in Sections 2 and 11 of the "California Exhaust Emission Standards and Test Procedures for New 2001-~~and Later through 2006~~ Off-Road Large Spark-ignition Engines") or any subgroup within an

engine family group selected for compliance testing pursuant to this section, with an engine displacement greater than 1.0 liter, that have been certified to the applicable emission standards pursuant to Section ~~2433(b)~~1048.101. For the 2002 and later through 2013 model years, large off-road spark-ignition engines with an engine displacement less than or equal to 1.0 liter must comply with the new engine compliance test procedures set forth in the California Code of Regulations, Title 13, Section 2407.

(B) Notwithstanding Section 1048.301(a)(1)(A), commencing with the 2010 model year, these procedures apply to any large off-road spark-ignition engine family group or any subgroup within an engine family group selected for compliance testing pursuant to this section, that have been certified to the applicable emission standards pursuant to Section 1048.101.

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(b) 2001 and Subsequent Model Cumulative Sum Production Line Test Procedures

(1) (A) The 2001 and subsequent model year off-road large spark-ignition engines with an engine displacement of greater than 1.0 liter, that have been certified to the applicable emission standards pursuant to Section ~~2433(b)~~1048.101, are subject to production line testing performed according to the requirements specified in this section. For the 2002 and subsequent through 2013 model years, off-road large spark-ignition engines with an engine displacement of less than or equal to 1.0 liter, that have been certified for sale in California, must comply with production line testing performed according to the requirements set forth in the California Code of Regulations, Title 13, Section 2407.

(B) Notwithstanding Section 1048.301(b)(1)(A), commencing with the 2014 model year, all new LSI engines that have been certified to the applicable emission standards pursuant to Section 1048.101, are subject to production line testing performed according to the requirements specified in this section.

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§1048.410 How must I select, prepare, and test my in-use engines?

(a) (1) This section applies to new 2010 and later model year off-road large spark-ignition engines with an engine displacement greater than 1.0 liter.

(2) Notwithstanding Section 1048.410(a)(1), commencing with the 2014 model year, this section applies to all new LSI engines.

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§1048.415 What happens if in-use engines do not meet requirements?

Procedures for In-Use Engine Recalls for Large Off-Road Spark-Ignition Engines ~~with an Engine Displacement Greater Than 1.0 Liter.~~

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