

## **APPENDIX D**

# **FINAL REGULATION ORDER SUMMARY & RATIONALE**

**New Large Spark-Ignition Engines; and,  
In-Use Large Spark-Ignition Engine Retrofits**

- **Title 13, California Code of Regulations**
- **Test Procedures**

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## **SUMMARY AND RATIONALE FOR THE NEW AND RETROFIT LARGE SPARK-IGNITION ENGINE REGULATIONS AND TEST PROCEDURES**

Note: This appendix provides a summary of, and the rationale for, the new and retrofit large spark-ignition engine regulations and test procedures amendments approved by the Air Resources Board on December 16, 2011, and with subsequent conforming modifications authorized under Resolution 11-41. Revisions to the original summary and rationale document published on October 26, 2011, as part of the Staff Report: Initial Statement of Reasons, are indicated either by underlined type to indicate additions (except that some existing headings within the document were underlined originally for emphasis, and remain so, and thus do not constitute new language) or by ~~strikeout~~ to indicate deletions.

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## Summary and Rationale for Proposed Regulations

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

This purpose of this section is to identify the exhaust and evaporative emission standards, and to incorporate by reference the required test procedures to be used for demonstrating compliance with the applicable emission standards of the off-road large spark-ignition engine category, which are necessary to control the hydrocarbon, carbon monoxide, and oxides of nitrogen emissions from these sources.

(c) The purpose of this subsection is to identify and incorporate by reference the test procedures applicable for off-road large spark-ignition engines with displacements greater than 1 liter, which are necessary to control the hydrocarbon, carbon monoxide and oxide of nitrogen emissions from these sources. The amendments clarify the most recent amendment date to these test procedure documents.

(d)(1) The purpose of this subsection is to identify and incorporate by reference the test procedure applicable for off-road large spark-ignition engines with displacements less than or equal to 1 liter, which are necessary to control the hydrocarbon, carbon monoxide and oxide of nitrogen emissions from these sources. The amendment clarifies the most recent amendment date to this test procedure document.

**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).**

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

**Subpart B—Emission Standards and Related Requirements**

**Section 1048.101 What exhaust emission standards must my engines meet?**

(e) This subsection heading was amended for capitalization.

(1) This subsection heading was amended for capitalization.

(2) The purpose of this section is to identify the fuel specifications that are to be used for certification testing. This section was amended to allow off-road large spark-ignition engine manufacturers the optional use of the new California 10-percent ethanol-blend gasoline (E10), or other ARB-certified ~~certification~~ test fuel, which ARB will adopt for 2015 and subsequent model on-road motor vehicles, for 2013 through 2018 2019 model-year engines. Use of ~~this~~ E10, or other ARB-certified ~~certification~~ test fuel, will become mandatory beginning with the ~~2019~~ 2020 model year. The proposed optional and required use of ~~this~~ E10, or other ARB-certified ~~certification~~ test fuel, is applicable to only exhaust emission test purposes.

(A) The purpose of this subsection is to identify the acceptable test fuels for certification testing. The amendment acknowledges an optional, alternate fuel.

(B) The purpose of this new subsection is to provide manufacturers the alternative of using the new California 10-percent content of ethanol-blend gasoline (E10), or other ARB-certified ~~certification~~ test fuel, for model years 2013-~~2018~~ 2019.

(C) The purpose of this new subsection is to require the new California 10-percent content of ethanol-blend gasoline (E10), or other ARB-certified ~~certification~~ test fuel, for all ~~2019~~ 2020 and later model-year off-road large spark-ignition engines.

(2)(D) This subsection was amended for formatting reasons.

(2)(E) This subsection was amended for formatting reasons.

## **California Exhaust Emission Standards and Test Procedures for New 2007 and Later Off-Road Large Spark-Ignition Engines (Test Procedures 1065 and 1068).**

### **Subpart H –Engine Fluids, Test Fuels, Analytical Gases and Other Calibration Standards**

#### **Section 1065.701 General requirements for test fuels.**

(a) The purpose of this section is to identify the fuel specifications that are to be used for certification testing. This section was amended to allow off-road large spark-ignition engine manufacturers the optional use of the new California 10-percent ethanol-blend gasoline (E10), or other ARB-certified ~~certification~~ test fuel, which ARB will adopt for 2015 and subsequent model on-road motor vehicles, for 2013 through ~~2018~~2019 model-year engines. Use of ~~this E10, or other ARB-certified~~ certification test fuel, ~~will become mandatory beginning with the 2019~~ 2020 model year. The proposed optional and required use of ~~this E10, or other ARB-certified~~ certification test fuel, is applicable to only exhaust emission test purposes.

(1) The purpose of this subsection is to identify the acceptable test fuels for certification testing. The amendment acknowledges an optional, alternate fuel.

(2) The purpose of this new subsection is to provide manufacturers the alternative of using the new California 10-percent content of ethanol-blend gasoline (E10), or other ARB-certified ~~certification~~ test fuel, for model years 2013-~~2018~~ 2019.

(3) The purpose of this new subsection is to require the new California 10-percent content of ethanol-blend gasoline (E10), or other ARB-certified ~~certification~~ test fuel, for all ~~2019~~ 2020 and later model-year off-road large spark-ignition engines.

(4) This subsection was amended for formatting reasons.

#### **Section 1065.710 Gasoline.**

(b) The purpose of this subsection is to identify the specifications of the appropriate fuel for certification testing. The amendment allows the current option to use federal test fuel specifications through the ~~2018~~ 2019 model year, but for ~~2019~~ 2020 and later model years, it provides an option to use a federal test fuel only if that fuel is a ten-percent blend of ethanol or is consistent with other ARB-certified test fuels appropriate for use in this category. This ensures consistency with the California ten-percent ethanol, or other ARB-certified test fuel, ~~required~~ requirement starting in ~~2019~~ 2020.

## Summary and Rationale for Proposed Regulations

### **Section 2783. Emissions Reduction Testing Requirements.**

(d) (1) The purpose of this section is to identify the fuel specifications that are to be used for testing.

(2) The purpose of this new subsection is to require that California's E10, or other ARB-certified ~~certification~~ test fuel, be used to demonstrate compliance with the exhaust emission requirements of §2783, if ~~the~~ E10, or other ARB-certified test fuel, was used to originally certify the engines of interest under the optional allowance for 2013 through ~~2018~~ 2019 model years.

(3) The purpose of this new subsection is to ensure that California's E10, or other ARB-certified ~~certification~~ test fuel, be used to demonstrate compliance with the exhaust emission requirements of §2783 for engines of interest that were originally certified for the ~~2019~~ 2020 and later model years.

(4) This subsection was amended for formatting reasons.

### **Section 2784. Durability Demonstration Requirements.**

(c) (1) The purpose of this section is to identify the fuel specifications that are to be used for durability testing. This section was amended to differentiate between engines of interest that may have been certified originally on California's E10, or other ARB-certified ~~certification~~ test fuel, under the optional allowance for 2013 through ~~2018~~ 2019 model years and those that were not certified on ~~the~~ E10, or other ARB-certified ~~certification~~ test fuel.

(2) The purpose of this new subsection is to require that California's E10, or other ARB-certified ~~certification~~ test fuel, be used to demonstrate compliance with the exhaust emission requirements of §2784, if the E10, or other ARB-certified test fuel, was used to originally certify the engines of interest under the optional allowance for 2013 through ~~2018~~ 2019 model years.

(3) The purpose of this new subsection is to ensure that California's E10, or other ARB-certified ~~certification~~ test fuel, be used to demonstrate compliance with the exhaust

emission requirements of §2784 for engines of interest that were originally certified for the ~~2019~~ 2020 and later model years.

(4) This subsection was amended for formatting reasons.