Modifications to the Original Proposals

Shown on the following pages are proposed modifications to the originally proposed adoptions and amendments set forth in Appendices A through C to the Staff Report: Initial Statement of Reasons released March 3, 2006. Text proposed for adoption during the 45-day notice period is shown without underline as permitted in title 1, California Code of Regulations, section 8. Text proposed for amendment during the 45-day notice period is shown in underline for additions and ~~strikeout~~ for deletions. The proposed modifications are shown in double underline to indicate further additions and ~~double strikeout~~ to indicate further deletions to the original proposals. The characters "* * * * *" indicate that no modifications to the omitted intervening text are being proposed.

Amend California Code of Regulations, title 13, sections 2430, 2431, 2433, 2434, and 2438 to read:

Article 4.5. Off-Road Large Spark-Ignition Engines

§ 2430. Applicability.

(a) (1) This article applies to large off-road spark-ignition engines 25 horsepower and greater produced on or after January 1, 2001 and all equipment and vehicles produced on or after January 1, 2001 that use such engines. Beginning January 1, 2007, this article applies to large off-road spark-ignition engines above 19 kilowatt (kW) and all equipment and vehicles that use such engines.

(2) Every new off-road large spark-ignition (LSI) engine that is manufactured for sale, sold, or offered for sale in California, or that is introduced, delivered or imported into California for introduction into commerce and that is subject to any of the standards prescribed in this article and documents incorporated by reference therein, must be certified for use and sale by the manufacturer through the Air Resources Board and covered by an Executive Order, issued pursuant to Chapter 9, Article 4.5, Section 2433.

(3) This article does not apply to engines in vehicles that are subject ~~to the U.S. Environmental Protection Agency Regulations in Title 40, Code of Federal Regulations, Part 1051. In California, such engines and vehicles are subject~~ to requirements of Title 13, California Code of Regulations, Chapter 9, Article 3, Off-Highway Recreational Vehicles and Engines, including any related provisions and guidelines that are applicable to Off-Highway Recreational Vehicles and Engines.

(b) Each part of this article is severable, and in the event that any part of this chapter or article is held to be invalid, the remainder of the article remains in full force and effect.

(c) This article and documents incorporated by reference herein include provisions for emissions certification, labeling requirements, warranty, in-use compliance testing, and production line testing.

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, ~~and~~ 43210, 43210.5, 43211 and ~~-~~43212, Health and Safety Code.

§ 2431. Definitions.

DEFINITIONS

(a) The definitions in Section 1900 (b), Chapter 1, Title 13 of the California Code of Regulations apply to this Article with the following additions:

(1) to (18) [No Change]

(19) “Family Emission Level or FEL” means an emission level that is declared by the manufacturer to serve for the averaging, banking, and trading program and in lieu of an emission standard for certification. The FEL serves as the engine family’s emission standard for emissions compliance efforts. If the manufacturer does not declare an FEL for an engine family, the applicable emissions standard must be treated as that engine family’s FEL for the purposes of any provision of this Article. The FEL must be expressed to the same number of decimal places as the applicable emission standard.

(~~19~~20) [No Change]

(~~20~~21) [No Change]

(~~21~~22) [No Change]

(~~22~~23) [No Change]

(~~23~~24) [No Change]

(~~24~~25) [No Change]

(~~25~~26) [No Change]

(~~26~~27) [No Change]

(~~27~~28) “Off-Road Large Spark-ignition Engines” or “LSI Engines” means any engine that produces a gross horsepower 25 and greater horsepower or is designed (e.g., through fueling, engine calibrations, valve timing, engine speed modifications, etc.) to produce 25 and greater horsepower (greater than 19 kilowatts on or after January 1, 2007). If an engine family has models at or above 25 horsepower and models below 25 horsepower, only the models at or above 25 horsepower (greater than 19 kilowatts on or after January 1, 2007) would be considered LSI engines. The engine’s operating characteristics are significantly similar to the theoretical Otto combustion cycle with the engine’s primary means of controlling power output being to limit the amount of air that is throttled into the combustion chamber of the engine. LSI engines or alternate fuel powered LSI internal combustion engines are designed for powering, but not limited to powering, forklift trucks, sweepers, generators, and industrial equipment and other miscellaneous applications. All engines and equipment that fall within the scope of the preemption of Section 209(e)(1)(A) of the Federal Clean Air Act, as amended, and as defined by regulation of the Environmental Protection Agency, are specifically excluded from this category.

Specifically excluded from this category are: 1) engines operated on or in any device used exclusively upon stationary rails or tracks; 2) engines used to propel marine vessels; 3) internal combustion engines attached to a foundation at a location for at least 12 months; 4) off-road recreational vehicles and snowmobiles; and 5) stationary or transportable gas turbines for power generation.

(~~28~~29) [No Change]

(~~29~~30) [No Change]

(~~30~~31) [No Change]

(~~31~~32) [No Change]

(~~32~~33) [No Change]

(~~33~~34) [No Change]

(~~34~~35) [No Change]

(~~35~~36) [No Change]

(~~36~~37) [No Change]

(~~37~~38) [No Change]

(~~38~~39) [No Change]

(~~39~~40) [No Change]

(~~40~~41) [No Change]

(~~41~~42) [No Change]

(~~42~~43) [No Change]

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, ~~and~~ 43210, 43210.5, 43211 and ~~-~~43212, Health and Safety Code.

§ 2433. ~~Exhaust~~ 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 and subsequent	~~<~~≤1.0 liter	1,000 hours or 2 years	9.0 [12.0]	410 [549]
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 ~~and subsequent~~ - 2009	> 1.0 liter	5000 hours or 7 years	~~3.0~~ 2.0 ~~[4.0]~~ [2.7]	~~37.0~~ ~~15.5~~ 3.3 ~~[49.6]~~ ~~[20.8]~~ [4.4]
2010 and subsequent[(5)]	> 1.0 liter	5000 hours or 7 years	0.6 [0.8]	15.4 [20.6~~8~~]

Note: (1) Standards in grams per kilowatt-hour are given only as a reference. Pollutant emissions reported to ARB by manufacturers must be in grams per brake horsepower-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) Small volume manufacturers are required to comply with these emission standards in 2013.

(1)(B) *Optional Exhaust Emission Standards.* Manufacturers may certify 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 to the following optional low emission standards.

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

Model Year	Engine Displacement	Durability Period	HC+NOx	Carbon Monoxide
2007 - 2009	> 1.0 liter	5000 hours or 7 years	1.5 [2.0]	~~15.4~~4.8 [~~20.8~~6.4]
2007 - 2009	> 1.0 liter	5000 hours or 7 years	1.0 [1.3]	~~15.4~~8.3 [~~20.8~~11.1]
2007 - 2009	> 1.0 liter	5000 hours or 7 years	0.6 [0.8]	15.4 [20.6~~8~~]
2007 - 2009	> 1.0 liter	5000 hours or 7 years	0.4 [0.5]	15.4 [20.6~~8~~]
2007 - 2009	> 1.0 liter	5000 hours or 7 years	0.2 [0.3]	15.4 [20.6~~8~~]
2007 - 2009	> 1.0 liter	5000 hours or 7 years	0.1 [0.1]	15.4 [20.6~~8~~]
2010 and subsequent	> 1.0 liter	5000 hours or 7 years	0.4 [0.5]	15.4 [20.6~~8~~]
2010 and subsequent	> 1.0 liter	5000 hours or 7 years	0.2 [0.3]	15.4 [20.6~~8~~]
2010 and subsequent	> 1.0 liter	5000 hours or 7 years	0.1 [0.1]	15.4 [20.6~~8~~]

(2) For the 2007 through 2009 model years, you may alternatively certify your engines according to the following formula instead of the standards in paragraph (b)(1)(A) of this section:

$$(HC+NOx) \times CO^{0.784} \leq 8.57.$$

Where: HC + NOx = hydrocarbon plus oxides of nitrogen family emissions level (FEL) in g/kW-hr
CO = carbon monoxide FEL in g/kW-hr

The HC+NOx and CO emission levels selected to satisfy this formula, rounded to the nearest 0.1 g/kW-hr, become the emission standards that apply for those engines. You may not select an HC+NOx FEL higher than 2.7 g/kW-hr or a CO FEL higher than 20.6 g/kW-hr.

(~~2~~3) *Crankcase Emissions.* No crankcase emissions shall be discharged into the ambient atmosphere from any new 2001 or later model year off-road LSI engines.

(~~3~~4) *Evaporative Emission Standards.*

~~(A)~~ Starting in the 2007 model year, engines over one liter that run on a volatile liquid fuel (such as gasoline), must meet the following evaporative emissions standards and requirements:

~~(i)~~ (A) Evaporative hydrocarbon emissions may not exceed 0.2 grams per gallon of fuel tank capacity when measured with the test procedures for evaporative emissions as described in subpart F, Title 40 Code of Federal Regulations (CFR) Sec.1048.

~~(ii)~~ (B) For nonmetallic fuel lines, you must specify and use products that meet the Category 1 specifications in SAE J2260.

~~(iii)~~ (C) Liquid fuel in the fuel tank may not reach boiling during continuous engine operation in the final installation at an ambient temperature of 30º C. Note that gasoline with a Reid vapor pressure of 62 kPa (9 psi) begins to boil at about 53º C.

~~(iv)~~ (D) Design-based certification may be used instead of generating new emission data.

(c) *Test Procedures.* The test procedures for determining certification and compliance with the standards for exhaust emissions from new model year 2001 through 2006 off-road LSI engines with engine displacement greater than 1.0 liter sold in the state are set forth in "California Exhaust Emission Standards and Test Procedures for New 2001 ~~and Later~~ through 2006 Off-Road Large Spark-ignition Engines," adopted September 1, 1999, and as last amended [*insert date of amendment*]. The test procedures for determining certification and compliance with the standards for exhaust and evaporative emissions from new model year 2007 through 2009 off-road LSI engines with engine displacement greater than 1.0 liter sold in the state are set forth in "California Exhaust and Evaporative Emission Standards and Test Procedures for New 2007 through 2009 Off-Road Large Spark-ignition Engines," adopted *[Insert date of adoption].* The test procedures for determining certification and compliance with the standards for exhaust and evaporative emissions from new model year ~~2007~~ 2010 and subsequent off-road LSI engines with engine displacement greater than 1.0 liter sold in the state are set forth in "California Exhaust and Evaporative Emission Standards and Test Procedures for New ~~2007~~ 2010 and Later Off-Road Large Spark-ignition Engines," adopted [*Insert date of adoption].*

(d) The test procedures for determining certification and compliance with the standards for exhaust emissions from new off-road LSI engines with engine displacement equal to or less than 1.0 liter sold in the state are set forth in "California Exhaust Emission Standards and Test Procedures for 1995-2004 ~~and Later~~ Small Off-Road Engines," as last amended ~~March 23, 1999~~July 26, 2004 or "California Exhaust Emission Standards and Test Procedures for 2005 and Later Small Off-Road Engines," adopted July 26, 2004.

(e) ~~Replacement Engines~~ *Replacement Engines*.

(1) [Reserved]

(2) (A) Beginning in 2004, a new off-road large spark-ignition engine intended solely to replace an engine in a piece of off-road equipment that was originally produced with an engine manufactured prior to the applicable implementation date as described in paragraph (b), shall not be subject to the emissions requirements of paragraph (b) provided that:

(i) The engine manufacturer has ascertained that no engine produced by itself or the manufacturer of the engine that is being replaced, if different, and certified to the requirements of this article, is available with the appropriate physical or performance characteristics to repower the equipment; and

(ii) Unless an alternative control mechanism is approved in advance by the Executive Officer, the engine manufacturer or its agent takes ownership and possession of the engine being replaced; and

(iii) The replacement engine is clearly labeled with the following language, or similar alternate language approved in advance by the Executive Officer:

THIS ENGINE DOES NOT COMPLY WITH CALIFORNIA OFF-ROAD OR ON-HIGHWAY EMISSION REQUIREMENTS. SALE OR INSTALLATION OF THIS ENGINE FOR ANY PURPOSE OTHER THAN AS A REPLACEMENT ENGINE IN AN OFF-ROAD VEHICLE OR PIECE OF OFF-ROAD EQUIPMENT WHOSE ORIGINAL ENGINE WAS NOT CERTIFIED IS A VIOLATION OF CALIFORNIA LAW SUBJECT TO CIVIL PENALTY.

(B) At the beginning of each model year, the manufacturer of replacement engines must provide, by engine model, an estimate of the number of replacement engines it expects to produce for California for that model year.

(C) At the conclusion of the model year, the manufacturer must provide, by engine model, the actual number of replacement engines produced for California during the model year, and a description of the physical or performance characteristics of those models that indicate that certified replacement engine(s) were not available as per paragraph (A).

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, ~~and~~ 43210, 43210.5, 43211 and ~~-~~43212, Health and Safety Code.

§ 2434. Emission Control Labels - 2001 and Later Off-Road Large Spark-ignition Engines

[No modifications proposed for this section.]

§ 2438. In-Use Compliance Program

(a) through (d) [No Change]

(e)(1) through (e)(6) [No Change]

(e)(7) Credit Calculation

(A) For each participating engine family, emission credits (positive or negative) are to be calculated according to the following equation and rounded, in accordance with ASTM E29-93a, to the nearest gram. ASTM E29-93a has been incorporated by reference. Consistent units are to be used throughout the equation. The following equation is used to determine the credit status for an engine family whether generating positive or negative in-use emission credits:

$$\text{Credits}_{(\text{grams})} = \text{SALES} \times (\text{STD} - \text{CL}) \times \text{POWER} \times \text{AF} \times \text{LF} \times \text{UL}$$

Where:

SALES = the number of eligible sales tracked to the point of first retail sale in the U.S. for the given engine family during the model year.

STD = the emission standard or family emission level in g/bhp-hr as noted in California Code of Regulations, Title 13, Section 2433.

CL = compliance level of the in-use testing in g/bhp-hr as approved by ARB.

UL= useful life in hours (5000 hours for engines with displacement) greater than 1.0 liter.

Power = the average power of an engine family in bhp (sales weighted). The power of each configuration is the rated output in horsepower as determined by SAE J1349 (June 1995) or J1995 (June 1995), as applicable. These procedures have been incorporated by reference.

LF = Load factor; Fraction of rated engine power utilized in-use (0.32 for engines with displacement greater than 1.0 liter.

AF = adjustment factor for the number of tests conducted, as determined from the following table, except that when a manufacturer concedes failure before completion of testing, the adjustment factor shall be 1.0:

Number of Engines Tested	Adjustment Factor
2*, 4	0.5
6	0.75
8	0.9
10	1.0

*Small volume manufacturer

(B) [No Change]

(e)(8) through (e)(10) [No Change]

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, ~~and~~ 43210, 43210.5, 43211 and ~~,~~ 43212, Health and Safety Code.

Amend the incorporated "California Exhaust Emission Standards and Test Procedures for New 2001 and Later Off-Road Large Spark-Ignition Engines – Part I" (40 CFR, Part 86, Subpart A) to read:

I. Emission Regulations for New 2001 ~~and Later~~ through 2006 Off-Road Large Spark-Ignition Engines, General Provisions

1. General Applicability.

* * * * *

(d) The test procedures for determining certification and compliance with the standards for exhaust emission from new off-road LSI engines with engine displacement equal to or less than 1.0 liter sold in the state are set forth in "California Exhaust Emission Standards and Test Procedures for 1995–2004 ~~and Later~~ Small Off-Road Engines," as last amended July 26, 2004 ~~March 23, 1999~~ or "California Exhaust Emission Standards and Test Procedures for 2005 and Later Small Off-Road Engines," adopted July 26, 2004.

Adopt the incorporated "California Exhaust and Evaporative Emission Standards and Test Procedures for New 2007 through 2009 Off-Road Large Spark-Ignition Engines" (40 CFR, Part 1048) to read:

State of California
AIR RESOURCES BOARD

PROPOSED CALIFORNIA EXHAUST AND EVAPORATIVE EMISSION STANDARDS AND TEST PROCEDURES FOR NEW 2007 THROUGH 2009 ~~2010 AND LATER~~ OFF-ROAD LARGE SPARK-IGNITION ENGINES

PART 1: 2007 - 2009 Emission Standards

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

Subpart B—Emission Standards and Related Requirements

* * * * *

§1048.101 What exhaust emission standards must my engines meet?

* * * * *

(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 + NOx	Carbon Monoxide
2007 - 2009	≤1.0 liter	1,000 hours or 2 years	9.0 [12.0]	410 [549]
2007 - 2009	> 1.0 liter	5000 hours or 7 years	2.0 [2.7]	3.3 [4.4]

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.

* * * * *

(e) Fuel types. DELETE AND REPLACE WITH:
(e) Fuel types and Test Fuel ~~(a)~~
(1) Fuel types.
The exhaust emission standards in this section apply for engines using each type of fuel specified in 40 CFR part 1065, subpart H, on which the engines in the engine family are designed to operate, except for engines certified under §1048.625. For engines certified under §1048.625, the standards of this section apply to emissions measured using the specified test fuel. You must meet the numerical emission standards for hydrocarbons in this section based on the following types of hydrocarbon emissions for engines powered by the following fuels:

~~(1)~~(A) Gasoline- and LPG-fueled engines: THC emissions.
~~(2)~~(B) Natural gas-fueled engines: NMHC emissions.
~~(3)~~(C) Alcohol-fueled engines: THCE emissions.

*** * * * ***

ADD

~~(b)~~(2) Test Fuel.
~~(a) (1)~~(A) If the engine is a gasoline-fueled large spark-ignition engine, then the test fuel used shall be consistent with the fuel specifications as outlined in the " The "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as of January 1, 2006 (last amended August 4, 2005) incorporated by reference in Section 1961(d), Title 13, CCR). The California fuel specifications are contained in the California Code of Regulations, Title 13, Chapter 5, Article 1, Sections 2260-2272. If the engine is tested using the U.S. EPA test fuel, consistent with the fuel specifications as outlined in Title 40 Code of Federal Register, Part 1065, subpart H, the manufacturer shall demonstrate that the emission test results complies with these Test Procedures.
~~(2)~~(B) If the engine is not a gasoline-fueled large spark-ignition engine, then the test fuel used shall be consistent with the fuel specifications as outlined in the " The "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as of January 1, 2006 (last amended August 4, 2005) incorporated by reference in Section 1961(d), Title 13, CCR). The California fuel specifications are contained in the California Code of Regulations, Title 13, Chapter 5, Article 3, Sections 2290- 2293.5. If the engine is tested using the U.S. EPA test fuel, consistent with the fuel specifications as outlined in Title 40 Code of Federal Register, Part 1065, subpart H, the manufacturer shall demonstrate that the emission test results complies with these Test Procedures.
~~(b)~~(C) During all engine tests, the engine shall employ a lubricating oil consistent with the engine manufacturer's specifications for that particular engine. These specifications shall be recorded and declared in the certification application.

(f) DELETE AND REPLACE WITH:
~~Small engines~~Large spark-ignition engines, one liter or less. Engines with total displacement at or below 1000 cc ~~may~~ shall comply with the requirements of Title 13, California Code of Regulations, Chapter 9,~~-~~Article 4.5, Off-Road Large Spark-Ignition Engines ~~Article 1, Small Off-Road Engines and Chapter 15, Article 1, Evaporative Emission Requirements for Off-Road Equipment instead of complying with the requirements of this part, as described in §1048.615~~.

* * * * *

~~**§1048.140 What are the provisions for certifying Blue Sky Series engines?**~~

DELETE SECTION AND REPLACE WITH:

§1048.140 What are the provisions for certifying optional lower-emission standard engines?
This section defines optional exhaust emission standards for engines equipped with superior emission control systems. These engines, designated as "optional lower-emission standard" or "OLES" engines, must meet all the requirements in this part that apply to 2010 model year engines and one of the standards in the following table. These engines must also meet all testing and reporting requirements:

Optional Exhaust Emission Standards for
Hydrocarbons plus Oxides of Nitrogen (HC+NOx) and Carbon Monoxide (CO)
in grams per brake horsepower-hour (grams per kilowatt-hour)

Model Year	Engine Displacement	Durability Period	Standard – g/bhp-hr (g/kW-hr)	
			HC+NOx	CO
2007-2009	> 1.0 liter	5000 hours or 7 years	1.5 (2.0)	4.8 (6.4)
			1.0 (1.3)	8.3 (11.1)
			0.6 (0.8)	15.4 (20.6)
			0.4 (0.5)	
			0.2 (0.3)	
			0.1 (0.1)	

If you certify an engine family under this section, it is subject to all the requirements of this part as if these voluntary standards were mandatory.

* * * * *

§1048.401 What testing requirements apply to my engines that have gone into service?

~~(b) We may approve an alternate plan for showing that in-use engines comply with the requirements of this part if one of the following is true:~~

~~(1) DELETE AND REPLACE WITH:~~

~~You produce a total of less than 2000 large spark-ignition engines annually for sale in the United States of America.~~

* * * * *

§1048.615 What are the provisions for exempting engines designed for lawn and garden applications?

DELETE

* * * * *

~~(a)~~

~~(3) DELETE AND REPLACE WITH:~~

~~The engine must be in an engine family that has a valid executive order showing that it meets emission standards for Class II engines under Title 13, California Code of Regulations, Chapter 9, Article 1, Small Off-Road Engines and Chapter 15, Article 1, Evaporative Emission Requirements for Off-Road Equipment.~~

* * * * *

~~(d) DELETE AND REPLACE WITH:~~

~~Engines exempted under this section are subject to all the requirements affecting engines under Title 13, California Code of Regulations, Chapter 9, Article 1, Small Off-Road Engines and Chapter 15, Article 1, Evaporative Emission Requirements for Off-Road Equipment. The requirements and restrictions of Title 13, California Code of Regulations, Chapter 9, Article 1, Small Off-Road Engines and Chapter 15, Article 1, Evaporative Emission Requirements for Off-Road Equipment apply to anyone manufacturing these engines, anyone manufacturing equipment that uses these engines, and all other persons in the same manner as if these engines had a total maximum engine power at or below 19 kW.~~

Adopt the incorporated "California Exhaust and Evaporative Emission Standards and Test Procedures for New 2010 and Later Off-Road Large Spark-Ignition Engines" (40 CFR, Part 1048) to read:

State of California
AIR RESOURCES BOARD

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

2010 Emission Standards

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

Subpart B—Emission Standards and Related Requirements

* * * * *

§1048.101 What exhaust emission standards must my engines meet?

* * * * *

(a)(2) ~~The HC+NOx standard is 0.8 g/kW-hr and the CO standard is 20.6 g/kW-hr. For severe-duty engines, the HC+NOx standard is 0.8 g/kW-hr and the CO standard is 130.0 g/kW-hr.~~*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
2010 and subsequent	≤1.0 liter	1,000 hours or 2 years	9.0 [12.0]	410 [549]
2010 and subsequent(2)	> 1.0 liter	5000 hours or 7 years	0.6 [0.8]	15.4 [20.6]

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

For severe-duty engines, the HC+NOx standard is 0.8 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.

* * * * *

(e) Fuel types. DELETE AND REPLACE WITH:
(e) Fuel types and Test Fuel ~~(a)~~
(1) Fuel types.
The exhaust emission standards in this section apply for engines using each type of fuel specified in 40 CFR part 1065, subpart H, on which the engines in the engine family are designed to operate, except for engines certified under §1048.625. For engines certified under §1048.625, the standards of this section apply to emissions measured using the specified test fuel. You must meet the numerical emission standards for hydrocarbons in this section based on the following types of hydrocarbon emissions for engines powered by the following fuels:

~~(1)~~(A) Gasoline- and LPG-fueled engines: THC emissions.
~~(2)~~(B) Natural gas-fueled engines: NMHC emissions.
~~(3)~~(C) Alcohol-fueled engines: THCE emissions.

*** * * * ***

ADD

~~(b)~~(2) Test Fuel.
~~(a) (1)~~(A) If the engine is a gasoline-fueled large spark-ignition engine, then the test fuel used shall be consistent with the fuel specifications as outlined in the " The "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as of January 1, 2006 (last amended August 4, 2005) incorporated by reference in Section 1961(d), Title 13, CCR). The California fuel specifications are contained in the California Code of Regulations, Title 13, Chapter 5, Article 1, Sections 2260-2272. If the engine is tested using the U.S. EPA test fuel, consistent with the fuel specifications as outlined in Title 40 Code of Federal Register, Part 1065, subpart H, the manufacturer shall demonstrate that the emission test results complies with these Test Procedures.
~~(2)~~(B) If the engine is not a gasoline-fueled large spark-ignition engine, then the test fuel used shall be consistent with the fuel specifications as outlined in the " The "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," as of January 1, 2006 (last amended August 4, 2005) incorporated by reference in Section 1961(d), Title 13, CCR). The California fuel specifications are contained in the California Code of Regulations, Title 13, Chapter 5, Article 3, Sections 2290- 2293.5. If the engine is tested using the U.S. EPA test fuel, consistent with the fuel specifications as outlined in Title 40 Code of Federal Register, Part 1065, subpart H, the manufacturer shall demonstrate that the emission test results complies with these Test Procedures.

~~(b)~~(C) During all engine tests, the engine shall employ a lubricating oil consistent with the engine manufacturer's specifications for that particular engine. These specifications shall be recorded and declared in the certification application.

(f) DELETE AND REPLACE WITH:
~~Small engines~~Large spark-ignition engines, one liter or less. Engines with total displacement at or below 1000 cc ~~may~~ shall comply with the requirements of Title 13, California Code of Regulations, Chapter 9, Article 4.5, Off-Road Large Spark-Ignition Engines~~Article 1, Small Off-Road Engines and Chapter 15, Article 1, Evaporative Emission Requirements for Off-Road Equipment instead of complying with the requirements of this part, as described in §1048.615~~.

* * * * *

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

* * * * *

(b) (3) (B) The dollar value of a high cost part shall be based on the following formula:

Cost Limit~~n~~$_n$ = $300 * (CPI~~-n-2~~$_{n-2}$/118.3)

where,
Cost Limit~~n~~$_n$ is the cost limit for the applicable model year of the engine rounded to the nearest ten dollars.
n is the model year of the new engines.
n-2 is the calendar year two years prior to the model year of the new engines.

* * * * *

§1048.140 What are the provisions for certifying optional lower-emission engines?

DELETE SECTION AND REPLACE WITH:

§1048.140 What are the provisions for certifying optional lower-emission engines?
This section defines optional ~~lower-~~exhaust emission standards for engines equipped with superior emission control systems. These engines, designated as "optional lower-emission standard" or "OLES" engines, must meet all the requirements in this part that apply to 2010 model year engines and one of the standards in the following table. These engines must also meet all testing and reporting requirements:

Optional Exhaust Emission Standards for
Hydrocarbons plus Oxides of Nitrogen (HC+NOx) and Carbon Monoxide (CO)
in grams per brake horsepower-hour (grams per kilowatt-hour)

Model Year	Engine Displacement	Durability Period	Standard – g/bhp-hr (g/kW-hr)	
			HC+NOx	CO
2010 and subsequent	> 1.0 liter	5000 hours or 7 years	0.4 (0.5)	15.4 (20.6)
			0.2 (0.3)	
			0.1 (0.1)	

(a) DELETE

(b) DELETE

(c) DELETE

~~(d)~~ If you certify an engine family under this section, it is subject to all the requirements of this part as if these voluntary standards were mandatory.

* * * * *

§1048.401 What testing requirements apply to my engines that have gone into service?

~~(b) We may approve an alternate plan for showing that in-use engines comply with the requirements of this part if one of the following is true:~~

~~(1) DELETE AND REPLACE WITH:~~

~~You produce a total of less than 2000 large spark-ignition engines annually for sale in the United States of America.~~

* * * * *

§1048.615 What are the provisions for exempting engines designed for lawn and garden applications?

DELETE

* * * * *

~~(a)~~

~~(3) DELETE AND REPLACE WITH:~~

~~The engine must be in an engine family that has a valid executive order showing that it meets emission standards for Class II engines under Title 13, California Code of Regulations, Chapter 9, Article 1, Small Off-Road Engines and Chapter 15, Article 1, Evaporative Emission Requirements for Off-Road Equipment.~~

* * * * *

~~(d) DELETE AND REPLACE WITH:~~
~~Engines exempted under this section are subject to all the requirements affecting engines under Title 13, California Code of Regulations, Chapter 9, Article 1, Small Off-Road Engines and Chapter 15, Article 1, Evaporative Emission Requirements for Off-Road Equipment. The requirements and restrictions of Title 13, California Code of Regulations, Chapter 9, Article 1, Small Off-Road Engines and Chapter 15, Article 1, Evaporative Emission Requirements for Off-Road Equipment apply to anyone manufacturing these engines, anyone manufacturing equipment that uses these engines, and all other persons in the same manner as if these engines had a total maximum engine power at or below 19 kW.~~

Adopt Article 2, Large Sparks Ignition (LSI) Engine Fleet Requirements, within Chapter 15, Division 3, Title 13, California Code of Regulations, and new sections 2775, 2775.1, and 2775.2 to read:

Article 2. Large Spark-Ignition (LSI) Engine Fleet Requirements

Section 2775. Applicability.

(a) General Applicability. This article applies to operators of off-road large spark-ignition (LSI) engine forklifts, sweepers/scrubbers, industrial tow tractors or airport ground support equipment operated within the State of California in the conduct of business with:

(1) 25 horsepower or more (greater than 19 kilowatts for 2005 and later model year engines), and

(2) greater than 1.0 liter displacement.

(b) Exemptions.

(1) Small Fleets as defined in subsection (d).

(2) Rental or lease equipment operated in California no more than 30 aggregated calendar days per year shall be exempt from the requirements of this article.

(3) Off-road military tactical vehicles or equipment exempt from regulation under the federal national security exemption, 40 CFR, subpart J, section 90.908, are exempt from the requirements of this article. Vehicles and equipment covered by the definition of military tactical vehicle that are commercially available and for which a federal certificate of conformity has been issued under 40 CFR Part 90, subpart B, shall also be exempt from the requirements of this article.

(c) Each part of this article is severable, and in the event that any part of this chapter or article is held to be invalid, the remainder of the article shall remain in full force and effect.

(d) Definitions. The definitions in Section 1900 (b), Chapter 1, and Section 2431 (a), Chapter 9 of Title 13 of the California Code of Regulations apply to this article. In addition, the following definitions apply to this article:

"Aggregated Operations" means all of an operator's California facilities for which equipment purchasing decisions are centrally made. Facilities that budget and make equipment purchasing decisions independent of a government or corporate headquarters are assumed to be independent and therefore are not required to be aggregated for the purpose of determining fleet size.

"Agricultural Crop Preparation Services" means packinghouses, cotton gins, nut hullers and processors, dehydrators, feed and grain mills, and other related activities that fall within the United States Census Bureau NAICs (North

American Industry Classification System) definition for Industry 115114 – "Postharvest Crop Activities." Facilities performing slicing and dicing as would be done to garlic or onions or flaking as would be done for potato products do not fall within this definition. Neither do facilities making bouillon, freeze-dried fruits and vegetables, noodle mixes, rice mixes, salad dressing mixes, soup mixes, or sauce mixes.

"Airport Ground Support Equipment," "Ground Service Equipment," or "GSE" means any large spark-ignition engine or electric-powered equipment contained in the 24 categories of equipment included in section B.3. of Appendix 2 of the South Coast Ground Support Equipment Memorandum of Understanding, dated November 27, 2002. Specifically included in this definition is equipment designed for on-road use, that lack a license plate issued by the California Department of Motor Vehicles ("On-Road Equivalent" GSE).

"Baseline Inventory" means an inventory of equipment as defined in this subdivision that reflects all equipment owned at the time of the inventory.

"Certification Standard" means the level to which an LSI engine is certified, in grams per kilowatt-hour of hydrocarbon and oxides of nitrogen, combined, as identified in an Executive Order (EO) issued by the Executive Officer of the California Air Resources Board.

"Dehydrators" means sun drying of fruits, vegetables, tomatoes, dates, prunes, raisins and olives, or artificially drying and dehydrating fruits, vegetables, tomatoes, dates, prunes, raisins, grapes, and olives.

"Emission Control System" means any device or system employed with a new or in-use off-road LSI-engine vehicle or piece of equipment that is intended to reduce emissions. Examples of LSI emission control systems include, but are not limited to, closed-loop fuel control systems, fuel injection systems, three-way catalysts, and combinations of the above.

"Equipment" or "Pieces of Equipment" means one or more forklifts, industrial tow tractors, sweeper/scrubbers, or pieces of airport ground support equipment as defined in this section.

"Executive Officer" means the Executive Officer of the California Air Resources Board, or his or her delegate.

"Executive Order" means a document signed by the Executive Officer that specifies the standard to which a new LSI engine is certified or the level to which an LSI retrofit emission control system is verified.

"Facility" means any structure, appurtenance, installation, and improvement on land that operates and/or garages one or more pieces of equipment.

"Facility Sample" means the selection of one or more individual facilities from an operator's California facilities for comparison to the operator's aggregate fleet inventory for fleet average calculation.

"Fleet Average Emission Level" means the arithmetic mean of the combined hydrocarbon plus oxides of nitrogen emissions certification standard or verification absolute emissions level for each piece of applicable equipment comprising an operator's fleet. For the purposes of calculating the fleet average, electric-powered equipment shall be considered to have combined hydrocarbon plus oxides of nitrogen emissions level of zero (0). Electric-powered equipment of less than 19 kilowatts shall be allowed to be included in the fleet average calculation provided that the operator can demonstrate that the equipment performs the work equivalent of an LSI engine-powered piece of equipment. For the purposes of calculating the fleet average for a non-forklift fleet, each piece of On-Road Equivalent GSE shall be considered to have a combined hydrocarbon plus oxides of nitrogen emissions level as follows: 1.1 g/bhp-hr (1.5 g/kW-hr) for purposes of determining compliance with the 1/1/2009 standard; 0.8 g/bhp-hr (1.1 g/kW-hr) for purposes of determining compliance with the 1/1/2011 standard; and 0.7 g/bhp-hr (0.9 g/kW-hr) for purposes of determining compliance with the 1/1/2013 standard. For the purpose of calculating the fleet average, fleet operators shall be permitted to exclude at their discretion any electric-powered equipment that could otherwise be used to lower the LSI fleet's average emission level.

"Forklift" means an electric Class 1 or 2 rider truck or a large spark-ignition engine-powered Class 4 or 5 rider truck as defined by the Industrial Truck Association. Electric Class 3 trucks are not forklifts for the purposes of this regulation.

"Industrial Tow Tractor" means an electric or large spark-ignition engine-powered Class 6 truck as defined by the Industrial Truck Association. Industrial tow tractors are designed primarily to push or pull non-powered trucks, trailers, or other mobile loads on roadways or improved surfaces. Industrial tow tractors are commonly referred to as tow motors or tugs. Industrial tow tractors are distinct from airport ground support equipment tugs for the purposes of this regulation.

"Label" means a permanent material that is welded, riveted or otherwise permanently attached to the engine block or other major component in such a way that it will be readily visible after installation of the engine in the equipment. If the equipment obscures the label on the engine, the equipment manufacturer must attach a supplemental label such that it is readily visible. The label will state the emission standard or verification absolute emissions level to which the engine or equipment was certified or verified.

"Large Fleet" means an operator's aggregated operations in California of 26 or more pieces of equipment.

“LSI Retrofit Emission Control System” means an emission control system employed exclusively with an in-use off-road LSI-engine vehicle or piece of equipment.

“Manufacturer” means the manufacturer granted new engine certification or retrofit emission control system verification.

“Medium Fleet” means an operator’s aggregated operations in California of 4 to 25 pieces of equipment.

“Memorandum of Understanding Signatories” or “MOU Signatories” means any of the airlines that entered into the South Coast Ground Support Equipment Memorandum of Understanding, dated November 27, 2002.

“Military tactical vehicles or equipment means vehicles or pieces of equipment that meet military specifications, are owned by the U.S. Department of Defense and/or the U.S. military services or its allies, and are used in combat, combat support, combat service support, tactical or relief operations, or training for such operations.

[“Model Year” means the manufacturer's annual production period, which includes January 1 of a calendar year or, if the manufacturer has no annual production period, the calendar year.][1]

[“New Engine” means an engine’s ownership has not been transferred to the ultimate consumer.]

“Non-forklift fleet” means an operator’s aggregated operations in California of four (4) or more sweeper/scrubbers, industrial tow tractors, or pieces of airport ground support equipment, alone or in combination.

"Nut hullers and processors" means facilities where nuts are received, hulled, aspirated, shelled, sized, stored, packaged and shipped. Facilities that blanch, slice, dice, roast, salt, or smoke nuts or nut meats are not included in the "nut hullers and processors" definition.

[“Off-Road Large Spark-ignition Engines” or “LSI Engines” means any engine that produces a gross horsepower of 25 horsepower or greater (greater than 19 kilowatts for 2005 and later model years) or is designed (e.g., through fueling, engine calibrations, valve timing, engine speed modifications, etc.) to produce 25 horsepower or greater (greater than 19 kilowatts for 2005 and later model years). If an engine family has models at or above 25 horsepower (greater than 19 kilowatts) and models below 25 horsepower (at or below 19 kilowatts), only the models at or above 25 horsepower (above 19 kilowatts) would be considered LSI engines. The engine’s operating characteristics are significantly similar to the theoretical Otto combustion cycle with the engine’s primary means of controlling power output being to limit the amount of air that is throttled into the

[1] Bracketed definitions are replicated for ease of use and presentation clarity from Section 1900 (b), Chapter 1, or Section 2431 (a), Chapter 9, of Title 13 of the California Code of Regulations.

combustion chamber of the engine. LSI engines or alternate fuel-powered LSI internal combustion engines are designed for powering, but not limited to powering, forklift trucks, sweepers, generators, and industrial equipment and other miscellaneous applications. All engines and equipment that fall within the scope of the preemption of Section 209(e)(1)(A) of the Federal Clean Air Act, as amended, and as defined by regulation of the Environmental Protection Agency, are specifically excluded from this category. Specifically excluded from this category are: 1) engines operated on or in any device used exclusively upon stationary rails or tracks; 2) engines used to propel marine vessels; 3) internal combustion engines attached to a foundation at a location for at least 12 months; 4) off-road recreational vehicles and snowmobiles; and 5) stationary or transportable gas turbines for power generation.]

“Operator” means a person with legal right of possession and use of LSI engine equipment other than a person whose usual and customary business is the rental or leasing of LSI engine equipment. Operator includes a person whose usual and customary business is the rental or leasing of LSI engine equipment for any LSI engine equipment not solely possessed or used for rental or leasing.

“Repower” means a new or remanufactured engine and parts offered by the OEM or by a non-OEM rebuilder that has been demonstrated to the ARB to be functionally equivalent from a durability standpoint to the OEM engine and components being replaced.

“Retrofit” means the application of an emission control system to a non-new LSI engine.

“Serial Number” means an engine serial number and date of engine manufacture (month and year) that are stamped on the engine block or stamped on a metal label riveted or permanently attached to the engine block. Engine manufacturers must keep records such that the engine serial number can easily be used to determine if an engine was certified for the applicable model year, and beginning January 1, 2007, the standard to which the engine was certified.

“Small Fleet” means an operator’s aggregated operations in California of 1 to 3 forklifts and/or 1 to 3 pieces of non-forklift equipment.

“South Coast Air Basin Airports,” or “Basin Airports“ means one or more of the following airports: Burbank-Glendale-Pasadena Airport, the John Wayne Airport, the Los Angeles International Airport, the Long Beach Municipal Airport, and the Ontario International Airport.

“Sweeper/scrubber” means an electric or large spark-ignition engine-powered piece of industrial floor cleaning equipment designed to brush and vacuum up small debris and litter or scrub and squeegee the floor, or both.

“Specialty Equipment” means a piece of equipment with unique or specialized performance capabilities that allow it to perform prescribed tasks and as approved by the Executive Officer.

["Ultimate Purchaser" means the first person who in good faith purchases a new LSI engine or equipment using such engine for purposes other than resale.]

"Uncontrolled LSI Engine" means pre-2001 uncertified engines and 2001-2003 certified uncontrolled LSI engines. The default emission rate for an uncontrolled LSI engine is 16.0 grams per kilowatt-hour of hydrocarbon plus oxides of nitrogen.

"Verification" means a determination by the Executive Officer that the LSI emission control system meets the requirements of this Procedure. This determination is based on both data submitted or otherwise known to the Executive Officer and engineering judgement.

"Verification Level" means one of four emission reduction classifications that apply to the performance capability of retrofit emission control systems as described in Title 13, California Code of Regulations, Section 2782(f), Table 1, as set forth in Table 1:

Table 1. LSI Engine Retrofit System Verification Levels

Classification	*Percentage Reduction (HC+NOx)*	*Absolute Emissions (HC+NOx)*
LSI Level 1 (1)	> 25% (2)	Not Applicable
LSI Level 2 (1)	> 75% (3)	3.0 g/bhp-hr (3) (4.0 g/kW-hr)
LSI Level 3a (1)	> 85% (4)	0.5, 1.0, 1.5, 2.0, 2.5 g/bhp-hr (0.7, 1.3, 2.0, 2.7, 3.4 g/kW-hr)
LSI Level 3b (5)	Not Applicable	0.5, 1.0, 1.5, 2.0 g/bhp-hr (0.7, 1.3, 2.0, 2.7 g/kW-hr)

Notes:

(1) Applicable to uncontrolled engines only

(2) The allowed verified emissions reduction is capped at 25% regardless of actual emission test values

(3) The allowed verified reduction for LSI Level 2 is capped at 75% or 3.0 g/bhp-hr regardless of actual emission test values

(4) Verified in 5% increments, applicable to LSI Level 3a classifications only

(5) Applicable to emission-controlled engines only

~~"Zero Emission Vehicle" or "ZEV" means any vehicle that could meet the zero-emission standards set forth in the California Exhaust Emission Standards and Test Procedures for 2003 and Subsequent Model Zero-Emission Vehicles, and 2001 and Subsequent Model Hybrid Electric Vehicles, in the Passenger Car, Light Duty Truck and Medium Duty Vehicle Classes (Aug. 5, 1999), or is certified to meet applicable ZEV standards in Title 13 of the California Code of Regulations~~

NOTE: Authority cited: Sections 39600, 39601, 43013, and 43018, Health and Safety Code. Reference: Sections 43013, 43017, and 43018, Health and Safety Code.

Section 2775.1. Standards.

(a) Operators of forklift and/or non-forklift fleets shall first determine the size of their fleets, using the equipment definitions in Section 2775. Then, e~~E~~xcept as provided in subdivisions (c), (d), (e), and (f), operators of medium and large forklift fleets and operators of non-forklift fleets with more than three pieces of equipment shall comply with the fleet average emission level standards in Table 2 by the specified compliance dates.

Table 2: Fleet Average Emission Level Standards in grams per kilowatt-hour (brake-horsepower-hour) of hydrocarbons plus oxides of nitrogen

	Initial Compliance Date		
Fleet Type	**1/1/2009**	**1/1/2011**	**1/1/2013**
Large Forklift Fleet	**3.2 (2.4)**	**2.3 (1.7)**	**1.5 (1.1)**
Medium Forklift Fleet	**3.5 (2.6)**	**2.7 (2.0)**	**1.9 (1.4)**
Non-forklift Fleet	**4.0 (3.0)**	**3.6 (2.7)**	**3.4 (2.5)**

(1) Fleet operators subject to the fleet average provisions shall include in their fleet average calculations any piece of equipment that the operator has rented or leased or reasonably expects to rent or lease for a period of one year or more.

(2) Fleet operators may exclude from the fleet average calculation uncontrolled 2003 and 2004 model year rental equipment (equipment rented for less than one year) until January 1, 2010.

~~(2)~~(3) In addition to the provisions of (a)(2) above, f~~F~~leet operators may exclude from the fleet average calculation rental or leased equipment if:

(A) the rental or lease is for a period of less than one year, and

(B) the rental or lease component comprises no more than 20 percent of the operator's equipment at any time, and

(C) the equipment rented or leased during the period from January 1, 2009 through December 31, 2010 is controlled to a 4.0 g/kW-hr (3.0 g/bhp-hr) standard or better and equipment rented or leased on or after January 1, 2011 is controlled to a 2.7 g/kW-hr (2.0 g/bhp-hr) standard or better.

~~(3)~~(4) Fleet operators shall comply with the applicable fleet average standard in Table 2 with the following exceptions:

(A) if through business expansion, a fleet meets the definition of a larger size category, the fleet may continue to comply with the applicable fleet standard for the initial size category until the subsequent compliance date, at which time the fleet must meet the applicable fleet standard for the new fleet size category, or

(B) if through retirement or other fleet size reduction mechanism the fleet would otherwise be required to comply with a less stringent fleet standard, then the less stringent fleet standard becomes effective immediately.

~~(b) In addition to the fleet average emission level standards prescribed in subsection (a), each MOU Signatory shall ensure that 30 percent of their total new and in-use Basin airport GSE fleet meets the ZEV definition by December 31, 2010.~~

~~(1) Aggregation. The MOU Signatories may aggregate their Basin Airport fleets for the purpose of calculating the ZEV component of the fleet.~~

~~(2) Inter-carrier Averaging. At their election, two or more Basin Airport operators may also voluntarily agree to average or trade, at any time, their respective fleet conversions, or portions thereof, for purposes of complying with the ZEV requirement in subsection (b). Basin Airport operators that agree to inter-carrier averaging must submit signed agreements to ARB and other information as necessary to demonstrate that emission reductions available for inter-carrier averaging or trading are not otherwise required or relied upon for compliance under subsection (b).~~

~~(3) Exemptions. Air starts, cargo loaders, cargo tractors, and ground power units are exempt from the ZEV requirements of this subsection, but count toward the total fleet population.~~

~~(c)~~(b) Operators of mixed fleets comprised of forklifts and non-forklift equipment shall determine fleet size individually for forklift fleets and non-forklift fleets; a mixed fleet with three or fewer forklifts and three or fewer non-forklift pieces of equipment shall be considered to be a small fleet.

~~(d)~~(c) Except as provided in subdivisions (d)~~(c)~~, (e)~~(f)~~ and (f)~~(g)~~, each operator of a forklift fleet used in agricultural crop preparation services shall address emissions from their owned uncontrolled forklifts engines as follows:

(1) by January 1, 2009, identify that portion of the 1990 and newer LSI forklift fleet for which retrofit emission control systems have been verified and control 20 percent of that portion as prescribed in subdivision ~~(c)~~(d)(1)(D)(i) below; and

(2) by January 1, 2012, control 100 percent of the 1990 and newer LSI forklift fleet for which retrofit emission control systems have been verified as prescribed in subdivision ~~(e)~~(d)(1)(D)(i) below.

(3) Operators of fleets used in agricultural crop preparation services may exclude from their ~~1990 and newer~~ LSI forklift fleet: ~~any rental or leased equipment. Equipment rented or leased on or after January 1, 2009 shall be controlled to a 4.0 g/kW-hr (3.0 g/bhp-hr) standard or better.~~

(A) leased forklifts provided the forklifts meet a 4.0 g/kW-hr (3.0 g/bhp-hr) standard or better. Forklifts under a lease agreement that was initiated prior to May 25, 2006 may also be excluded from the 4.0 g/kW-hr standard for the life of the lease, or until January 1, 2010, whichever is earlier, and

(B) rental forklifts rented on or after January 1, 2009, provided the forklifts meet a 4.0 g/kW-hr standard or better. Forklifts with an uncontrolled 2003 or 2004 model year engine may be excluded from the requirements of this subpart until January 1, 2010

~~(e)~~(d) Limited Hours of Use Provisions.

(1) Forklift and non-forklift equipment in medium and large fleets shall be exempted from the provisions of subdivision (a) of this section provided that:

(A) the equipment is used, on average over any three year period, less than 251 hours per year, and

(B) the equipment is equipped with an operational hours of use meter, and

(C) the operator maintains hours of use records for the piece of equipment at a facility, and

(D) the operator addresses the emissions by January 1, 2011, through option (i) or (ii) below:

(i) retrofit or repower the equipment to a Level 2 or Level 3 verification level as described in Title 13, California Code of Regulations, Section 2782 (f), or

(ii) retire the equipment or replace the equipment with a new or used piece of equipment certified to a 4.0 g/kW-hr (3.0 g/bhp-hr) hydrocarbon plus oxides of nitrogen standard.

(2) Forklifts used in agricultural crop preparation services fleets shall be exempted from the provisions of subdivision ~~(d)~~(c) of this section provided that they meet the requirements of subdivisions ~~(e)~~(d)(1)(A) through ~~(e)~~(d)(1)(C).

~~(f)~~(e) Specialty Equipment Exemption.

(1) Forklift and non-forklift specialty equipment shall be exempt from the requirements of subdivisions (a) through (~~d~~c) of this section provided that:

(A) the replacement cost exceeds the replacement cost of a "typical" piece of equipment from that category by 50 percent or the retrofit cost exceeds the "typical" retrofit cost of a piece of equipment from that category by 100 percent, and

(B) they meet the requirements of subdivisions (~~e~~d)(1)(A) through (~~e~~d)(1)(C), and

(C) the Executive Officer approves the listing of the piece of equipment as specialty equipment.

~~(g)~~(f) Alternate Compliance Option for Operators of Fleets used in Agricultural Crop Preparation Services.

(1) Operators of forklift fleets used in agricultural crop preparation services shall be exempted from the provisions of subdivision (~~d~~c) of this section provided that the forklift fleet complies with a 4.0 g/kW-hr (3.0 g/bhp-hr) fleet average emission level.

~~(h)~~(g) Use of Experimental Emission Control Strategies.

(1) An operator may use an experimental emission control strategy provided by or operated by the manufacturer in no more than ten percent of his total fleet for testing and evaluation purposes. The operator shall keep documentation of this use in records as specified in Section 2775.2(b).

~~(i)~~(h) Severability. If any provision of this section or the application thereof to any person or circumstance is held invalid, such invalidity shall not affect other provisions or applications of the section that can be given effect without the invalid provision or application, and to this end the provisions of this section are severable.

NOTE: Authority cited: Sections 39600, 39601, 43013, and 43018, Health and Safety Code. Reference: Sections 43013, 43017, and 43018, Health and Safety Code.

Section 2775.2. Compliance Requirements for Fleet Operators.

(a) Fleet operators subject to the requirements in section 2775.1(a) shall conduct a baseline inventory of their fleet within six months of [insert operative date of regulations after filing with Secretary of State] and shall maintain records at their facilities of their baseline inventory and subsequent inventories indicating accessions and retirements until June 30, 2016.

(b) At a minimum, fleet operators subject to the requirements in section 2775.1(a) shall record and maintain on file at their facilities, information on the equipment type, make, model, serial number, and emission certification standard or retrofit verification level. Fleet operators shall also maintain on file, for a period of three years, information on the

quality of propane fuel they purchased for their fleet that includes a written statement, product delivery ticket, or receipt from the fuel supplier, if obtainable, that the fuel supplied to the operator meets all applicable state and federal laws for use in their engines. Operators that maintain multiple facilities may aggregate the records at a centralized facility or headquarters. Records for all equipment at all facilities shall be made available to the Air Resources Board within 30 calendar days upon request. Compliance staff may then select a facility sample for inspection purposes.

(c) Medium and large fleets shall be required to demonstrate at any time between January 1, 2009 and December 31, 2015, based on actual inventory, and reconciled against inventory records, that they meet the applicable fleet average emission level standard in Section 2775.1(a).

(d) Agricultural crop preparation services fleets shall be required to demonstrate at any time on or after ~~June 1, 2007~~January 1, 2009, based on actual inventory and reconciled against inventory records, that they have addressed their 1990 and newer uncontrolled LSI engines as prescribed in Section 2775.1~~(d)~~(c).

(e) through (g) [No change]

NOTE: Authority cited: Sections 39600, 39601, 43013, and 43018, Health and Safety Code. Reference: Sections 43013, 43017, and 43018, Health and Safety Code.

Adopt Article 3, Verification Procedure, Warranty, and In-Use Compliance Requirements for Retrofits to Control Emissions from Off-Road Large Spark-Ignition Engines, Chapter 15, Division 3, Title 13, California Code of Regulations, and new sections 2780 through 2789, to read as follows:

Article 3. Verification Procedure, Warranty, and In-Use Compliance Requirements for Retrofits to Control Emissions from Off-Road Large Spark-Ignition Engines.

* * * * *

§ 2783. Emissions Reduction Testing Requirements.

* * * * *

(e) *Test Cycle*.

(1) *Systems verified prior to 2007*. Any LSI retrofit emission control system verified before January 1, 2007,must be tested using the steady-state test procedure (C2) set forth in the, "California Exhaust Emission Standards and Test Procedures for New 2001 ~~and Later~~through 2006 Off-Road Large Spark-Ignition Engines" as incorporated by reference in section 2433(~~d~~c), or the U.S. EPA transient test procedure as set forth in 40 CFR Part 1048, Subpart F, as adopted ~~November 8, 2002~~ July 13, 2005. For off-road engines used in constant-speed operation, the applicant must use the steady-state test procedure (D2) set forth in the "California Exhaust Emission Standards and Test Procedures for New 2001 and Later Off-Road Large Spark-Ignition Engines" as incorporated by reference in section 2433(d), or the U.S. EPA transient test cycle as outlined in 40 CFR Part 1048, Subpart F, as adopted ~~November 8, 2002~~ July 13, 2005. The required test cycles are summarized in Table 2, below.

Table 2. Test Cycles for Emissions Reduction Testing

Test Type	***LSI Retrofit System Verification Date***	***Off-Road (including portable engines)***	***Off-Road (constant-speed operation)***
Engine	Pre-2007	Steady-state test cycle (C2) from ARB off-road regulations or U.S. EPA transient test cycle	Steady-state test cycle (D2) from ARB off-road Regulations or U.S. EPA transient test cycle
Engine	2007 and later	U.S. EPA transient test cycle	U.S. EPA transient test cycle

(2) *Systems verified in 2007 or later.* Any LSI retrofit emission control system verified on or after January 1, 2007, must be tested using the U.S. EPA transient test procedure as set forth in 40 CFR Part 1048, Subpart F, as adopted ~~November 8, 2002~~ July 13, 2005.

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(k) *Quality Control of Test Data*. The applicant must provide information on the test facility, test procedure, and equipment used in the emission testing, including evidence establishing that the test equipment used meets the specifications and calibrations given in 40 CFR Part ~~86, subpart N~~1065.

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§ 2786. Other Requirements.

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(c) *System Labeling*.

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(1) LSI Retrofit Emission Control Group Name. Each LSI retrofit emission control system shall be assigned a name defined as below:

CA/V/MMM/LL##/NHP## or NHL##/APP/XXXXX

Where:

CA:	Designates an LSI retrofit emission control system verified in California
~~I~~V:	Year of verification
MMM:	Manufacturer code (assigned by the Executive Officer)
LL##:	Verified LSI Level (e.g., LL2 means the retrofit system was verified to the “LSI Level 2”, LL3a means the retrofit system was verified to “LSI Level 3a).
NHP##:	Verified HC + NOx reduction percent (e.g., NH75 means HC + NOx reduction of 75 percent).
NHL##:	Verified HC + NOx absolute emissions in units of g/bhp-hr, (e.g., NH3.0 means verified HC + NOx emission level of 3.0 g/bhp-hr).
APP:	Verified application includes a combination of Off-road (OF),or Stationary (ST)
XXXXX:	Five alphanumeric character code issued by the Executive Officer

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§ 2789. In-Use Compliance Requirements.

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(e) *In-use Compliance Emission Testing*. Applicant must measure emissions using one of the following test procedures for in-use compliance emission testing:

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(2) *Testing Installed Engines.* Test the selected engines while they remain installed in the equipment. Applicants must follow the U.S. EPA field-testing procedures as specified in 40 CFR part 1065, subpart J, as adopted ~~November 8, 2002~~ July 13, 2005. The accuracy and precision of the measurement system used for in-use testing must be at least +/-5 percent or better. For engines originally verified to a percentage reduction, both baseline and control tests are required; for engines originally verified to an emission level, only control tests are required.