

## PROPOSED REGULATION ORDER, PART 2

NOTE: The entire text is new language proposed for addition to the California Code of Regulations.

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 as follows:

### Article 2. Large Sparks 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) 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.
  - (2) Ground support equipment subject to the South Coast Ground Support Equipment Memorandum of Understanding, dated November 27, 2002 shall be exempt from the requirement of this article until January 1, 2012. Ground support equipment subject to any future ground support equipment agreement to which the California Air Resources Board is a signatory shall be exempt from the requirements of this article for the period specified in the agreement plus one year.
  - (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:

“Agricultural Crop Preparation Services” means packinghouses, cotton gins, nut hullers and processors, dehydrators, feed and grain mills, and other related activities.

“Airport Ground Support Equipment” means any large spark-ignition engine-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.

“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.

“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 catalysis, 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 for each piece of applicable equipment comprising an operator’s fleet.

“Forklift” means an electric Class 1, 2, or 3 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 hand 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 standard to which the engine or equipment was certified in accordance with the labeling provisions of Title 13, California Code of Regulations, section 2434(c)(5)(G).

“Large Fleet” means an operator’s aggregated operations in California of 26 or more pieces of LSI 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 LSI equipment.

“Military tactical vehicles or equipment means vehicles or equipment owned by the U.S. Department of Defense and/or the U.S. military services and 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.]<sup>1</sup>

["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.

["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 year) 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 year). 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 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

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<sup>1</sup> 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.

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 in accordance with the labeling provisions of Title 13, California Code of Regulations, section 2434(c)(5)(G).

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

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

“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 12.0 grams per brake horsepower-hour of hydrocarbon plus oxides of nitrogen.

“Verification” “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**

<i>Classification</i>	<i>Percentage Reduction (HC+NOx)</i>	<i>Absolute Emissions (HC+NOx)</i>
<b>LSI Level 1</b> <sup>(1)</sup>	> 25% <sup>(2)</sup>	Not Applicable
<b>LSI Level 2</b> <sup>(1)</sup>	> 75% <sup>(3)</sup>	3.0 g/bhp-hr <sup>(3)</sup>
<b>LSI Level 3a</b> <sup>(1)</sup>	> 85% <sup>(4)</sup>	0.5, 1.0, 1.5, 2.0, 2.5 g/bhp-hr
<b>LSI Level 3b</b> <sup>(5)</sup>	Not Applicable	0.5, 1.0, 1.5, 2.0 g/bhp-hr

Notes:

- <sup>(1)</sup> Applicable to uncontrolled engines only
- <sup>(2)</sup> The allowed verified emissions reduction is capped at 25% regardless of actual emission test values
- <sup>(3)</sup> The allowed verified reduction for LSI Level 2 is capped at 75% or 3.0 g/bhp-hr regardless of actual emission test values
- <sup>(4)</sup> Verified in 5% increments, applicable to LSI Level 3a classifications only
- <sup>(5)</sup> Applicable to emission-controlled engines only

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) Except as provided in subdivisions (d), (e), (f), and (g), 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**

Fleet Type	Initial Compliance Date		
	1/1/2009	1/1/2011	1/1/2013
<b>Large Forklift Fleet</b>	<b>3.2 (2.4)</b>	<b>2.3 (1.7)</b>	<b>1.5 (1.1)</b>
<b>Medium Forklift Fleet</b>	<b>3.5 (2.6)</b>	<b>2.7 (2.0)</b>	<b>1.9 (1.4)</b>
<b>Non-forklift Fleet</b>	<b>4.0 (3.0)</b>	<b>3.1 (2.3)</b>	<b>2.3 (1.7)</b>

- (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 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) 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) 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 and shall comply with the provisions specified in subdivision (c) below.
- (c) Except as provided in subdivisions (d), (e), and (f), each small forklift, small non-forklift, and small mixed fleet shall address emissions from all uncontrolled LSI engines in that fleet as prescribed in subdivision (e)(1)(D)(i) or (ii) below by January 1, 2011.
- (d) Except as provided in subdivisions (e), (f) and (g), by July 1, 2016, each operator of a fleet used in agricultural crop preparation services shall address emissions from all uncontrolled LSI engines in that fleet as prescribed in subdivision (e)(1)(D)(i) or (ii) below beginning July 1, 2006, as follows:
  - (1) Ten percent of their 2006 baseline uncontrolled LSI engine inventory shall be addressed each year for a period of ten years, and
  - (2) In determining the percentage in (d)(1), the operator of the agricultural crop preparation services fleet need only address the integer portion of the calculation each year.
  - (3) Operators of fleets used in agricultural crop preparation services may exclude from their 2006 baseline uncontrolled LSI engine inventory any rental or leased equipment. Any equipment rented or leased on or after January 1, 2009 must be controlled to a 4.0 g/kW-hr (3.0 g/bhp-hr) standard or better.
- (e) Limited Hours of Use Provisions and Small Fleet Standards.
  - (1) Forklift and non-forklift equipment in small, medium, and large fleets shall be exempted from the provisions of subdivisions (a) and (c) of this section, and forklift equipment in agricultural crop preparation services shall be exempted from the provisions of subdivision (d) 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 through option (i) or (ii) below by January 1, 2011, if a medium or large fleet, or by January 1, 2013, if a small fleet:



- (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 3.0 g/bhp-hr hydrocarbon plus oxides of nitrogen emission standard.
- (f) Specialty Equipment Exemption.
  - (1) Forklift and non-forklift specialty equipment shall be exempt from the requirements of subdivisions (a) through (d) 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)(1)(A) through (e)(1)(C), and
    - (C) the Executive Officer approves the listing of the piece of equipment as specialty equipment.
- (g) Alternate Compliance Option for Operators of Fleets used in Agricultural Crop Preparation Services.
  - (1) Forklift equipment in agricultural crop preparation services shall be exempted from the provisions of subdivision (d) of this section provided that the operator of the equipment complies with a 4.0 g/kW-hr fleet average emission level.

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 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 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. Equipment with model year 2001 through 2004 LSI engines is required to have an emissions label that states that the engine conforms to the applicable model year regulations for off-road large spark-ignition engines or is certified uncontrolled. Equipment without an emissions label identifying the certification standard or verification level shall be

deemed to have an uncontrolled LSI engine. 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) Small fleets shall be required to demonstrate at any time on or after January 1, 2013, based on actual inventory, and reconciled against inventory records, that they have addressed their uncontrolled LSI engines as prescribed in Section 2775.1 (e)(1)(D).
- (e) Agricultural crop preparation services fleets shall be required to submit baseline inventory documentation on or before June 30, 2006 to the Air Resources Board.
- (f) Agricultural crop preparation services fleets shall be required to demonstrate at any time on or after June 30, 2007, based on actual inventory, and reconciled against inventory records, that they have addressed their uncontrolled LSI engines as prescribed in Section 2775.1 (d) and (e)(1)(D) or (g).
- (g) Compliance Extensions. An operator may be granted an extension to a compliance deadline specified in Section 2775.1 for one of the following reasons:
  - (1) Compliance Extension based on No Verified Retrofit Emission Control System. The Executive Officer shall grant a blanket one-year compliance extension if no retrofit emission control systems are verified prior to January 1, 2007. The Executive Officer may grant additional compliance extensions if no retrofit emission control systems are verified prior to January 1, 2008.
  - (2) Use of Experimental Emission Control Strategies. 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 subsection (b).
  - (3) If a compliance deadline extension is granted by the Executive Officer, the operator shall be deemed to be in compliance as specified by the Executive Officer's authorization.
- (h) Continuous Compliance. An operator is required to keep his equipment in compliance with this regulation, once it is in compliance, so long as the operator is operating the equipment in California.

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