

State of California
Environmental Protection Agency

AIR RESOURCES BOARD

PROPOSAL TO CONSIDER THE INCORPORATION OF FEDERAL
EXHAUST EMISSION STANDARDS FOR 2008 AND LATER MODEL-
YEAR HEAVY-DUTY GASOLINE ENGINES AND THE ADOPTION OF
MINOR AMENDMENTS TO THE LOW-EMISSION VEHICLE
REGULATIONS

FINAL STATEMENT OF REASONS

AUGUST 2003

State of California
Environmental Protection Agency
AIR RESOURCES BOARD

**Final Statement of Reasons for Rulemaking,
Including Summary of Comments and Agency Response**

**PUBLIC HEARING TO CONSIDER THE INCORPORATION OF FEDERAL EXHAUST
EMISSION STANDARDS FOR 2008 AND LATER MODEL-YEAR HEAVY-DUTY
GASOLINE ENGINES AND THE ADOPTION OF MINOR AMENDMENTS TO THE
LOW-EMISSION VEHICLE REGULATIONS**

Public Hearing Date: December 12, 2002
Agenda Item No.: 02-9-2

I. GENERAL

In this rulemaking, the Air Resources Board (ARB or Board) is adopting amendments to California's heavy-duty Otto-cycle (gasoline) engine regulations and California's Low-Emission Vehicle II (LEV II) regulations. These amendments include the following primary elements:

Aligning the California exhaust emissions standards for heavy-duty Otto-cycle engines with the recently promulgated federal requirements;

Allowing manufacturers to participate in the federal averaging, banking and trading programs for medium-duty gasoline engines between 8,501 and 14,000 pounds gross vehicle weight (GVW) and for heavy-duty gasoline engines over 14,000 pounds GVW;

Requiring that fuel-fired heaters used in light- and medium-duty vehicles meet the same requirements as heaters used in zero-emission vehicles (ZEVs);

Aligning the first allowable scheduled maintenance interval for passenger cars and light-duty trucks with the 120,000-mile "full useful life" requirements of the LEV II program;

Eliminating the requirement that vehicles be labeled with a machine-readable vehicle emission control information (VECI) bar code label, harmonizing of the tune-up label specifications with U.S. Environmental Protection Agency (U.S. EPA) requirements, and moving the label requirements from a separate label

specification document to the applicable Test Procedures documents, which refer to and incorporate the appropriate federal label requirements;

Revising the California on-board refueling vapor recovery (ORVR) regulatory requirements to address U.S. EPA's concerns; and

Adopting a new document, entitled "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines," that updates and reorganizes this document to reflect the current requirements for heavy-duty diesel engines in a new format.

The rulemaking was initiated by the September 27, 2002 publication of a notice for a November 14, 2002 public hearing to consider the proposed amendments. The hearing was later postponed until December 12, 2002. A Staff Report: Initial Statement of Reasons (the Staff Report) was also made available for public review and comment starting September 27, 2002. The Staff Report, which is incorporated by reference herein, describes the rationale for the proposal. The text of the proposed amendments to title 13, California Code of Regulations (CCR) sections 1956.1, 1956.8, 1961, 1965 and 1978 was included as an Appendix to the Staff Report. These documents were also posted on the ARB's Internet site for the rulemaking at: <http://www.arb.ca.gov/regact/levhdg02/levhdg02.htm>. Also posted on the internet site were the proposed amendments to seven ARB documents which are or were proposed to be incorporated by reference in the regulations listed above:

"California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Otto-Cycle Engines," which is incorporated by reference in section 1956.8(d);

"California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Passenger Cars, Light-Duty Trucks, and Medium-Duty Vehicles," which is incorporated by reference in section 1961(d);

"California Motor Vehicle Emission Control and Smog Index Label Specifications," which is incorporated by reference in section 1965;

"California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles," which is incorporated by reference in sections 1956.1(b) and 1956.8(b);

"California Refueling Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles," which is incorporated in section 1978;

"California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines," a proposed new document to be incorporated by reference in sections 1956.1(b) and 1956.8(b); and

“California Smog Index Label Specifications for 2004 and Subsequent Model Passenger Cars and Light-Duty Trucks,” a proposed new document to be incorporated by reference in section 1965.

On December 12, 2002, the Board conducted the public hearing, at which it received one written comment and no oral comments. At the conclusion of the hearing, the Board adopted Resolution 02-31, in which it adopted the originally proposed amendments to the heavy-duty regulations and their incorporated standards and test procedures. The Board also approved the originally proposed amendments to the low-emission vehicle regulations with two significant modifications: (1) addition of regulatory language to clarify that fuel-fired heaters used in conventional vehicles may not be operable above 40°F, and (2) raising the high mileage testing requirement for vehicles certifying to 150,000-mile emission standards to 112,500 miles. These modifications had been suggested by staff in a 6-page document entitled “Staff’s Suggested Modifications to the Original Proposal” that was distributed at the hearing and was Attachment I to the Resolution. Attachment I showed excerpts of the originally proposed amendments to the regulations and incorporated documents, with the text of all suggested modifications clearly identified. In accordance with section 11346.8 of the Government Code, the Resolution directed the Executive Officer to incorporate the modifications into the proposed regulatory text, with such other conforming modifications as may be appropriate, and to make the modified text available for a supplemental comment period of at least 15 days. The Executive Officer was then directed either to adopt the amendments with such additional modifications as may be appropriate in light of the comments received, or to present the regulations to the Board for further consideration if warranted in light of the comments.

Subsequent to the hearing, the staff added two conforming modifications to the proposal: (1) corrections to the number of significant figures in two of the 50°F standards, in section 1961(a)(4), title 13, CCR and section E.1.4 of the “California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Truck and Medium-Duty Vehicles,” and (2) incorporation by reference of 40 Code of Federal Regulations (CFR) section 1825-01, as amended October 6, 2000, in the “California Refueling Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles.” This CFR reference was unintentionally omitted when the document was originally adopted as part of the “LEV II/ CAP 2000” rulemaking.

The text of all of the modifications to the originally proposed amendments to the regulations and incorporated documents was made available for a supplemental 15-day comment period by issuance of a “Notice of Public Availability of Modified Text.” This Notice and a copy of the “Modifications to the Proposed Regulation Order” were posted on the ARB’s Internet site for this rulemaking on March 28, 2003. These documents were also mailed on April 11, 2003 to all parties identified in section 44(a), title 1, CCR, and to other persons generally interested in the ARB’s rulemaking concerning motor vehicle emission standards. Resolution 02-31 and the Attachment I document entitled “Staff’s Suggested Modifications to the Original Proposal”, were also made available on

the ARB's Internet site for the rulemaking. The "Notice of Public Availability of Modified Text" gave the name, telephone and fax number of the ARB contact person from whom interested parties could obtain the complete texts of the two incorporated documents which would be affected by the modifications to the original proposal, with all of the modifications clearly indicated.

No comments were received during the supplemental comment period that ended April 28, 2003. After the close of the supplement comment period, the Executive Officer issued Executive Order G-03-016, adopting the amendments to CCR, title 13, and amending or adopting the incorporated documents. All of these changes are posted on the ARB's Internet site for the rulemaking under the heading "Adopted Regulations and Materials Submitted to OAL." The amended texts of the regulations and incorporated documents were identical to the originally proposed texts as revised by the modifications made available for supplemental comment except for the nonsubstantial corrections listed in Attachment A.

This Final Statement of Reasons (FSOR) updates the Staff Report by identifying and providing the rationale for the modifications made to the originally proposed regulatory text. The FSOR also contains a summary of the comments the Board received on the proposed regulatory amendments during the formal rulemaking process and the ARB's responses to those comments.

Incorporation of Test Procedures and Federal Regulations. The seven amended and new test procedures are incorporated by reference in CCR, title 13, sections 1956.1(b), 1956.8(b) and (d), 1961(d), 1965, 1978 and 2065. These test procedure documents in turn incorporate certification test procedures adopted by U.S. EPA and contained in 40 CFR Part 86.

California Code of Regulations, title 13, sections 1956.1(b), 1956.8(b) and (d), 1961(d), 1965, 1978 and 2065 identify the incorporated ARB documents by title and date. The ARB documents are readily available from the ARB upon request and were made available in the context of this rulemaking in the manner specified in Government Code section 11346.5(b). The Code of Federal Regulations (CFR) is published by the Office of the Federal Registrar, National Archives and Records Administration, and is therefore reasonably available to the affected public from a commonly known source.

The test procedures are incorporated by reference because it would be impractical to print them in the CCR. Existing ARB administrative practice has been to have the test procedures incorporated by reference rather than printed in the CCR as these procedures are highly technical and complex. They include the "nuts and bolts" engineering protocols required for certification of motor vehicles and have a very limited audience. Because the ARB has never printed complete test procedures in the CCR, the affected public is accustomed to the incorporation format. The ARB's test procedures as a whole are extensive and it would be both cumbersome and expensive to print these lengthy, technically complex procedures with a limited audience in the

CCR. Printing portions of the ARB's test procedures that are incorporated by reference would be unnecessarily confusing to the affected public.

The test procedures incorporate portions of the CFR because the ARB requirements are substantially based on the federal emission regulations. Manufacturers typically certify vehicles to a version of the federal emission standards and test procedures, which has been modified by state requirements. Incorporation of the federal regulations by reference makes it easier for manufacturers to know when the two sets of regulations are identical and when they differ. Each of the incorporated CFR provisions is identified by date in the ARB test procedure documents.

Fiscal Impacts. The Board has determined that this regulatory action will not create costs or savings, as defined in Government Code section 11346.5(a)(6), to any state agency or in federal funding to the state, costs or mandate to any local agency or school district whether or not reimbursable by the state pursuant to Part 7 (commencing with section 17500), Division 4, Title 2 of the Government Code, or other non-discretionary costs or savings to local agencies.

Consideration of Alternatives. The amendments proposed in this rulemaking were the subject of discussions involving staff and the affected motor vehicle manufacturers. The Board has determined that no alternative considered by the agency would be more effective in carrying out the purpose for which the regulatory action was proposed or would be as effective and less burdensome to affected private persons than the action taken by the Board.

II. MODIFICATIONS TO THE ORIGINAL PROPOSAL

A. LIMIT ON MAXIMUM TEMPERATURE AT WHICH FUEL-FIRED HEATERS ARE OPERABLE

One of the ARB's requirements for a fuel-fired heater used in a zero-emission vehicle is that it not be operable at temperatures above 40°F. In proposing restrictions on fuel-fired heaters in conventional vehicles, the staff had intended to include an identical requirement – as stated in both the hearing notice and Staff Report. However, through an oversight the 40°F requirement was not included in the proposed text of section 1961(a)(15), title 13, CCR, or in Part I.E.1.13 of the “California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles” that fuel-fired heaters used in conventional vehicles will not be allowed to operate at temperatures above 40°F. The first modification approved by the Board was to revise these provisions to expressly include the 40°F requirement. As explained in the Staff Report, this requirement helps assure that the fuel-fired heater will not result in an increase in emissions when ambient ozone levels are high.

B. EXTENDING THE HIGH MILEAGE TESTING REQUIREMENT FOR VEHICLES CERTIFYING TO 150,000 MILE EMISSION STANDARDS

The second modification approved by the Board will extend the limit on high mileage testing of vehicles certifying to the optional 150,000-mile standards specified in section 1961(a)(1), title 13, CCR to 112,500 miles. This is consistent with current requirements contained in the "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Trucks and Medium-Duty Vehicles" that high-mileage testing be conducted at 75 percent of the full-useful life mileage. Thus the modification allows a comparable evaluation of the in-use emission performance of these vehicles.

C. CORRECTIONS TO SIGNIFICANT FIGURES OF 50°F STANDARDS

Section 1961(a)(4), title 13, CCR and section E.1.4 of the "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Truck and Medium-Duty Vehicles," contain 50°F exhaust emission standards for light- and medium-duty vehicles. In the majority of cases, the 50°F standards contain three significant figures after the decimal point (e.g., the NMOG standard for LEV II passenger cars is 0.150 g/mi). However, in three instances, the 50°F NMOG standards only contain two significant figures after the decimal point. For consistency, a third significant figure has been added in these cases. In section 1961(a)(4), title 13, CCR the super-ultra-low-emission vehicle (SULEV) NMOG standard for passenger cars and light-duty trucks 0-8500 lbs. GVW has been changed from 0.02 g/mi to 0.020 g/mi. In section E.1.4 of the "California Exhaust Emission Standards and Test Procedures for 2001 and Subsequent Model Passenger Cars, Light-Duty Truck and Medium-Duty Vehicles," the low-emission vehicle I (LEV I) NMOG standard for transitional low-emission vehicle (TLEV) passenger cars and light-duty trucks 0-3750 lbs. loaded vehicle weight has been changed from 0.25 g/mi to 0.250 g/mi and the LEV II NMOG standard for SULEV passenger cars and light-duty trucks 0-8500 lbs. GVW has been changed from 0.02 g/mi to 0.020 g/mi.

D. INCORPORATION OF CFR SECTION INTO CALIFORNIA'S MOTOR VEHICLE REFUELING REQUIREMENTS

The "Compliance Assurance Program" (CAP 2000) was designed to streamline the motor vehicle certification process and redirect resources toward in-use compliance, which provides better assurance that vehicles comply with the standards in use. CAP 2000 was developed through a cooperative effort between the ARB and the U.S. EPA and many of its provisions are contained in the CFR and incorporated by reference into California's test procedures. The current version of the "California Refueling Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles" unintentionally omits a reference to one of the applicable CFR references, 40 CFR §1825-01, as amended October 6, 2000, which establishes the durability demonstration procedures for refueling emissions. This 15-day modification incorporates this

reference in the “California Refueling Emission Standards and Test Procedures for 2001 and Subsequent Model Motor Vehicles.”

III. SUMMARY OF COMMENTS AND AGENCY RESPONSE

The Board received one written comment during the 45-day comment period prior to the December 12, 2002 hearing. No oral comments were received in connection with the hearing. The Board also did not receive any comments during the 15-day comment period.

1. **Comment:** An auxiliary fuel-fired heating system is an independent assembly which is linked to the engine’s fuel and coolant system. This type of auxiliary heating system can reduce an engine’s emission output significantly. It is not relevant to link emission standards for fuel-fired heaters with vehicle mileage due to the operational nature of fuel-fired heaters. We feel there are more relevant methods of measuring emissions from a fuel-fired heater e.g., linking the heaters to heat capacity (g/BTU) or the time that such a heater is in operation (g/time unit).

In the very worst case scenario for a cold weather climate – Fairbanks Alaska – the fuel fired heater is operational for a total of 178.5 hours per year. In this scenario, the car traveled 15,000 miles in one year in a total of 607 hours. (Espar Products)

Agency Response: The current regulatory changes align the requirements for fuel-fired heaters used in conventional vehicles with those required for fuel-fired heaters used in ZEVs. In order to evaluate the emission impact for a vehicle equipped with a fuel-fired heater, it is appropriate to compare the emissions from that vehicle with and without the heater. Because vehicle emissions are based on grams of emissions per vehicle mile driven (g/mi), any increase in vehicle emissions due to the use of an auxiliary fuel-fired heater is also measured in g/mi. While one manufacturer may decide to operate a heater only intermittently, another may prefer the heater to run continuously during vehicle operation. Consequently, in order to protect public health and California’s air quality needs, emissions from fuel-fired heaters are required to be tested according to the worst case allowable operating scenario and these emissions must be included when calculating emissions from a vehicle on a gram per mile basis in order to determine compliance with applicable standards. Since the proposed requirements are identical to those already applicable to ZEVs, staff has expected that qualifying heaters have been designed to meet the specified ULEV standard.

The commenter has not presented enough data to justify an alternative approach as part of this rulemaking. However, staff has agreed to continue to examine Espar’s request to determine if there is an alternative means to account for fuel-fired heater emissions, which is at least as protective of public health as that currently adopted.

Attachment A

NONSUBSTANTIAL MODIFICATIONS TO THE REGULATIONS AND INCORPORATED DOCUMENTS AFTER THE 15-DAY COMMENT PERIOD AND CHANGES WITHOUT REGULATORY EFFECT

Final Regulation Order, title 13, California Code of Regulations

In section 1956.1(b), the reference to the “California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles” has been modified to “California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent through 2003 Model Heavy-Duty Diesel Engines and Vehicles” to reflect the title of the amended document. Corrections have been made to the text to reflect existing text as filed with the Secretary of State and published in Barclays California Code of Regulations: In line 3 of the final text, “participating” is corrected to “participation.” In line 6 of the final order text, “December 8, 2000” is corrected to “November 22, 2000.” While the incorporated document was amended on December 8, 2000, the amendment was not reflected in section 1956.1(b), although the incorporated document correctly reflects the history of its amendments.

In section 1956.8(b), the reference to the “California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles” has been changed to “California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent through 2003 Model Heavy-Duty Diesel Engines and Vehicles” to reflect the title of the amended document. A correction has been made to the text to reflect existing text as filed with the Secretary of State and published in Barclays California Code of Regulations: In line 6 of the final order text, “December 8, 2000” is corrected to “October 25, 2001” to correctly reflect the history of the incorporated document’s amendments.

In section 1956.8(h), footnotes ^J and ^K have been amended to reflect the amended titles of the incorporated documents: the “California Exhaust Emission Standards and Test Procedures for 1985 and Subsequent through 2003 Model Heavy-Duty Engines and Vehicles”, and the “California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines.”

While not noticed for amendment, a conforming amendment to section 2065 is included with this rulemaking. The modification changes the title of the incorporated document: “California Exhaust Emission Standards and Test Procedures for ~~1985~~2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles” adopted ~~April 8, 1985~~ December 12, 2002, ~~as last amended December 8, 2000~~” to reflect the adoption of the reformatted incorporated document. The modification reflects a change without regulatory effect that may be published in the CCR as authorized by title 2, CCR, section 100.

“California Motor Vehicle Emission Control and Smog Index Label Specifications,” incorporated by reference in section 1965, title 13, California Code of Regulations

The document is revised to reflect unintentionally omitted amendments to section 2.(a) and (d), the second paragraph of section 3, and section 3.(a)i, vii, which had been adopted October 22, 1999 in a rulemaking affecting motorcycles, and to add October 22, 1999 to the list of amended dates on the face sheet. Since these amendments were part of the preexisting document prior to the current rulemaking, they are not highlighted by underline and strikeout in this rulemaking’s document showing the adopted amendments. However, for completeness the 1999 amendments are shown below in underline and strikeout compared to the text of the Label Specifications document immediately prior to the current rulemaking.¹

2. Applicability.

(a) The specifications for tune-up labels, vehicle emission configuration bar-code labels, and vehicle identification number bar-code labels shall apply to all new 1979 and subsequent model-year passenger cars, light-duty trucks, medium-duty vehicles, heavy-duty engines, and to all new 1982 and subsequent model year motorcycles and motorcycle engines certified to the applicable emission standards pursuant to California Health and Safety Code Sections 43100 and 43107. The “unleaded gasoline only” labeling requirements in section 3.(d) do not apply to 1997 and subsequent model year vehicles.

* * * * *

(d) The responsibility for compliance with these specifications shall rest with the motorcycle, motorcycle engine, light-duty vehicle, medium-duty vehicle, or heavy-duty engine manufacturer who certified such vehicles or engines.

3. Emission Control Labels.

* * * * *

In selecting an acceptable location, the manufacturer shall consider the possibility of accidental damage (e.g., possibility of tools or sharp instruments coming in contact with the label) and accessibility for a bar-code scanner, as applicable. Each label shall be affixed in such a manner that it cannot be removed without destroying or defacing the label, and shall not be affixed to any part which is likely to be replaced during the vehicle’s useful life. For motorcycles and motorcycle engines, passenger

¹ The 1999 amendments to the label specifications document were shown on the ARB’s Final Regulation Order for that rulemaking, which is available at: www.arb.ca.gov/regact/motorcyc/finreg.pdf.

cars, light-duty trucks, and medium-duty vehicles, the label(s) shall not be affixed to any equipment which is easily detached from the vehicle.

(a) The tune-up label shall contain the following information lettered in the English language in block letters and numerals which shall be of a color that contrasts with the background of the label:

- i. The label heading shall read: "Vehicle Emission Control Information" for passenger cars, light-duty trucks, medium-duty vehicles, ~~and motorcycles~~ and motorcycle engines, and "Important Engine Information" for heavy-duty engines.

* * * * *

- iv. Engine family or test group identification, model designation, engine displacement (in cubic centimeters or liters), and for all 1993 and subsequent model-year vehicles the statement, "(specify OBD I or OBD II, as applicable) certified" or "OBD Exempt" for all 1990 and subsequent model-year vehicles which do not have an Air Resources Board approved on-board diagnostic system. Motorcycles, motorcycle engines, and ZEVs are exempt from these requirements.

* * * * *

- vii. For motorcycles and motorcycle engines only, any specific fuel or engine lubricant requirements (e.g., lead content, research octane number, engine lubricant type).

* * * * *

- ix. An unconditional statement of compliance with the appropriate model-year California regulations; for example, "This vehicle (or engine, as applicable) conforms to California regulations applicable to ___ model-year new ___ (for 1992 and subsequent model years, specify TLEV, LEV, ULEV, SULEV, or ZEV, as applicable) (specify motorcycles, motorcycle engines, passenger cars, light-duty trucks, medium-duty vehicles, heavy-duty Otto-cycle engines, or heavy-duty diesel engines, as applicable).? For federally certified vehicles certified for sale in California the statement must include the phrase "conforms to U.S. EPA regulations and is certified for sale in California." For Class III motorcycles and motorcycle engines for sale in California, the statement must include the phrase "is certified to ___HC engine family exhaust emission standard in California." In addition, for Class III motorcycles and motorcycle engines for sale in California

that meet the requirements of Section 1958(g) ?Early Compliance Credits” (Title 13, CCR), the statement must also include the phrase ?is certified to ___ (actual certified engine family exhaust emissions level) gram per kilometer HC+NOx engine family exhaust emissions level.” For incomplete light-duty truck and incomplete medium-duty vehicles the label shall contain the following statement in lieu of the above:

* * * * *

“California Exhaust Emission Standards and Test Procedures for 1985 Through 2003 Model Heavy-Duty Diesel Engines and Vehicles,” incorporated by reference in sections 1956.1(b) and 1956.8(b), title 13, California Code of Regulations

Sixth line of amendments to §86.1313-90(b)(2): “through 2005” was changed to “through ~~2005~~ 2003” since the document does not apply to 2004 and later model-year engines.

“California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles,” incorporated by reference in sections 1956.1(b), 1956.8(b) and 2065, title 13, California Code of Regulations

Text following sec. 86.1313-98, 2.2: “1995 through 2005 model- year” was changed to “2004 and 2005 model-year” to reflect the fact that the document does not apply to 2003 and earlier model engines.