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MANUFACTURERS ADVISORY CORRESPONDENCE 2007-03

TO: ALL HEAVY-DUTY DIESEL ENGINE MANUFACTURERS
ALL HEAVY-DUTY DIESEL VEHICLE MANUFACTURERS
ALL OTHER INTERESTED PARTIES

SUBJECT: Protocol for the Engine Shutdown System on New California Certified Heavy-Duty Diesel Engines for 2008 and Subsequent Model Years

The enclosed Manufacturers Advisory Correspondence (MAC) provides guidance to manufacturers regarding the implementation of an engine shutdown system (ESS) that complies with California requirements. An ESS is required on all new 2008 and subsequent model year California-certified heavy-duty diesel engines (Gross Vehicle Weight Rating greater than 14,000 pounds) pursuant to Section 1956.8 of Title 13, California Code of Regulations, which became effective on November 15, 2006 following the Board's adoption on October 20, 2005.

Specifically, this MAC provides guidance to manufacturers regarding ESS-exempt vehicles, the tamper-resistance and "non-programmable" requirements applicable to ESS pursuant to Section 1956.8 (a)(6)(A)(1) including an allowance for equivalent password-protected programmability for 50-state and California-only certified 2008 and subsequent model-year engines.

This MAC was developed in response to a request from the Engine Manufacturers Association (EMA) following a meeting held on March 1, 2007 between ARB staff and representatives from EMA and the Truck Manufacturers Association. However, industry's proposal for flexibility in software toggle (enabling and disabling) of 50-state engines was rejected due to differences between ARB staff and industry concerning the coverage of vehicles equipped with a 50-state engine that must have an enabled ESS.

If you have general questions or issues regarding this MAC, please contact Ms. Jackie Lourenco, Chief, New Vehicle/Engine Programs Branch, at (626) 450-6152 or jlourenc@arb.ca.gov. For technical and certification questions, please contact Mr. Tom Chang, Staff Air Pollution Specialist, On-Road Certification/Audit Section at (626) 575-6809 or ychang@arb.ca.gov.

Sincerely,

/s/

Annette Hebert, Chief
Mobile Source Operations Division

Enclosure

The energy challenge facing California is real. Every Californian needs to take immediate action to reduce energy consumption. For a list of simple ways you can reduce demand and cut your energy costs, see our website: <http://www.arb.ca.gov>.

California Environmental Protection Agency

State of California
AIR RESOURCES BOARD

MANUFACTURERS ADVISORY CORRESPONDENCE 2007-03

SUBJECT: Protocol for the Engine Shutdown System on New California Certified Heavy-Duty Diesel Engines for 2008 and Subsequent Model Years

APPLICABILITY: New 2008 and Subsequent Model Year Heavy-Duty Diesel Engines

REFERENCES:

1. Section 1956.8, Title 13, California Code of Regulations.
2. California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Year Heavy-Duty Diesel Engines and Vehicles, amended September 1, 2006.

BACKGROUND AND DISCUSSION:

On October 20, 2005, the Air Resources Board (ARB or Board) adopted amendments to Sections 1956.8 and 2485 of Title 13, California Code of Regulations, for the control of idling emissions from new and in-use heavy-duty diesel engines used in commercial motor vehicles that became effective on November 15, 2006.

Specifically, new 2008 and subsequent model year (MY2008+) heavy-duty diesel engines (Gross Vehicle Weight Rating greater than 14,000 pounds) must be equipped with an engine shutdown system (ESS) that automatically shuts down the engine after 300 seconds of continuous idling operation with the parking brake engaged (900 seconds if the parking brake is not engaged) and the transmission set to “neutral” or “park.”¹ Engines used in buses, school buses, recreational vehicles, medium-duty vehicles, military tactical vehicles, and authorized emergency vehicles are exempted from these requirements. Engines certified to meet an optional idling emission standard of 30 grams per hour of oxides of nitrogen (NOx) with no increase in the emission of other regulated pollutants are exempted from the ESS requirement.

Typically, manufacturers certify their diesel engines as “50-state” engines that meet both federal and California emission requirements. However, because the U.S. Environmental Protection Agency does not currently regulate idling emissions, engine and vehicle manufacturers encounter an additional level of complexity in their implementation of the reduced idling emissions requirements.

This Manufacturers Advisory Correspondence (MAC) is intended to clarify the regulations for manufacturers and ensure a smooth ESS implementation. This MAC covers policies regarding: 1) 50-State or California-only certified ESS exempt engines/vehicles, 2) applicability of tamper-resistance and “non-programmable” engine control module (ECM), and 3) the disabling of the ESS on ESS-exempt vehicles that were un-intentionally sold with the ESS enabled.

¹ Override of the ESS is permitted in certain situations such as during power take-off (PTO) operations, regeneration events of an emission control system, maintenance or servicing events, or when the engine coolant temperature is below 60 degrees F.

The EMA and the ARB had numerous discussions regarding methods to implement the ESS for 50-state certified engines, including the possibility of using software toggling (enable/disable) of ESS but have not been able to reach an agreement regarding industry's proposed alternative ESS implementation methods. However, many engine manufacturers have anticipatorily developed and are ready to implement the software toggle in their 2008 model-year ECM calibration. During the discussion phase, ARB believed that the proposed software toggle method was a conceptually acceptable method provided that other procedural safeguards were also implemented to restrict unlimited enabling/disabling of the ESS. However, because an agreement was not reached between the industry and the ARB regarding alternative ESS implementation methods, and in recognition of the timing of the notification that a stand-alone software toggle method does not satisfy the "non-programmability" requirement of the regulations, the ARB will provide manufacturers electing to use an ESS toggle strategy two-years of flexibility.

ARB encourages the EMA and the Truck Manufacturers Association to notify their members and independent truck dealers of this policy through their respective outreach programs.

POLICY:

1. An engine manufacturer or the engine manufacturer's designated vehicle manufacturer must not deliver a new 50-state or California-only certified MY 2008+ HDDE with a disabled ESS unless one of the following exceptions applies:
 - a. The engine will be installed in an exempted vehicle (bus, school bus, recreational vehicle, military tactical vehicle, or authorized emergency vehicle), see Attachment, as specified in Section 1956.8 of Title 13, California Code of Regulations, and is accompanied by an "Engine Shutdown System Vehicle Exemption Statement" signed by the ultimate purchaser or other authorized agent, or equivalent evidence, including, but not limited to the dealer truck purchase order.
 - b. The engine and the accompanying "clean idle" label have been approved by California as meeting the optional NOx idling emission requirements.
2. The ESS on new 50-state or California-only certified MY 2008+ HDDEs must be configured so that the ESS cannot be disabled without the authorization from the engine manufacturer via the release of a single-use, engine-specific password, or equivalent method approved by the Executive Officer.
3. The engine manufacturer or the engine manufacturer's designated vehicle manufacturer must not authorize a purchasing dealer to disable the ESS of a California-certified (including 50-state and California-only) MY2008+ engine (new or used) unless the engine manufacturer or the engine manufacturer's designated vehicle manufacturer has obtained the following documentation, and it has been verified that disabling the ESS of the engine will be in accordance with Policy Items #1 and #2 of this MAC:

The engine is installed in an exempted vehicle (bus, school bus, recreational vehicle, military tactical vehicle, or authorized emergency vehicle (see Attachment)) as specified in Section 1956.8 of Title 13, California Code of Regulations, as evidenced by an "Engine Shutdown System Vehicle Exemption Statement" signed by the ultimate purchaser or other authorized agent, or equivalent evidence including, but not limited to the dealer truck purchase order.

4. For model years 2008 and 2009 only, new California certified HDDE ECMs may contain ESS toggle software calibration. However, the ESS software toggle in the ECM shall be configured so that the ESS cannot be disabled without the authorization from the engine manufacturer or the engine manufacturer's designated vehicle manufacturer via the use of a single-use, engine-specific password, or equivalent method approved by the Executive Officer. The engine manufacturer must also provide the appropriate engine label as part of the ESS disabling procedure that has the updated engine information, such as engine family, model name, and engine code, as applicable. Disabling the ESS of the engine will be in accordance with Policy Items #1 and #2 of this MAC.
5. Beginning with the 2010 model year, engine families must have separate ECM part numbers to readily distinguish between a 50-state calibration, a California-only calibration, and an ESS-exempt calibration. Alternative methods that clearly identify ECMs with the different calibrations may be used by manufacturers, subject to prior approval by the Executive Officer.
6. New 2010 and subsequent model year California certified HDDEs must incorporate engine ECMs that do not allow the ESS to be disabled or enabled unless the ECM calibration is completely "re-flashed." The "re-flash" procedure must incorporate an engine manufacturer's security protocol to receive proper authorization via the use of a single-use, engine-specific password, or equivalent method approved by the Executive Officer. Additionally, the engine manufacturer must provide each "re-flashed" engine/ECM combination with the appropriate engine label for the correct engine family, engine model, and engine code designation. Disabling the ESS of the engine will be in accordance with Policy Items #1 and #2 of this MAC.
7. For engine families not certified to the optional NOx idling emission standard, the engine manufacturer has the option to certify an engine family with four separate engine codes and engine labels that clearly identify calibrations concerning ESS compliance status, that is, California-only/ESS-enabled, 50-state/ESS-enabled, California-only/ESS-exempt, and 50-state/ESS-exempt. The engine labels must clearly identify the different engine codes. For example, the engine label may include a statement such as "ESS Compliant" or "ESS Exempt." The engine label with the statement "ESS Exempt" may only be used for California ESS-exempt vehicles. Other engine labeling methods for identifying the ESS compliance status of the engine may be used, subject to prior ARB approval.
8. For engine families certified to the optional NOx idling emission standard under Section 1956.8(a)(6)(C), it is recommended, but not required, that these engines be identifiable on the engine label with a statement such as "Certified Clean Idle". Vehicles equipped with engines from such clean idle engine families must have the "Certified Clean Idle" vehicle label, or equivalent, that (i) meets the requirements specified in Section 35(B)(4) of the Test Procedures [Reference 2], and (ii) has been approved by ARB.
9. A used 50-state or California certified engine/vehicle equipped with a MY2008+ engine that was originally equipped with an enabled ESS and is now sold for registration outside of California is NOT allowed to have the ESS disabled. Disabling of the ESS for such engine/vehicle is considered a violation of the anti-tampering provision of an originally certified engine family configuration.
10. The engine manufacturer or the engine manufacturer's designated vehicle manufacturer must not authorize the disabling of the ESS on a 50-state or California-only certified engine nor shall the engine manufacturer issue an ESS

password for any 50-state or California-only certified engine in any situation not expressly specified in this MAC.

11. All documentation referenced in this MAC to be provided to the engine manufacturer or the engine manufacturer's designated vehicle manufacturer shall be retained for a minimal period of ten years, and must be provided to ARB upon request within 30 working days.

ATTACHMENT

Definitions

Authorized Emergency Vehicle (California Vehicle Code, Section 165)

An authorized emergency vehicle is:

(a) Any publicly owned and operated ambulance, lifeguard, or lifesaving equipment or any privately owned or operated ambulance licensed by the Commissioner of the California Highway Patrol to operate in response to emergency calls.

(b) Any publicly owned vehicle operated by the following persons, agencies, or organizations:

(1) Any federal, state, or local agency, department, or district employing peace officers as that term is defined in Chapter 4.5 (commencing with Section 830) of Part 2 of Title 3 of the Penal Code, for use by those officers in the performance of their duties.

(2) Any forestry or fire department of any public agency or fire department organized as provided in the Health and Safety Code.

(c) Any vehicle owned by the state, or any bridge and highway district, and equipped and used either for fighting fires, or towing or servicing other vehicles, caring for injured persons, or repairing damaged lighting or electrical equipment.

(d) Any state-owned vehicle used in responding to emergency fire, rescue or communications calls and operated either by the Office of Emergency Services or by any public agency or industrial fire department to which the Office of Emergency Services has assigned the vehicle.

(e) Any vehicle owned or operated by any department or agency of the United States government when the vehicle is used in responding to emergency fire, ambulance, or lifesaving calls or is actively engaged in law enforcement work.

(f) Any vehicle for which an authorized emergency vehicle permit has been issued by the Commissioner of the California Highway Patrol.

Amended Ch. 1292, Stats. 1983. Effective January 1, 1984.

Bus (California Vehicle Code, Section 233)

(a) Except as provided in subdivision (b), a bus is any vehicle, including a trailer bus, designed, used, or maintained for carrying more than 15 persons including the driver.

(b) A vehicle designed, used, or maintained for carrying more than 10 persons, including the driver, which is used to transport persons for compensation or profit, or is used by any nonprofit organization or group, is also a bus.

(c) This section does not alter the definition of a schoolbus, school pupil activity bus, general public Para transit vehicle, farm labor vehicle, or youth bus.

(d) A vanpool vehicle is not a bus.

Amended Ch. 439, Stats. 1992. Effective January 1, 1993.

Amended Ch. 675, Stats. 1994. Effective January 1, 1995.

Tour Bus (California Vehicle Code, Section 612)

"Tour bus" means a bus, which is operated by or for a charter-party carrier of passengers, as defined in Section 5360 of the Public Utilities Code, or a passenger stage corporation, as defined in Section 226 of the Public Utilities Code, or any highway carrier of passengers required to register with the California Public Utilities Commission pursuant to Section 3910 of the Public Utilities Code.

Amended Ch. 1586, Stats. 1988. Effective January 1, 1989.

Amended Ch. 1216, Stats. 1989. Effective October 1, 1989.

Transit Bus (California Vehicle Code, Section 642)

A "transit bus" is any bus owned or operated by a publicly owned or operated transit system, or operated under contract with a publicly owned or operated transit system, and used to provide to the general public, regularly scheduled transportation for which a fare is charged. A general public Para transit vehicle is not a transit bus.

Added Ch. 1136, Stats. 1989. Effective January 1, 1990. Operative July 1, 1990.

Schoolbus (California Vehicle Code, Section 545)

A "schoolbus" is a motor vehicle designed, used, or maintained for the transportation of any school pupil at or below the 12th-grade level to or from a public or private school or to or from public or private school activities, except the following:

(a) A motor vehicle of any type carrying only members of the household of the owner thereof.

(b) A motor truck transporting pupils who are seated only in the passenger compartment, or a passenger vehicle designed for and carrying not more than 10 persons, including the driver, unless the vehicle or truck is transporting two or more disabled pupils confined to wheelchairs.

(c) A motor vehicle operated by a common carrier, or by and under the exclusive jurisdiction of a publicly owned or operated transit system, only during the time it is on a scheduled run and is available to the general public, or on a run scheduled in response to a request from a disabled pupil confined to a wheelchair, or from a parent of the disabled pupil, for transportation to or from nonschool activities; provided, that the motor vehicle is designed for and actually carries not more than 16 persons including the driver, is available to eligible persons of the general public, and the school does not provide the requested transportation service.

(d) A school pupil activity bus.

(e) A motor vehicle operated by a carrier licensed by the Interstate Commerce Commission which is transporting pupils on a school activity entering or returning to the state from another state or country.

(f) A youth bus.

(g) Notwithstanding any other provisions of this section, the governing board of a district maintaining a community college may, by resolution, designate any motor vehicle operated by or for the district, a schoolbus within the meaning of this section, if it is primarily used for the transportation of community college students to or from a public community college or to or from public community college activities. The designation shall not be effective until written notification thereof has been filed with the Department of the California Highway Patrol.

(h) A state-owned motor vehicle being operated by a state employee upon the driveways, paths, parking facilities or grounds specified in Section 21113 that are under the control of a state hospital under the jurisdiction of the State Department of Developmental Services where the posted speed limit is not more than 20 miles per hour. The motor vehicle may also be operated for a distance of not more than one-quarter mile upon a public street or highway that runs through the grounds of a state hospital under the jurisdiction of the State Department of Developmental Services, if the posted speed limit on the public street or highway is not more than 25 miles per hour and if all traffic is regulated by posted stop signs or official traffic control signals at the points of entry and exit by the motor vehicle.

(i) A general public Para transit vehicle provided that the general public Para transit vehicle does not duplicate existing schoolbus service, does not transport a public school pupil at or below the 12th grade level to a destination outside of that pupil's school district, and is not used to transport public school pupils in areas where schoolbus services were available during the 1986-87 school year. In areas where expanded school services require expanded transportation of public school pupils, as determined by the governing board of a school district, general public Para transit vehicles shall not be used to transport those pupils for a period of three years from the date that a need

for expansion is identified. For purposes of this section, a pupil is defined as a student at or below the 12th grade level who is being transported to a mandated school activity.

(j) A schoolbus with the flashing red light signal system, the amber warning system, and the schoolbus signs covered, while being used for transportation of persons other than pupils, to or from school or school related activities.

Amended Sec. 5, Ch. 404, Stats. 2004. Effective January 1, 2005.

Recreational Vehicle (Health & Safety Code, Section 18010)

Recreational vehicle means both of the following:

(a) A motor home, travel trailer, truck camper, or camping trailer, with or without motive power, designed for human habitation for recreational, emergency, or other occupancy, that meets all of the following criteria:

(1) It contains less than 320 square feet of internal living room area, excluding built-in equipment, including, but not limited to, wardrobe, closets, cabinets, kitchen units or fixtures, and bath or toilet rooms.

(2) It contains 400 square feet or less of gross area measured at maximum horizontal projections.

(3) It is built on a single chassis.

(4) It is either self-propelled, truck-mounted, or permanently towable on the highways without a permit.

(b) A park trailer, as defined in Section 18009.3.

Military Tactical Vehicles (Title 13, California Code of Regulations, Section 1905)

Exclusion and Exemption of Military Tactical Vehicles and Equipment.

(a) For purposes of this chapter, military tactical vehicle means a motor vehicle 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.

(b) This chapter shall not apply to vehicles defined as military tactical vehicles or to engines used in military tactical vehicles. This includes all vehicles and engines:

(1) Excluded from regulation under 40 CFR Part 85, subpart R, section 85.1703, and

(2) Exempted from regulations under the federal national security exemption, 40 CFR, subpart R, sections 85.1702(a)(2), 85.1704(b), 85.1708, and 85.1710. It shall also not apply to those motor vehicles or motor vehicle engines covered by the definition of military tactical vehicle, including commercially available vehicles, for which a federal certificate of conformity has been issued under 40 CFR Part 86.

(c) On January 1, 1997, the U.S. Department of Defense shall submit to the ARB a list of all vehicle types that are excluded and or exempted under the above provisions and which are located in the State of California. If any additional vehicle types are added to the list during the previous 12 months, the U.S. Department of Defense shall update the list and submit it to the ARB by January 1 of the following year.