



# Air Resources Board



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Mail-Out # MSO 2013-06

**TO:** Diesel Emission Control Strategy DECS Manufacturers, DECS Installers and Other Interested Parties

**SUBJECT:** AUTHORIZED DECS INSTALLERS, PRE-INSTALLATION COMPATIBILITY ASSESMENT AND TRAINING REQUIREMENTS

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On August 23, 2012, the Air Resources Board (ARB or Board) approved amendments to the *Verification Procedure, Warranty, and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines* (the Procedure) in Title 13, California Code of Regulations, Sections 2700 through 2711. The amendments were approved by the Office of Administrative Law in August 2013 and became effective on October 1, 2013. The purpose of this mail-out is to follow up to Mail-Out #MSC 11-11 issued on April 12, 2011, which provides a summary of the pre-installation compatibility assessment requirements that came into effect on February 17, 2011 (<http://www.arb.ca.gov/msprog/mailouts/msc1111/msc1111.pdf>) and to alert verified DECS manufacturers, distributors, installers and other interested parties of additional requirements for installers, pre-installation assessment criteria (PIC), and DECS manufacturer training requirements for installing and maintaining DECS. This mail-out does not contain all amendments approved on August 23, 2012. The Procedure must be reviewed for all of the specific requirements that must be met regarding verified DECS. All of the approved amendments can be found at <http://www.arb.ca.gov/regact/2012/verdev2012/verdev2012.htm>.

## **DECS Manufacturer Authorized Installer**

The amendments now clarify that only the DECS manufacturer or its authorized installer can install a DECS. An authorized installer can be an end-user, a dealer or an installation company that meets the criteria set in section 2706(u). An "Installer" or "Authorized Installer" means any individual or entity that equips any vehicle, engine or equipment with a DECS and has the authorization of the party that holds the verification for the DECS (DECS manufacturer or manufacturer) pursuant to section 2706(u).

The DECS installation manual, as required by section 2706(n), must now include the criteria that will be used by the DECS manufacturer to authorize a person or company to

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install their DECS and the criteria that will be used by the applicant to revoke a person or company's authorization to install their DECS.

### **Requirements for Installers of DECS**

A new section, section 2706(u) Requirements for Installers of DECS, was added to provide more specificity of what is the responsibility of an authorized installer:

1. Any party that installs a DECS must be authorized and trained by the DECS manufacturer.
2. Any party that installs a DECS must comply with the pre-installation compatibility assessment requirements found in section 2706(t).
3. All installations must strictly adhere to the requirements of the party that holds the verification for the DECS, the governing executive order (EO) and must not relocate the original equipment manufacturers exhaust system: over any occupied space (e.g., driver or passenger compartments); or that would result in any noncompliance with any applicable safety standards such as, but not limited to, Federal Motor Carrier Safety Administration, Subpart G, Miscellaneous parts and accessories, section 393.83 Exhaust systems; or any other location deemed unacceptable by the DECS manufacturer.
4. Any party that installs a DECS must offer an installation warranty of at least one year pursuant to section 2707(a)(2).

### **Pre-Installation Compatibility Assessment and Criteria**

The DECS manufacturer or authorized installer (i.e., the party conducting the pre-installation compatibility assessment) must be able to demonstrate that a candidate engine being considered for retrofit is compatible with the DECS by ensuring that each candidate engine meets all the terms and conditions of the Executive Order prior to installation as described in section 2706(t), Pre-Installation Compatibility Assessment.

#### Exhaust Temperature Requirements

Mail-out #MSC 11-11 issued on April 12, 2011, provides a summary of the assessment requirements for evaluating exhaust temperature criteria for a candidate engine. A summary of modifications to section 2706(t)(2) is as follows. The underlined text identifies the regulatory amendments:

2706(t)(2)(A): For DECS that have exhaust gas temperature requirements for successful operation, the manufacturer or authorized installer (i.e., the party conducting the pre-installation compatibility assessment) must measure and record the exhaust gas temperature for each candidate engine to determine if the temperature requirements are satisfied. These measurements must represent the most challenging duty cycle (i.e., pattern of use) of the candidate engine with respect to the temperature requirements. Notwithstanding, the DECS manufacturer is responsible for ensuring that the candidate engine is properly assessed. In lieu of logging data for each candidate engine, only the DECS manufacturer may choose to data-log a representative number of candidate engines, provided the requirements in 2706(t)(2) are met.

2706(t)(2)(C): The DECS manufacturer or the authorized installer (i.e., the party conducting the pre-installation compatibility assessment) must provide a written statement to the end user no later than the date at the time of installation that includes:

1. A statement that the exhaust gas temperature profile of the candidate engine was found to satisfy the requirements of the DECS' Executive Order;
2. The date of this determination;
3. The name and contact information of the owner of the common ownership fleet;
4. The Executive Order number and the diesel emission control strategy family name;
5. The engine family name, engine make and model, and power rating of each candidate engine along with a unique identifier such as a vehicle identification number or an engine serial number;
6. A description of the vehicle or equipment type for each candidate engine;
7. Identification of which candidate engines were data-logged and the groups they represent;
8. Identification of the parameters used to define each group of similar engines;
9. The name of the authorized installer and the date of installation; and,
10. A statement that any change in the duty cycle (i.e., pattern of use) used to measure the exhaust gas temperature profile of the candidate engine may cause the DECS to fail to meet the requirements of the strategy's Executive Order and information regarding how such a change will affect the performance of the DECS.

2706(t)(2)(E)(4): The exhaust gas temperature of the candidate engine must be measured and recorded for a period that is long enough to determine the exhaust gas temperature profile associated with the candidate engine's duty cycle, but not less than 24 hours of representative, actual engine run time, unless the candidate engine is an Emergency Standby Engine permitted under the authority of a California Air District, as defined in section 39025 of the Health and Safety Code with restricted use requirements

may propose a period of less than 24 hours at the Executive Officer's discretion. The data logging strategy must include a means to accurately determine when the engine is actually running. This may include use of a data logging system that starts automatically when the engine starts and stops automatically when the engine stops, or a means to identify and remove data that correspond to the engine being off such as by simultaneously logging data from an engine RPM sensor or applying a temperature threshold that corresponds to a temperature just below the idle temperature of the engine.

#### Pre-Installation Compatibility Assessment Criteria (PIC)

The Procedure was amended to provide clarification that the manufacturer is responsible for establishing specific criteria for determining the suitability of a candidate engine with their DECS prior to installation. The specific pre-installation compatibility criteria (PIC) must be used by the manufacturer or its authorized installer in this determination. The PIC includes but is not limited to: a smoke opacity limit, oil consumption limits, fuel inspection requirements, visual inspections, and other assessment criteria that may be used to determine that the candidate engine is appropriate for use with the DECS and that the candidate engine is in a proper state of maintenance and operating within the engine manufacturers specifications. For already verified DECS, the DECS holder of the verification must establish and implement the PIC no later than April 1, 2014.

The manufacturer must select a smoke opacity limit measured in accordance with Society of Automotive Engineers J1667 test procedures that serves to prevent installation of a DECS on an engine that is not appropriate for use with the DECS. For engines that operate at a constant-speed or are otherwise designed such that they are unable to follow Society of Automotive Engineers J1667 test procedures, the manufacturer must propose an alternate criterion instead of a smoke opacity level to determine the suitability of a candidate engine prior to installation.

This PIC must be provided to the manufacturer's authorized installers when installing a DECS on an engine. The authorized installer is required to perform this assessment no more than 15 days prior to the DECS installation [13 CCR 2706 (t)(4)], maintain this information, and make the information available to the Executive Officer upon request.

#### **Installation Manual**

Section 2706(n), Installation Manual, has been amended to include the following: The DECS installation manual must include sufficient detail to enable the installer to properly install the DECS such that the installation is free from defects in workmanship,

materials, or operation which could cause any of the components of the DECS to fail and allow the installer to warrant the installation.

### **Owner's Manual**

The DECS manufacturer must provide a copy of the DECS owner's manual to the end-user, which must clearly specify warranty statement including the warranty period over which the applicant is liable for any defects, parts not covered by the warranty, installation procedure and maintenance requirements for the DECS, appropriate methods of swapping identical components in strategies that share the same DECS family name, possible backpressure range imposed on the engine, fuel consumption penalty, fuel requirements, instructions for reading and resetting the backpressure monitor, requirements for lubrication oil quality and maximum lubrication oil consumption rate, contact information for replacement of components, cleaning agents, and to assist an end-user to determine proper ways to dispose of waste generated by the DECS.

Section 2706(l), Owner's Manual, has been amended to include the following:

1. A Table of Contents is required at the beginning of the manual identifying the operator manual required components;
2. A statement alerting the end-user of their responsibility for maintaining the candidate engine such that it continues to meet the pre-installation compatibility assessment conditions identified in section 2706(t), and
3. An objective criteria for determining if a DECS is clean, such as pressure drop across the filter, maximum clean filter weight, pre-installation filter weight comparison, etc. [13CCR 2706(h)(2)(B)].

For reference, section 2706(h)(2) states:

"The applicant must provide detailed maintenance information for a verified diesel emission control strategy to the owner upon delivery of the diesel emission control strategy. The information provided must be sufficient to enable an owner to conduct proper routine maintenance on the diesel emission control strategy without requiring that routine maintenance be provided exclusively by the applicant or the applicant's distributor. The required information includes, but is not limited to:

- (A) Specific routine maintenance and cleaning procedures and timeframes.
- (B) All performance criteria used to determine a proper state of maintenance, such as the pressure drop across a fully-cleaned diesel particulate filter.
- (C) Any prohibitions or specific maintenance practices which may result in damage to the diesel emission control strategy."

## End-User Training

A new section, section 2706(v) Training Requirements, requires the DECS manufacturer for developing training to ensure end-users can safely operate and maintain their DECS. This training must include, at a minimum: a review of the pre-installation compatibility assessment criteria results, the effects of engine maintenance on the DECS performance, identification of all warning and/or fault alarms and appropriate end-user responses, and cleaning and maintenance information for the strategy. The manufacturer or their authorized installer is responsible for ensuring that this training is presented to the end-user before the vehicle, equipment, or engine is put back into service following the installation of the DECS and must be available to the end-user on an on-going basis (e.g., online training materials).

If you have any questions regarding authorized installer requirements, pre-installation assessment criteria or training, please contact Ms. Kathleen Mead, Retrofit Implementation Advocate, at (916) 324-9550 or by e-mail at [kmead@arb.ca.gov](mailto:kmead@arb.ca.gov)

Sincerely,

/s/

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