

**State of California
AIR RESOURCES BOARD**

EXECUTIVE ORDER DE-08-010-01

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code, Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code section 39515 and 39516 and Executive Order G-02-003;

Relating to Exemptions under Section 27156 of the Vehicle Code, and Verification under Sections 2700 through 2710 of Title 13 of the California Code of Regulations (CCR)

Engine Control Systems Limited
Purifilter Plus™

The California Air Resources Board (ARB) has reviewed Engine Control Systems Limited's request for verification of the Purifilter Plus™ system. Based on an evaluation of the data provided, and pursuant to the terms and conditions specified below, the Executive Officer of the ARB hereby finds that the Purifilter Plus™ reduces emissions of diesel particulate matter (PM) consistent with a Level 3 Plus device (greater than or equal to 85 percent reductions and meets the 2009 nitrogen dioxide emissions limit) (Title 13 CCR sections 2702 (f) and section 2708). Accordingly, the Executive Officer determines that the system merits verification and, subject to the terms and conditions specified below, classifies the Purifilter Plus™ System as a Level 3 Plus system for heavy-duty on-road vehicles using engines from the engine families listed in Attachment 1.

The aforementioned verification is subject to the following terms and conditions:

- The engine is originally manufactured from model years 1993 through 2006 having an engine family name listed in Attachment 1.
- The engine must be used by an on-road motor vehicle with a manufacturer's Gross Vehicle Weight Rating of over 14,000 pounds.
- The engine must not be certified by ARB as having exhaust gas recirculation.
- The engine must be in its original certified configuration, except that the pre-existing oxidation catalyst from the original equipment manufacturer may be removed if the Purifilter Plus™ system is installed. Should the Purifilter Plus™ system be removed the oxidization catalyst from the original equipment manufacturer must be re-installed, returning the engine to its original certified configuration.
- The engine may or may not have a pre-existing oxidation catalyst from the original equipment manufacturer.
- The engine must not have a pre-existing diesel particulate filter from the original equipment manufacturer.
- The engine must be certified for on-road applications.

- The engine must be certified at a PM emission level of at most 0.1 grams per brake horsepower-hour (g/bhp-hr), and greater than 0.01 g/bhp-hr.
- The engine must be four-stroke.
- The engine can be turbocharged or naturally aspirated.
- The engine can be mechanically or electronically injected.
- The engine must be well maintained and not consume lubricating oil at a rate greater than that specified by the engine manufacturer.
- Lube oil, or other oil, must not be mixed with the fuel.
- The engine must be operated on fuel that has a sulfur content of no more than 15 parts per million by weight.
- The product must not be operated with fuel additives, as defined in Section 2701 of Title 13, of the CCR, unless explicitly verified for use with fuel additive(s).
- The product must not be used with any other systems or engine modifications without ARB and manufacturer approval.
- The system must be installed with a backpressure monitor to notify the operator when the backpressure limit is reached. The notification must occur and be clearly visible to the operator while the vehicle or equipment is in use.
- The other terms and conditions specified below.

IT IS ALSO ORDERED AND RESOLVED: That installation of the Purifilter Plus™ system, manufactured by Engine Control Systems Limited of 83 Commerce Valley Drive East, Thornhill, Ontario L3T 7T3, has been found not to reduce the effectiveness of the applicable vehicle pollution control system, and therefore, the Purifilter Plus™ system is exempt from the prohibitions in Section 27156 of the Vehicle Code for installation on heavy-duty on-road vehicles using engines listed in Attachment 1.

This exemption is only valid provided the engines meet the aforementioned conditions.

The Purifilter Plus™ system consists of a catalyzed diesel particulate filter, electric heating elements, and a backpressure monitor and data logger. The major components of the Purifilter Plus™ system are identified in Attachment 2. Schematics of the approved product and engine labels are shown in Attachment 3.

This Executive order is valid provided that installation instructions for the Purifilter Plus™ system do not recommend tuning the vehicle to specifications different from those of the vehicle manufacturer.

Changes made to the design or operating conditions of the Purifilter Plus™ system, as exempted by the ARB, which adversely affect the performance of the vehicle's pollution control system, shall invalidate this Executive Order.

No changes are permitted to the device. The ARB must be notified in writing of any changes to any part of the Purifilter Plus™ system. Any changes to the device must be

evaluated and approved by the ARB. Failure to do so shall invalidate this Executive Order.

Engine Control Systems Limited must ensure that the installation of the Purifilter™ H conforms to all applicable industrial safety requirements.

Marketing of the Purifilter Plus™ system using identification other than that shown in this Executive Order or for an application other than that listed in this Executive Order shall be prohibited unless prior approval is obtained from the ARB.

Identification must include both device and engine labels consistent with the requirements of title 13, CCR, section 2706 and Attachment 3 of this executive order. Changes or modifications to the label or label placement are prohibited without prior written approval from ARB.

This Executive Order does not apply to any Purifilter Plus™ system advertised, offered for sale, sold with, or installed on a motor vehicle prior to or concurrent with transfer to an ultimate purchaser.

This Executive Order must be provided to the ultimate purchaser at the time of sale.

As specified in the Diesel Emission Control Strategy Verification Procedure (title 13, CCR, section 2706 (j)), the ARB assigns each Diesel Emission Control Strategy a family name. The designated family name for the verification as outlined above is:

CA/ECS/2008/PM3+/N00/ON/DPF01

Additionally, as stated in the Diesel Emission Control Strategy Verification Procedure, ECS is responsible for record keeping requirements (section 2702), honoring the warranty (Section 2707) and conducting in-use compliance testing (Section 2709).

This Executive Order is valid provided that the diesel fuel used in conjunction with the device complies with title 13, CCR, sections 2281 and 2282, and if biodiesel is used, the biodiesel blend shall be 20 percent or less subject to the following conditions:

- The biodiesel portion of the blend complies with the American Society for Testing and Materials specification D6751 applicable for 15 parts per million sulfur content;
- The diesel fuel portion of the blend complies with Title 13, CCR, sections 2281 and 2282.

Other alternative diesel fuels such as, but not limited to, ethanol diesel blends and water emulsified diesel fuel are excluded from this Executive Order.

Proper engine maintenance is critical for the proper functioning of the diesel emission control strategy. The owner and/or operator of the vehicle on which the diesel emission control strategy is installed, is strongly advised to adhere to all good engine

maintenance practices. Failure to document proper engine maintenance, including keeping records of the engine's oil consumption, may be grounds for denial of a warranty claim.

In addition to the foregoing, the ARB reserves the right in the future to review this Executive Order and the exemption and verification provided herein to assure that the exempted and verified add-on or modified part continues to meet the standards and procedures of title 13, CCR, section 2222, et seq and title 13, CCR, sections 2700 through 2710.

Systems verified under this Executive Order shall conform to all applicable California emissions regulations.

This Executive Order does not release Engine Control Systems Limited from complying with all other applicable regulations.

Violation of any of the above conditions shall be grounds for revocation of this Executive Order.

This Executive Order DE-08-010-01 hereby supersedes Executive Order DE-08-010 dated December 23, 2008.

Executed at El Monte, California, this 1st day of March, 2010.



Robert H. Cross, Chief
Mobile Source Control Division

- Attachment 1: ARB Approved California Engine Families for the Purifilter Plus™ system.
- Attachment 2: Parts List for the Purifilter Plus™ system.
- Attachment 3: Labels for the Purifilter Plus™ system.