

**State of California
AIR RESOURCES BOARD**

EXECUTIVE ORDER G-08-008

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code, Division 26, Part 5, Chapter 1 and 2; and pursuant to the authority vested in the undersigned by Health and Safety Code section 39515 and 39616 and Executive Order G-02-003;

Relating to Verification under Sections 2780 through 2789 of Title 13 of the California Code of Regulations

Engine Control Systems Limited
TerminOx™

The Air Resources Board (ARB) has reviewed Engine Control Systems Limited request for extension of a verification of the TerminOx™. 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 TerminOx™ reduces emissions of Oxides of Nitrogen (NOx) + Hydrocarbons (HC) to 3.0 g/bhp-hr (4.0 g/kW-hr) consistent with a Level 2 classification (Title 13 California Code of Regulations (CCR) Sections 2782 and Section 2783). Accordingly, the Executive Officer determines that the system merits verification and, subject to the terms and conditions specified below, classifies the TerminOx™ as a Level 2 system. The system may be installed on unregulated engines for model years 1990 to 2001 and non-complying engines for phase-in model years 2001 through 2003.

The aforementioned verification is valid provided the engines meet the following criteria:

- The engine is an off-road Large Spark Ignited engine
- The engine is greater than 3.0 liters up through 8.2 liters
- The engine is 25 horsepower or greater (19 kW)
- The engine uses (or is converted to use) propane fuel
- The engine is four stroke and naturally aspirated
- The engine has 4 or more cylinders with in-line or V-cylinder configuration
- The engine has an open loop Impco, Nolf, Aisan or Nikki fuel system
- The engine must not have a pre-existing closed loop 3-way catalyst system
- The engine must not have any signs of excessive oil consumption
- The engine has a variable speed duty operation
- The TerminOx™ installation must be consistent with specifications listed in the installation/operation manual shown in the verification application

IT IS ALSO ORDERED AND RESOLVED: TerminOx™, manufactured by Engine Control Systems Limited at 165 Pony Drive, Newmarket, Ontario, Canada L3Y 7V1 is an emission control system. It consists of a three-way catalyst contained in a converter, or converter muffler, and a closed loop fuel management kit consisting of a fuel actuator, oxygen sensor and electronic control module. All necessary hardware and

controls are installed on the vehicle. The components and catalyst sizing chart for the TermiNOx™ system are listed in the confidential Attachment 1.

No changes to the design or operating conditions are permitted to the device. The ARB must be notified in writing of any changes to any part of the TermiNOx™. Any changes to the device must be evaluated and approved by the ARB. Failure to do so shall invalidate this Executive Order.

Marketing of the TermiNOx™ 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.

This Executive Order shall not apply to any TermiNOx™ advertised, offered for sale, sold with, or installed on new off-road equipment prior to or concurrent with transfer to an ultimate purchaser.

As specified in the Verification Procedure (Title 13 CCR Section 2786 (c)), the ARB assigns an Emission Control Group (ECG) name to be included in labels (shown in Attachment 2) that will be permanently affixed on the catalyst and the electronic control module. The assigned ECG name is:

CA/2007/ECS/LL2/NH3.0/OFF/SYS01.

Additionally, as stated in the Verification Procedure, Engine Control Systems Limited is responsible for honoring a warranty (Section 2787) and conducting in-use compliance testing (Section 2789).

In addition to the foregoing, the ARB reserves the right in the future to review this Executive Order and verification provided herein to assure that the verified add-on or modified part continues to meet the standards and procedures of CCR, Title 13, Section 2222, et seq and CCR, Title 13, Sections 2780 through 2789.

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

Violation of any of the above conditions shall be grounds for revocation of this Executive Order. This Executive Order supersedes Executive Order G-07-066 issued on November 15, 2007.

Executed at El Monte, California, this 16th day of June 2008.


Robert H. Cross, Chief
Mobile Source Control Division

Attachment 1: TerminoX™ confidential list of part numbers and catalyst sizing chart
Attachment 2: TerminoX™ Labels