

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER D-213-28

Relating to Exemptions Under Section 27156
of the California Vehicle Code

Vortech Engineering, LLC
Lysholm Twin-Screw Supercharger System

Pursuant to the authority vested in the Air Resources Board by Section 27156 of the Vehicle Code; and

Pursuant to the authority vested in the undersigned by Section 39515 and Section 39516 of the Health and Safety Code and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: That the installation of the Lysholm Twin-Screw Supercharger System, manufactured and marketed by Vortech Engineering, LLC, 1650 Pacific Avenue, Oxnard, California 93033, has been found not to reduce the effectiveness of the applicable vehicle pollution control systems and, therefore, is exempt from the prohibitions of Section 27156 of the Vehicle Code for the following 1999 to 2011 model year General Motors trucks:

<u>Part Number</u>	<u>Model years</u>	<u>Vehicle type/model</u>	<u>Engine size (liters)</u>	<u>Supercharger pulley dia. (in.)</u>
2310000	2008	Light truck, new body	5.3	3.8
2310040	2005-2007	HD truck "classic"	6	3.25
2310060	2005-2007	Light truck/SUV "classic"	5.3	3.8
2310070	2007-2011	SUV	5.3	3.8
2310090	2007-2011	HD truck, new body	6	3.25
2310100	2007-2011	Light truck, new body	5.3	3.8
2310110	2007-2011	SUV	6.2	3.25
2310120	2007-2011	Light / HD truck	6.2	3.25
2310130	2007-2010	Hummer H2	6.2	3.25
2310140	1999-2004	Light truck/SUV "classic"	5.3	3.8
2310150	1999-2004	SUV	5.3	3.8

The Lysholm Twin-Screw Supercharger System consists of the following main components: A twin screw supercharger, intake manifold, bypass valve, high flow fuel injectors, metal fuel rail, intercooler, and reflashed ECM. Boost is limited to 9 pounds per square inch. The stock air filter housing and crankshaft pulley is retained. Installation would not require any modification to the stock coolant thermostat, MAP sensor or mass air flow sensor. All supplied fuel hoses are Avon's CADbar 9000 series or metal, and fuel and vapor line connectors supplied with the kit are OEM – equivalent parts.

This Executive Order is valid provided that the installation instructions for the Lysholm Twin-Screw Supercharger System will not recommend tuning the vehicle to specifications different from those of the kit manufacturer.

Changes made to the design or operating conditions of the Lysholm Twin-Screw Supercharger System, as exempt by the Air Resources Board, which adversely affect the performance of the vehicle's pollution control system shall invalidate this Executive Order.

This Executive Order shall not apply to any Lysholm Twin-Screw Supercharger System advertised, offered for sale, sold with, or installed on a new motor vehicle prior to or concurrent with transfer to an ultimate purchaser.

Marketing of the Lysholm Twin-Screw Supercharger System using any identification other than that shown in this Executive Order or marketing of the Lysholm Twin-Screw Supercharger System for an application other than those listed in this Executive Order shall be prohibited unless prior approval is obtained from the Air Resources Board.

This Executive Order does not constitute any opinion as to the effect the use of the Lysholm Twin-Screw Supercharger System may have on any warranty either expressed or implied by the vehicle manufacturer.

This Executive Order is granted based on emission test results in the modified configuration using the Cold-Start CVS-75 Federal Test Procedure, Supplemental Federal Test Procedure (US06/SC03), and an examination of the On-Board Diagnostic II (OBD II) system. A 2009 Chevrolet Silverado with a 5.3 liter engine (9GMXTO5.3380) was used for the evaluation of the Lysholm Twin-Screw Supercharger System. Results from emissions testing conducted at Quantum Technologies, Lake Forest, California, are shown below (in grams per mile with deterioration factors applied):

		CVS-75				US06/SC03	
		NMOG	CO	NOx	HCHO	NMHC+NOx	CO
Standards	UL	0.070	2.1	0.04	0.011	0.40/0.31	10.5/3.5
Device		0.059	1.5	0.02	0.001	0.05/0.01	6.4/0.5

The emission test results in the modified configuration were below the applicable certification standards. Examination of the OBD II system showed the Supercharger Kit does not affect OBD II system operation.

*LEV II ULEV CVS-75 FTP emissions standards.

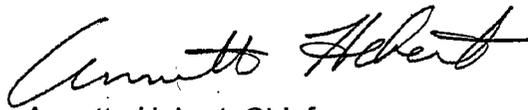
The Air Resources Board reserves the right in the future to review this Executive Order and the exemption provided herein to assure that the exempted add-on or modified part continues to meet the standards and procedures of Title 13, California Code of Regulations, Section 2222, et seq.

THIS EXECUTIVE ORDER DOES NOT CONSTITUTE A CERTIFICATION, ACCREDITATION, APPROVAL, OR ANY OTHER TYPE OF ENDORSEMENT BY THE AIR RESOURCES BOARD OF ANY CLAIMS OF THE APPLICANT CONCERNING ANTI-POLLUTION BENEFITS OR ANY ALLEGED BENEFITS OF THE LYSHOLM TWIN-SCREW SUPERCHARGER SYSTEM.

No claim of any kind, such as "Approved by the Air Resources Board", may be made with respect to the action taken herein in any advertising or other oral or written communication.

Violation of any of the above conditions shall be grounds for revocation of this order. The order may be revoked only after a ten-day written notice of intention to revoke the order, in which period the holder of the order may request in writing a hearing to contest the proposed revocation. If a hearing is requested, it shall be held within ten days of receipt of the request and the order may not be revoked until a determination is made after the hearing that grounds for revocation exist.

Executed at El Monte, California, this 27 day of October 2010.



Annette Hebert, Chief
Mobile Source Operations Division