

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER DE-12-004-02

The diesel emission control strategy described herein qualifies as a potential compliance option for the Air Resources Board's (ARB) in-use diesel fleet rules.

Pursuant to the authority vested in the Air Resources Board (ARB) 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 Sections 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 2711 of Title 13 of the California Code of Regulations (CCR)

Boshart Engineering, Incorporated
Global DPF System

ARB has reviewed Boshart Engineering, Incorporated's request for verification of the Global DPF System. Based on an evaluation of the data provided, and pursuant to the terms and conditions specified below, the Executive Officer of ARB hereby finds that the Global DPF System reduces emissions of diesel particulate matter (PM) consistent with a Level 3 device (greater than or equal to 85 percent reductions) (Title 13, CCR, Sections 2702 and 2708) and is compliant with the 2009 nitrogen dioxide emissions limit. Accordingly, the Executive Officer determines that the system merits verification and, subject to the terms and conditions specified below, classifies the Global DPF System as a Level 3 Plus system for heavy-duty on-road vehicles that use certain certified heavy-duty diesel engines. Engines for which the Global DPF System is verified, the verified parts list, the verified labels, swapping and re-designation information, and other product information can be found here:

<http://www.arb.ca.gov/diesel/verdev/companies/Boshart/globaldpf.htm>

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

- Only the Boshart Global DPF systems listed in Table 1 are approved for sale and installation. See next page.

Table 1: Approved Boshart Global DPF Systems for Installation

CAT 1	CAT 2
Serial Number	Serial Number
BE11826002	BE21905005
BE11826003	BE21905007
BE11826004	BE21905010
BE11927001	BE21927001
BE11927003	BE21927002
BE11927004	BE21927003
BE11927007	BE21927004
BE11927008	BE21927005
BE11927009	BE21927006
BE11927010	BE21927008
BE11927011	BE21927009
BE11927012	BE21927010
BE11927002	BE21927011
BE11927005	BE21927012
BE11927006	BE21927013
BE11927011	BE21927014
BE13418001	BE21905006
BE13418002	BE21905009
BE13418003	BE21927007
BE13418004	BE23418001
BE13418005	BE23418002
BE13418006	BE23418003
BE13418007	BE23418004
BE13418008	BE23418005
BE13418009	BE23418006
BE13418010	BE23418007
BE13418011	BE23418008
	BE23418009

- The engine must be originally manufactured from model year 1993 through 2006.
- 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 be certified for on-road applications.
- The engine must have a minimum displacement of 5.9 liters and maximum displacement of 13 liters.
- Only one filter may be installed per engine.
- The engine must be in its original certified configuration.
- The engine must have a PM certification level of at most 0.1 grams per brake horsepower-hour (g/bhp-hr) or 0.12 for model year 1993 engines, and greater than 0.01 g/bhp-hr.
- The engine must have rated power of at least 150 horsepower but not more than 400 horsepower.
- The engine must not be certified as having exhaust gas recirculation.
- The engine must not have a pre-existing oxidation catalyst from the original equipment manufacturer unless the following conditions are met:
 - The original equipment diesel oxidation catalyst is left in place and not removed.
 - The Global DPF System is installed downstream of the diesel oxidation catalyst.
 - The backpressure sensor is installed upstream of the diesel oxidation catalyst.
- The engine must not have a pre-existing diesel particulate filter (DPF) from the original equipment manufacturer.
- The engine must be four-stroke.
- The engine can be turbocharged or naturally aspirated.
- The engine can be mechanically or electronically controlled.
- 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.
- Global DPF System must not be operated with fuel additives, as defined in Section 2701 of Title 13, of the CCR.
- Global DPF System must not be used with any other systems or engine modifications without ARB and manufacturer approval.
- The other terms and conditions specified below.

IT IS ALSO ORDERED AND RESOLVED: That installation of Global DPF System, manufactured by Boshart Engineering, Incorporated, 1175 Del Rio Place, Ontario, California 91764, has been found not to reduce the effectiveness of the applicable vehicle pollution control system, and therefore, Global DPF System is exempt from the prohibitions in Section 27156 of the Vehicle Code for installation on heavy-duty on-road vehicles. This exemption is only valid provided the engines meet the aforementioned conditions.

The Global DPF System consists of the following major system components, listed in order from exhaust inlet to outlet as they are arranged within the exhaust system of the vehicle: 1 safety diverter assembly (reduced diameter [1.5 inch] tubing, rupture disk assembly [1 rupture disk flange, 1 rupture disk collar, 1 rupture disk gaskets, 1 rupture disk, 1 rupture disk gasket, and 1 rupture disk flange], 1 mini silicon carbide DPF [mini DPF], 1 thermocouple, 1 exhaust tube with bend sufficient to prevent objects from reaching the filter); 1 safety diverter valve, 1 diesel fuel burner; 1 non-catalyzed metal fiber DPF; and 1 outlet cone. The Global DPF System also includes an electronic control and warning system, 3 temperature sensors, and 1 backpressure sensor. The major components of the Global DPF System are identified in the parts list. The parts list and schematics of the approved product and engine labels are available on the website shown above.

The Global DPF System is comprised of a single safety diverter assembly and single DPF assembly (including the burner element, DPF, electronic control warning system, and sensors) designed to filter the exhaust from a single engine. Global DPF Systems with multiple safety diverter assemblies, DPF assemblies, and electronic control warning systems are not valid under this Executive Order. Including more than one rupture disk assembly or mini DPF core within a safety diverter assembly is not valid under this Executive Order. Including multiple non-catalyzed metal fiber DPFs, either canned together or multiple individually-canned filter components in parallel or in series (or any combination thereof) are not valid under this Executive Order. Channeling exhaust from a single engine through multiple Global DPF Systems, deployed in parallel, or in series or any combination thereof, is not valid under this Executive Order. Channeling exhaust from multiple engines through either a single Global DPF System, or through multiple Global DPF Systems installed on the same equipment is also not valid under this Executive Order.

No changes are permitted to the system. ARB must be notified, in writing, of any changes to any part of the Global DPF system. Any changes to the system must be evaluated and approved in writing by ARB. Failure to do so shall immediately invalidate this Executive Order.

Changes made to the design or operating conditions of the Global DPF System, as exempted by ARB, which adversely affect the performance or safety of the vehicle's pollution control system or safety diverter assembly, shall immediately invalidate this Executive Order.

Boshart Engineering, Incorporated, must ensure that the installation of Global DPF System conforms to all applicable industrial safety requirements.

Prior to sale of a Global DPF System, Boshart Engineering, Incorporated, must provide each prospective owner/purchaser of Global DPF System with a written estimate of the number of hours of vehicle operation that will typically elapse before regeneration is required. Boshart Engineering, Incorporated, must also provide, in writing, the length of time of a typical regeneration event.

This Executive Order is valid provided that installation instructions for Global DPF System do not recommend tuning the vehicle to specifications different from those of the vehicle manufacturer.

Marketing of Global DPF System using identification other than that shown in this Executive Order for an application other than that listed in this Executive Order shall be prohibited unless prior approval is obtained in writing from ARB.

This Executive Order shall not apply to any Global DPF System advertised, offered for sale, offered for lease, sold with, leased with, or installed on a motor vehicle prior to or concurrent with transfer to an ultimate purchaser.

A copy of this Executive Order must be provided to the ultimate purchaser at the time of sale.

As specified in Section 2706 (j) (Title 13, CCR), of the *Verification Procedure, Warranty, and In-Use Compliance Requirements for In-Use Strategies to Control Emissions from Diesel Engines* (Procedure), ARB assigns each Diesel Emission Control Strategy a family name. The designated family name for the verification as outlined above is:

CA/BSH/2012/PM3+/N00/ON/DPF01

As stated in the Procedure, Boshart Engineering, Incorporated, is responsible for recordkeeping requirements (Section 2702), honoring the required warranty (Section 2707), and conducting in-use compliance testing (Section 2709).

Proper engine maintenance is critical for the proper functioning of the diesel emission control strategy. The owner 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.

The use of alternative diesel fuels such as, but not limited to, biodiesel, ethanol diesel blends, and water emulsified diesel fuel are prohibited from use with the Global DPF System.

In addition to the foregoing, 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 2711.

The Global DPF System must not be located over any occupied space (For example: driver or passenger compartments) or in a way which 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*; and any other location deemed unacceptable by Boshart Engineering, Incorporated.

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

The terms and conditions of this Executive Order must be satisfied regardless of where the system is sold in order for the system to be considered verified.

Systems sold as verified, or which carry ARB-approved label, must satisfy all the terms and conditions of this Executive Order.

This Executive Order does not release Boshart Engineering, Incorporated, from complying with all other applicable regulations.

Boshart Engineering, Incorporated, must comply with all the terms and conditions delineated in letter Reference Number 13-661-1522. If Boshart Engineering, Incorporated, fails to fulfill any of these requirements within the specified time, this Executive Order automatically terminates.

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

This Executive Order DE-12-004-02 hereby supersedes Executive Order DE-12-004-01 (dated May 24, 2013) and Executive Order DE-12-004 (dated September 10, 2012).

Executed at El Monte, California, and effective this 11th day of July 2013.



Annette Hebert, Chief
Mobile Source Control Division

SUPERSEDED