

**State of California
AIR RESOURCES BOARD**

EXECUTIVE ORDER DE-05-013

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 Section 39515 and 39616 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

Donaldson Company, Inc.
DFM Diesel Multi-Stage Filter System with the Donaldson Spiracle™ Closed Crankcase Filtration System

ARB has reviewed Donaldson Company's request for verification of the DFM Diesel Multi-stage Filter (DMF) Muffler System with the Donaldson Spiracle™ Closed Crankcase Filtration 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 DFM DMF System with the Donaldson Spiracle™ Closed Crankcase Filtration system reduces emissions of diesel particulate matter (PM) consistent with a Level 2 device (greater than or equal to 50 percent reductions) (Title 13 California Code of Regulations (CCR) Sections 2702 (f) and (g) and Section 2708). Accordingly, the Executive Officer determines that the system merits verification and, subject to the terms and conditions specified below, classifies the DFM DMF system with the Donaldson Spiracle™ Closed Crankcase Filtration System as a Level 2 system, for the applications listed in Table 1 and engine families listed in Attachment 1.

Table 1: Appropriate Applications for the DFM DMF System with the Donaldson Spiracle™ Closed Crankcase Filtration System

Filter Type	Application
DFM DMF System with the Donaldson Spiracle™ Closed Crankcase Filtration System	On-Road Applications

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

- The engines are originally manufactured from model year 1991 through 2002 having the engine family numbers listed in Attachment 1.
- The engines do not employ exhaust gas recirculation.

- Engines manufactured from 1991 - 1993 must have a duty cycle with exhaust temperature of 230 degrees Celsius for 40 percent of time and average exhaust temperature of 215 degrees Celsius or above.
- Engines manufactured from 1994 - 2002 must have a duty cycle with exhaust temperature of 210 degrees Celsius for 40 percent of time and average exhaust temperature of 210 degrees Celsius or above.
- The engine may not have a pre-existing original equipment manufacturer oxidation catalyst.
- The engine must not have a pre-existing diesel particulate filter.
- The engine must be certified in California for on-road applications.
- Engines manufactured from 1991 – 1993 must be certified at a PM emission level of at most 0.25 grams per brake horsepower-hour (g/bhp-hr), and greater than 0.01 g/bhp-hr.
- Engines manufactured from 1994 – 2002 must be certified at a PM emission level of at most 0.1 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 should be well maintained and not consume lubricating oil at a rate greater than that specified by the engine manufacturer.
- Lube oil, or other oil, should not be mixed with the fuel.
- The engine must be operated on diesel fuel (e.g. not biodiesel blends or alternative diesel fuels) with 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 the fuel additive(s).
- The product 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 the DFM DMF system with the Donaldson Spiracle™ Closed Crankcase Filtration System, manufactured by Donaldson Company, Inc. of Post Office Box 1299, Minneapolis, Minnesota 55440-1299, has been found not to reduce the effectiveness of the applicable vehicle pollution control system, and therefore, the DFM DMF system with the Donaldson Spiracle™ Closed Crankcase Filtration System is exempt from the prohibitions in Section 27156 of the Vehicle Code for installation on heavy-duty on-road vehicles listed in Attachment 1.

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

The DFM DMF system with the Donaldson Spiracle™ Closed Crankcase Filtration System consists of a catalyzed passive multi-stage flow through filter, a backpressure monitor and the optional Donaldson Spiracle™ Closed Crankcase Filtration System. The major components of the DFM DMF system and the Donaldson Spiracle™ Closed Crankcase Filtration System are identified in Attachment 2.

This Executive Order is valid provided that installation instructions for DFM DMF system with the Donaldson Spiracle™ Closed Crankcase Filtration 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 DFM DMF system with the Donaldson Spiracle™ Closed Crankcase Filtration System, as exempted by 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 DFM DMF system with the Donaldson Spiracle™ Closed Crankcase Filtration System. Any changes to the device must be evaluated and approved by ARB. Failure to do so shall invalidate this Executive Order.

Marketing of the DFM DMF system with the Donaldson Spiracle™ Closed Crankcase Filtration 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 ARB.

This Executive Order shall not apply to any DFM DMF system with the Donaldson Spiracle™ Closed Crankcase Filtration System advertised, offered for sale, sold with, or installed on a motor vehicle prior to or concurrent with transfer to an ultimate purchaser.

As specified in the Diesel Emission Control Strategy Verification Procedure (Title 13 CCR Section 2706 (g)), the ARB assigns each Diesel Emission Control Strategy a family name. The designated family name for the verification as outlined above is: **CA/DON/2005/PM2/N00/ON/SYS01.**

Additionally, as stated in the Diesel Emission Control Strategy Verification Procedure, Donaldson Company, Inc. is responsible for honoring their warranty (Section 2707) and conducting in-use compliance testing (Section 2709).

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 CCR, Title 13, Section 2222, et seq and CCR, Title 13, Sections 2700 through 2710.

This Executive Order does not release Donaldson from complying with all other applicable regulations.

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

Executed at El Monte, California, this 16th day of December 2005.

Robert H. Cross, Chief
Mobile Source Control Division

Attachment 1: ARB Approved Model Year 1991 to 2002 Engine Families for the DFM DMF system with the Donaldson Spiracle™ Closed Crankcase Filtration System.

Attachment 2: Part Numbers and Model Numbers of the DFM DMF system with the Donaldson Spiracle™ Closed Crankcase Filtration System.