



**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY**  
WASHINGTON, D.C. 20460

APR - 1 2011

OFFICE OF  
AIR AND RADIATION

Mr. Julian Imes  
Donaldson Company, Inc.  
1400 West 94th Street  
Minneapolis, MN 55431-2370

Dear Mr. Imes:

The U.S. Environmental Protection Agency (EPA) has reviewed your request for amending the verification of the Donaldson Company, Inc. Series 6000 and 6100 Diesel Oxidation Catalyst Mufflers (DOCs) in combination with the Donaldson Spiracle Closed Crankcase Filtration System (Spiracle). This amendment is to include the use of a new Spiracle design number S040020 (Spiracle S040020). The Spiracle S040020 is a new design with a plastic housing. With this new housing design, a new replacement filter is also approved for use in new and existing Spiracle systems. Based on our evaluation of the verification application and test data, EPA hereby verifies that this new Spiracle design in combination with these DOCs achieve the emissions reductions as described in August 14, 2003 verification letters.

The new Spiracle S040020 and the existing verified metal Spiracle designs numbers S040004 and S040005 may be used with a Series 6000 or 6100 DOC as a verified combination. All Spiracle systems are verified without the use of the catch bottle. The Spiracle systems, replacement filters and applications are as described below:

Description	Diesel Engine Application <sup>(5)</sup>	
	Less than 400 HP <sup>(1)</sup>	Greater than 400 HP <sup>(1)</sup>
Blow-by Flow Rate	0-11 cfm	9-24 cfm
Metal Spiracle Part Number	S040004	S040005
Replacement Filter Part Number	P603746 <sup>(2)</sup> or P607673 <sup>(3)</sup>	P603568 <sup>(2)</sup>
Plastic Spiracle Part Number	S040020 <sup>(3), (4)</sup>	
Replacement Filter Part Number	P607673 <sup>(3)</sup>	

**Notes:**

- (1) HP rating is given as approximation of Spiracle sizing, but selection is based on blow-by flow rates.
- (2) Filter change interval for P603746/S040004 and P603568/S040005: Every lube oil change or 500 hours, whichever comes first.
- (3) Filter change interval for P607673/S040020 and P607673/S040004: 1000 hours or at 8" H<sub>2</sub>O if using indicator.
- (4) Filter change interval for P607673/S040020 on Navistar DT444: 1000 hours or at 1" H<sub>2</sub>O if using indicator.
- (5) Donaldson offers generic and custom installation kits. Generic kits include mounting brackets and connection fittings. Custom kits include generic components plus tubing and clamps.

The following operating criteria must be met in order for appropriately retrofitted engines to achieve the aforementioned emissions reductions:

1. Blow-by rates must be measured and recorded on each vehicle prior to Spiracle installation before selecting the applicable Spiracle model based on the chart provided above.
2. The filtered oil from Spiracle must be returned back to the engine oil sump. There is no catch bottle to be used with the Spiracle system.
3. International DT444 engines require the installation of the Spiracle Boost using venturi technology to increase the turbo intake vacuum force acting to overcome the filter restriction.
4. Spiracle systems require that the filter cartridge must be changed in accordance with the maintenance schedules noted above.

Information on the Series 6000 and 6100 Diesel Oxidation Catalyst Mufflers in combination with the Donaldson Spiracle Closed Crankcase Filtration System, percent reductions, applicable engines, and in-use testing program will be posted on the EPA's National Clean Diesel Campaign/Diesel Retrofit Verification website (<http://www.epa.gov/otag/retrofit/verif-list.htm>). Thank you for participating in EPA's National Clean Diesel Campaign. If you have any questions or comments, please contact Kuang Wei, of my staff, at (202) 343-9329.

Sincerely,



Jim Blubaugh, Deputy Director  
Transportation and Regional Programs Division  
Office of Transportation and Air Quality