

We use a third party and contract out the maintenance: anything I need to do?

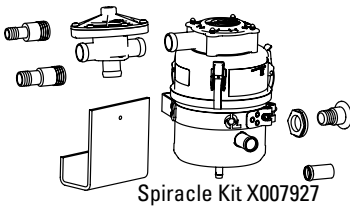
Review your maintenance contract to make sure the added cost of the filter is incorporated into the contract and a filter change is added to the maintenance schedule of the vehicle.

How much time does it take to install?

The retrofit installation time may vary, but typically takes 2-3 hours. Vehicle configuration and the mechanic's experience are also factors.

Does your Spiracle CFS Kit include everything required for installation?

No. We don't include all items, because the companies we choose to assist you with the installation typically have access to the "extra" components.



The extra parts required for the installation may include: mounting hardware, hose (3/4", 1" and 1 1/4" I.D.), hose clamps (1 1/2" and 1-1/4" I.D.) and wire-ties to secure the tubing to the engine frame.

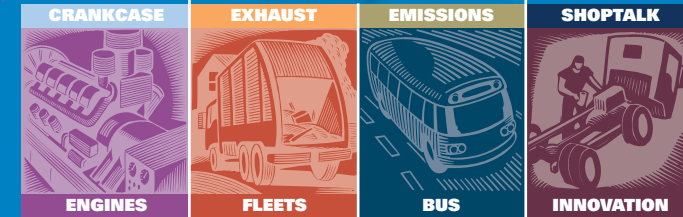
How much are the replacement filters?

You can purchase the filters through authorized Donaldson emissions dealers. They are sold individually and the "U.S. Suggested Distributor Price" is around \$60 for the S040004 filter and \$90 for the S040005 filter (at the time of publication).

Thanks for your interest in Donaldson and reducing diesel emissions!



Shoptalk



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Maintenance tips, cost reduction ideas and product features and benefits from the filtration and emissions experts – simple facts every diesel engine owner can use!

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Brochure No. F115187 (02/06)

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This document has been prepared to help you adequately prepare for the new maintenance practices required for efficient operation of our crankcase emissions reduction system.



Crankcase Filtration System

What is a Spiracle™ Crankcase Filtration System?

Efforts to reduce particulate matter emissions from in-use diesel engines require retrofits. Most retrofits focus on reducing tailpipe emissions. Independent testing has confirmed that 10-25% of engine emissions come from the crankcase vent.



Spiracle CFS on School Bus

Models S040005 (left) and S040004 (right).



Most medium- and heavy-duty turbocharged diesel engines have open crankcase vents because blow-by contaminates can foul turbocharger and after-cooler components if unfiltered in a closed-loop.

The Spiracle crankcase filtration system (CFS) eliminates harmful and unwanted crankcase emissions and allows the crankcase to be closed without degrading performance. It will reduce engine oil consumption (up to 6 gallons per year) and under hood odors/fumes.

The Spiracle CFS installed with a DOC Muffler, DMF Muffler or DPF Muffler will increase the overall emissions reduction. In fact, you may need to install this crankcase filtration system to meet state or federal emissions regulations along with your tailpipe retrofit.

How do I select the right Spiracle for my engine?

In order to apply the correct model, you need to know the flow coming out of your crankcase vent. This flow range will change with the age of your engine and maintenance level. Applying Spiracle CFS to poorly maintained engines or using the wrong model may degrade your vehicle or filter performance.

For assistance in measuring your crankcase blow-by flow, call Donaldson and request document F111197.

What type of “extra” maintenance will this retrofit bring into my fleet?

Additional maintenance will be a “filter” change. We have two housings and each one uses a separate filter.

The filter should be replaced at the engine manufacturers recommended oil change interval or every 500 hours of operation, whichever comes first. Failure to replace the filter according to the recommended schedule may cause turbocharger and/or intercooler fouling.



It's also recommended that you inspect the housing, tubing, clamps, and mounting bracket. Look for leaks, structural failures (cracks), and loose connections. Repair or replace any defective parts, as appropriate.

You will want to update any filter maintenance records for your fleet to include the maintenance.

Filter for S040004 Model is P603746

Filter for S040005 Model is P603568

Where does the system mount within the engine compartment?

The Spiracle filtration system will provide the longest life when mounted independent of the engine due to vibration and movement typical during engine operation. We recommend mounting the housing in a covered location and on the fire wall, fender or frame rail using existing or newly-fabricated brackets. Access to the unit for service and filter replacement must also be considered when selecting the location.

Does the age of the engine affect the life of the filter?

Most definitely. Engines components wear over time. Worn piston rings will increase the blow-by flow and your engine will consume more oil than normal. In order for the Spiracle CFS to work efficiently, you'll need to resolve any engine performance concerns before installation to maximize filter life.

When should I change the filter?

The filter should be replaced at the engine manufacturers recommended oil change interval or every 500 hours of operation, whichever comes first.

What if I use synthetic oil?

The Spiracle CFS works with synthetic oil, but Spiracle filter change intervals will likely not coincide oil changes (due to the increased oil drain interval). If using synthetic oil, be sure to replace the Spiracle filter every 500 hours.

Are there any special filter disposal requirements?

With proper use, Spiracle filters become loaded with engine oil, combustion by-products, diesel particulate matter, and engine wear debris. These materials may be classified as hazardous waste in certain areas. We recommend you treat the filter similar to a used oil filter.

Can engine oil from the sump be drawn into the Spiracle housing?

The Spiracle CFS uses dual check valves to prevent the engine from drawing oil out of the sump and from a run-away engine in the event of an engine roll-over (from an accident or by other means).

What types of problems have you encountered?

The most common problem is that the customer forgets to service the filter as recommended. When the filter is not changed as directed, you may experience excessive crankcase pressures or reduced engine power. We've also seen situations where the hoses that connect the housing to the engine and crankcase have too many bends or kinks. The key is proper installation and making sure the filter change is added to the normal lube oil change cycle.