

63

**Pennsylvania Technical Advisory Committee
On Diesel Powered Equipment**

Paul Borchick

(724) 485-4414 (Office)
(412) 736-9105 (Cell)
Email: paulborchick@consolenergy.com

Ron Bowersox

(724) 726-8987 (Home)
(724) 479-8692 (Office)
Email: umwarbowersox@yahoo.com

June 22, 2010

Joseph Sbaffoni, Director
Bureau of Mine Safety
Fayette County Health Center
100 New Salem Road, Room 167
Uniontown, Pa. 15401

*Sbaffoni
Bookshar
McCaffrey
Anton
Gaida
original/dunn*

RE: TAC recommendation for requirements for use of a remote crankcase oil breather system on a Deutz BF4M 2011 engine

Dear Mr. Sbaffoni:

Chapter 4 of the Pennsylvania Bituminous Coal Mine Safety Act (the act) provides for the use of diesel-powered equipment in underground bituminous coal mines. Section 424 of the act created a Technical Advisory Committee ("TAC") for the purpose of advising the Department regarding implementation of Article II-A and evaluation of alternative technology or methods for meeting the requirements of Chapter 4.

Background

On April 29, 2010, Johnson Industries submitted a request to the Technical Advisory Committee for evaluation and approval pursuant to Chapter 4 of the Act for a remote crankcase oil breather system on a Deutz BF4M 2011 engine.

Underground diesel equipment must have closed crankcase ventilation. Since the vapors created in the crankcase are vented to the intake manifold and burned in the combustion process, there is a possibility for the CO emissions to rise due to engine oil vapors being returned to the engine and burned. This condition of oil vapors present in the engine can build up over engine usage and it is possible for the intake manifold to retain enough of this oil to effect the CO emissions. This is the reason for Johnson Industries request for modifications.

The remote breather (Attachment 1) is made up of a small pipe or hose that feeds the crankcase ventilation through an oil filter instead of the intake manifold, thus keeping the oil vapors from entering the intake manifold. This system has been approved by MSHA for the Deutz BF4M2011 engine. This MSHA approval was based on the fact that the breather filter is an oil filter that is a paper media that retains about 95% of all oil particulate. As a result the DPM output of the engine package will not increase.

Investigation

On June 1, 2010 the TAC traveled to Tracy Lynne Mine to conduct their investigation. The remote breather (Attachment 1) was installed on a Johnson Industries rubber tire mantrip. The remote breather included a rubber hose connecting the MSHA Approved filter (Donaldson filter P550025) to the crankcase vent. Raw emission tests were conducted with the breather installed and also with the breather disconnected. Emissions test results were similar.

The location of the remote breather was discussed. The filter was installed above the crankcase vent hole so oil could not accumulate in the hose. The TAC questioned the length of the hose used for the remote breather. The frequency of changing the remote breather filter was also discussed. The TAC concern was that the filter may need to be changed more often than the 100 hour maintenance interval.

Recommendation

In addition to the testing that was conducted, our investigation and our observations confirmed that the use of a remote crankcase oil breather system on a Deutz BF4M 2011 engine is capable of meeting all requirements of Chapter 4 of the act without reducing or compromising the level of health or safety afforded by the act.

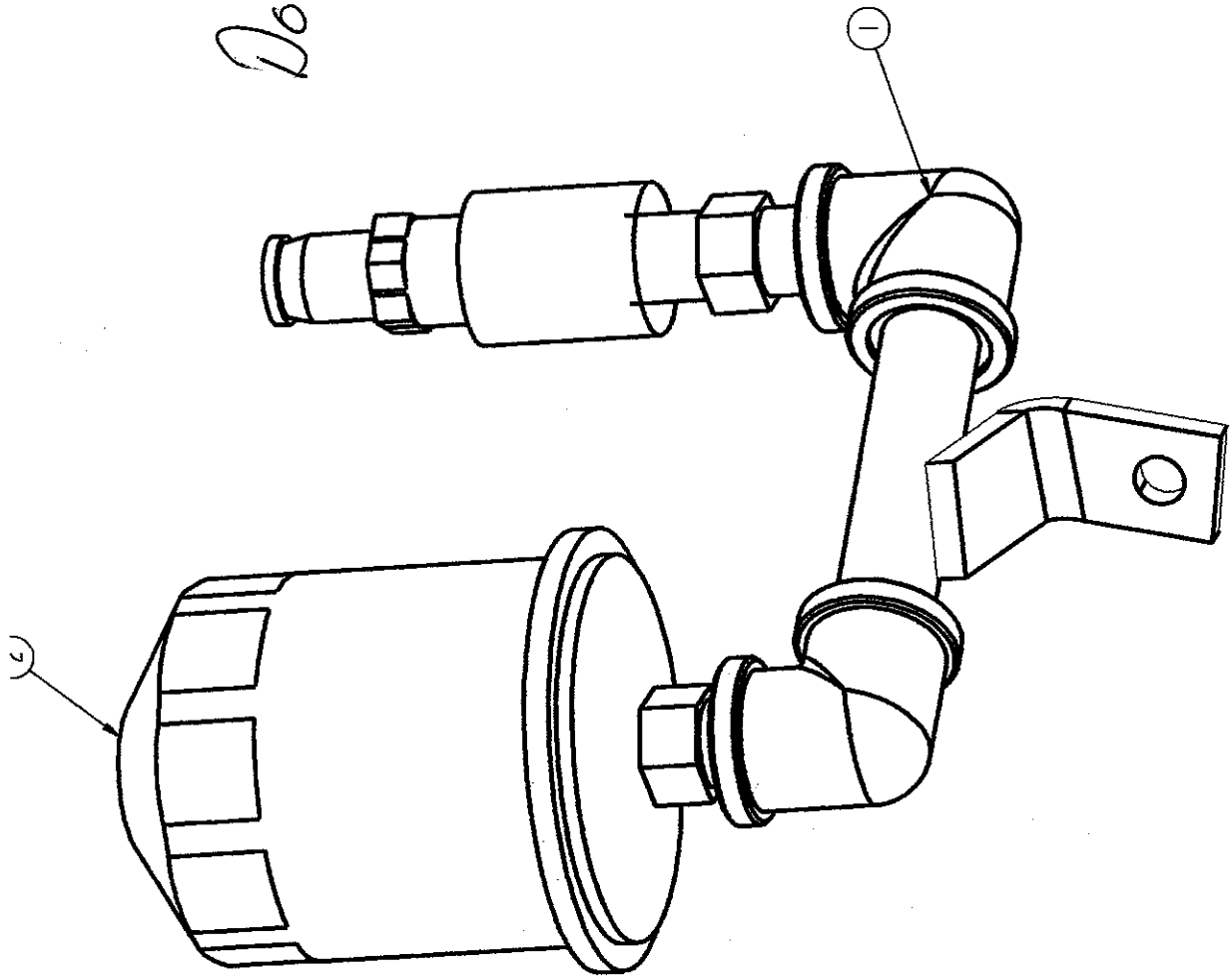
Therefore, the TAC recommends specific approval of the use of the remote crankcase oil breather system (Attachment 1) on a Deutz BF4M 2011 engine with the following stipulations:

- The filter used on the remote breather system must be an MSHA approved Donaldson filter P550025 which is 95% efficient.
- The filter should be tagged or labeled to identify it as the remote breather filter.
- The pre-op check list should be modified to include a visual check of the filter for excessive oil accumulation on the filter, and change the filter before use if an oil accumulation is found.
- The length of the MSHA approved oil resistant breather hose should not exceed 3 feet in length.
- The 100 hour maintenance check list should be modified to include changing the remote oil filter during every 100 hour maintenance, and also more often if needed.


Paul Borchick


Ron Bowersox

Downson Filter
 P550025



QUALITY ASSURANCE CHECKS		WELDING NOTES		GENERAL TOLERANCES UNLESS SPECIFIED OTHERWISE		ALL DIMENSIONS ARE IN INCHES	
ITEM	STATUS	REMARKS	DATE	DIM.	TOL.	FOR MACH.	FOR CAST.
1	✓			3 PLACE	±.004	0" - 8"	±.004
2	✓			2 PLACE	±.02	8" - 16"	±.02
3	✓			1 PLACE	±.06	16" - 24"	±.06
4	✓					24" - OVER	± 0.5

LOT/332	ECR NUMBER	REV	DATE	DESCRIPTION	MATERIAL	WEIGHT	CLASSIFICATION
1017332	A	NEW RELEASE					

ATTACHMENT 1