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PROGRAM INFORMATION BULLETIN NO. P09-21



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SUBJECT: Re-Issue P04-03 - Retrofit Program for Caterpillar Model
3306 PCNA Diesel Engines under Approval Numbers
7E-A002 and 7E-B003

Who needs this information?

Mine Safety and Health Administration (MSHA) personnel, Underground Coal Mine Operators, Miner's Representatives, and Repair Shop Facilities should have this information.

Why is MSHA issuing this Bulletin?

This Program Information Bulletin (PIB) is to inform mine operators of a Caterpillar retrofit program and the importance of maintaining diesel engines in approved condition.

Why do Caterpillar Model 3306 PCNA diesel engines require retrofit?

Fuel rate settings are critical to efficiency of diesel engines. MSHA specifies a fuel setting and a fuel deration curve for each engine during the approval process. The fuel deration curve is intended to ensure that the fuel rate does not exceed the maximum allowable at any altitude.

MSHA has found that some Caterpillar Model 3306 PCNA diesel engines were not properly derated and as a result are over-fueled when operated at altitudes above 1,000 feet. Over-fueling will not significantly increase the power output of the engine since engines can only utilize fuel in relation to the air available.

Excess fuel is not efficiently burned in the combustion chambers of the engine creating an excessive amount of Diesel Particulate Matter (DPM) and Carbon Monoxide (CO). Proper engine fuel settings convert fuel to power more efficiently resulting in less fuel usage for about the same amount of power. In addition, engines with excessive fuel-to-air ratios operate at higher temperatures which shorten the useful life. Most importantly, proper fuel settings result in cleaner exhaust emissions.

How can Caterpillar Model 3306 PCNA diesel engines be properly adjusted?

Caterpillar has committed to adjust engines as needed for high altitude operation through an ongoing retrofit program for the Caterpillar Model 3306 PCNA diesel engine. Caterpillar has trained technicians at their distributors to perform the required adjustment. You should contact your servicing Caterpillar Dealer for assistance.

Which engines require retrofit?

All Caterpillar Model 3306 PCNA engines labeled with MSHA Approval Numbers 7E-A002 and 7E-B003 must be retrofitted in order to comply with the requirements of Title 30, Code of Federal Regulations (30 C.F.R.) § 75.1909(a)(1). Each engine must be re-tagged to indicate that the maximum altitude before deration is 1,000 feet. Engines operated at altitudes above 1,000 feet may require a fuel reset before relabeling.

You may contact MSHA's Approval and Certification Center with questions on which engines require fuel adjustment. Please contact Stephen B. Cole at (304) 547-2304 or by e-mail at cole.stephen@dol.gov for assistance.

What happens to engines that are not retrofitted?

At the conclusion of the retrofit program, only Caterpillar Model 3306 PCNA diesel engines labeled with proper tags will be considered as approved. The MSHA Approval Numbers 7E-A002 and 7E-B003 will require approval tags that specify the maximum altitude before deration to be 1,000 feet. The retrofit program concluded on April 1, 2004.

What is the background for this bulletin?

MSHA's Quality Assurance Division audits revealed that the fuel deration specifications applied to the Caterpillar Model 3306 PCNA diesel engines were not acceptable. Section 75.1909(a)(1) of 30 C.F.R. requires all nonpermissible diesel-powered equipment except for diesel-powered ambulances and fire fighting equipment to be equipped with an engine approved under 30 C.F.R. Subpart E of Part 7. Engines must be equipped with an air filter service indicator set in accordance with the engine manufacturers' recommendations. To comply with Section 75.1909(a)(1) and Part 7 approval requirements, all Caterpillar

Model 3306 PCNA diesel engines must be retrofitted and labeled by the manufacturer. Revising the fuel adjustment of the engines will improve the emissions of the engines operated at high altitudes and bring the engines into compliance with the requirements of their approval.

What is MSHA's authority for this Program Information Bulletin?

The Federal Mine Safety and Health Act of 1977; 30 C.F.R. Part 75.1909

(a)(1), 30 C.F.R. Part 7

Internet Availability

This information bulletin may be viewed on the Internet by accessing MSHA's home page at <http://www.MSHA.gov> and then choosing "Rules & Regs" and "Compliance Assistance Information".

Who are the MSHA contact persons for this bulletin?

Technical Support, Approval and Certification Center

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Who will receive this bulletin?

MSHA Program Policy Manual Holders

Miners' Representatives

Underground Mine Operators

Manufacturers of Mine Equipment and Mining Products

Owners of Caterpillar Diesel Engines

Special Interest Groups