United States Environmental Protection Agency
Air and Radiation
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Office of Mobile Sources

Environmental Fact Sheet

Approval of Urban Bus Retrofit/ Rebuild Equipment

The Environmental Protection Agency (EPA) is approving an engine retrofit kit for certain urban transit buses that will significantly reduce particulate matter (PM). As the second kit certified to the stringent 0.10 grams per brake horsepower-hour (g/bhp-hr) PM standard, EPA expects that it will benefit the transit industry by providing additional technology choices and reduced costs through competition in the market place. Equipment certified to the 0.10 g/bhp-hr standard is expected to reduce PM emissions by as much as 80 percent per bus compared to pre-retrofit levels.

Urban Bus Retrofit/Rebuild Program

On April 23, 1993, EPA finalized the Urban Bus Retrofit/Rebuild Program which is intended to reduce the ambient levels of PM in urban areas. The program is limited to 1993 and earlier model year urban buses operating in metropolitan areas with 1980 populations of 750,000 or more, whose engines are rebuilt or replaced after January 1, 1995. Approximately 50 urban areas are affected. Operators of the affected buses are required to choose between two compliance options: Program 1 sets PM emissions requirements for each urban bus engine in an operator's fleet which is rebuilt or replaced; Program 2 is a fleet averaging program that establishes specific annual target levels for average PM emissions from urban buses in an operator's fleet.

A key aspect of the program is the certification of retrofit/rebuild equipment. To meet either of the two compliance options, operators of the affected buses must use equipment which has been certified by EPA.

Under Program 1, a transit operator must use equipment certified by EPA to meet a 0.10 g/bhp-hr PM standard, if such equipment is available for a life cycle cost of $7,940 or less (in 1992 dollars). If such equipment is not certified, then a transit operator must use equipment certified by EPA as achieving at least a 25 percent reduction in PM, if such equipment is available for a life cycle cost of $2,000 or less. If such equipment is not available, a transit operator must rebuild to the original engine configuration, or a configuration having the same or lower emissions. Equipment used for Program 2 must be certified to provide some level of PM reduction that would in turn be claimed by urban bus operators when calculating their average fleet PM levels attained under the program.

New Retrofit Kit Approved

EPA has certified equipment manufactured by Johnson Matthey, Incorporated, as meeting the requirements of the Urban Bus Retrofit/Rebuild Program. Johnson Matthey requested EPA approval in December 1996, and after a public review period and resolution of comments, EPA has granted the approval. This certification applies to urban buses with 1979 through 1989 model year Detroit Diesel Corporation 6V92TA engines having mechanical unit fuel injectors. This is the second retrofit kit that has demonstrated compliance with the stringent 0.10 g/bhp-hr PM standard. It will reduce PM emissions by as much as 80 percent per bus compared to pre-retrofit levels. (Previously approved retrofit kits reduce PM emissions by 25 to 40 percent per bus.)

Certification of the ETX-2002™ kit (produced by the Engelhard Corporation) on March 14, 1997 triggered the 0.10 g/bhp-hr standard for the above-mentioned applicable engines. That certification means that rebuilds performed after September 14, 1997, must use equipment certified to the 0.10 g/bhp-hr standard. Approval of the Johnson Matthey equipment will benefit the transit industry by providing additional technology choices and reduced costs through competition in the market place.

Approval of this new technology does not affect engines certified by EPA to meet California emissions standards. For urban buses other than those described above, the requirement to install EPA-approved equipment reducing PM by 25 percent will remain in effect until such time as equipment is certified for such buses which complies with the 0.10 g/bhp-hr PM standard.

Health and Environmental Benefits

This certification will result in reduced PM emissions in approximately 50 urban areas covered by the program, thus helping states improve air quality. PM is a contributor to air pollution in both urban and rural areas. PM has been identified as a probable human carcinogen. High levels of exposure also cause increased frequency of bronchitis, asthma attacks and respiratory infec-

tions. Environmental impacts of PM include reduced visibility and deterioration of buildings.

Effect on Industry

Transit operators who rebuild 1979 through 1989 model year Detroit Diesel Corporation 6V92TA engines equipped with mechanical unit fuel injection after September 14, 1997, are required to install retrofit equipment certified by EPA to meet a stringent 0.10 g/bhp-hr PM standard. The cost of such equipment may be up to $7,940 incremental to the cost of a typical rebuild. EPA determined in the original rulemaking for this program that such costs resulted in a cost-effective PM reductions.

As a result of this approval, the transit industry will have the benefit of additional technology choices and reduced costs through competition in the market place. Additionally, to lessen the cost impact of this certification, EPA has approved two kit supply options aimed at providing increased purchasing flexibility for the transit industry.

For More Information

Information on the Urban Bus Retrofit/ Rebuild Program is available electronically via the following EPA Internet server:

World Wide Web:

http://www.epa.gov/OMSWWW

Information is also available by calling 202-564 -9297,

or writing to:

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