

emission sources should be inspected at each facility. The required records also provide an indication as to whether facility personnel are operating and maintaining control equipment properly.

**Burden Statement:** In the currently approved ICR, the annual public reporting and recordkeeping burden for this collection is estimated to be 488,000 hours, and average 1,494 hours per respondent. It is estimated that there are 165 respondents (no new sources). It is estimated that the total annual cost for this collection 20.45 million dollars for labor and 570,000 dollars for annualized capital costs.

There are no operating and maintenance costs since the rule does not require any continuous emissions monitoring or electronic data submittal. Sources can comply with the monitoring requirements by using existing parametric or safety monitoring devices.

Dated: September 8, 2000.

**Michael Stahl,**

*Acting Director, Office of Compliance.*

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**BILLING CODE 6560-50-M**

## ENVIRONMENTAL PROTECTION AGENCY

[FRL-6870-4]

### Retrofit/Rebuild Requirements for 1993 and Earlier Model Year Urban Buses; Approval of a Notification of Intent To Certify Equipment

**AGENCY:** Environmental Protection Agency (EPA).

**ACTION:** Notice of EPA approval of a notification of intent to certify equipment.

**SUMMARY:** This **Federal Register** describes the certification of the Engelhard Corporation's ETX Plus rebuild kit pursuant to the Urban Bus Rebuild Requirements. The kit is certified to comply with the 0.10 grams per brake horsepower-hour (g/bhp-hr) particulate matter (PM) standard for certain engines (see below).

EPA received a notification of intent to certify (that is, an "application" for) the ETX Plus rebuild kit, signed November 17, 1998, from the Engelhard Corporation (Engelhard) pursuant to Title 40 Code of Federal Regulations (CFR) part 85 subpart O, entitled "Urban Bus Rebuild Requirements." The kit applies to Detroit Diesel Corporation's (DDC) diesel-fueled 6V92TA urban bus engines of model years 1988 through 1993 that are equipped with the second

version of Detroit Diesel Electronic Control (DDEC II). Engelhard's principal place of business is 101 Wood Avenue, Iselin, New Jersey 08830-0770.

On April 29, 1999 EPA published a notice in the **Federal Register** (64 FR 23072) that the Engelhard application had been received, and that made the application available for public review and comment for a period of 45 days pursuant to 40 CFR 85.1407. EPA has completed its review and determined that it meets the requirements for certification. The effective date of certification is discussed below under **DATES**.

Certification of this kit does not initiate (that is, "trigger") any program requirements for urban bus operators, because the 0.10 g/bhp-hr PM standard is already in effect for the engines to which the ETX Plus applies. Additionally, Engelhard did not provide the life cycle cost information that is required to trigger a standard. However, certification of the ETX Plus kit will provide additional choices for urban bus operators.

**ADDRESSES:** The Engelhard application, as well as other documents specifically relevant to it, is contained in Public Docket A-93-42, Category XXV-A, entitled "Certification of Urban Bus Retrofit/Rebuild Equipment." Docket items may be inspected from 8:00 a.m. until 5:30 p.m., Monday through Friday. As provided in 40 CFR part 2, a reasonable fee may be charged by EPA for copying docket materials.

**DATES:** Today's **Federal Register** document describes EPA's decision to certify the ETX Plus kit, and establishes the effective date of certification. This certified kit may be used immediately by urban bus operators, as discussed in Section VI below. Urban bus operators having affected engines and using compliance program 1 are currently required to use kits certified to the 0.10 g/bhp-hr PM standard when the applicable engines are rebuilt or replaced.

**FOR FURTHER INFORMATION CONTACT:** William Rutledge, Certification and Compliance Division (mail code 6403J), U.S. Environmental Protection Agency, Ariel Rios Building, 1200 Pennsylvania Avenue NW, Washington D.C. 20460. Telephone: (202) 564-9297. Email address: rutledge.william@epa.gov.

#### SUPPLEMENTARY INFORMATION:

##### I. Program Background

On April 21, 1993, EPA published final Retrofit/Rebuild Requirements for 1993 and Earlier Model Year Urban Buses (58 FR 21359). The retrofit/rebuild program is intended to reduce

the ambient levels of PM in urban areas and is limited to 1993 and earlier model year (MY) urban buses operating in metropolitan areas with 1980 populations of 750,000 or more, whose engines are rebuilt or replaced after January 1, 1995. Operators of the affected buses are required to choose between two compliance options: Option 1 sets PM emissions requirements for each urban bus engine in an operator's fleet which is rebuilt or replaced; Option 2 is a fleet averaging program that sets out a specific annual target level 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 (also referred to as "kits"). To meet either of the two compliance options, operators of the affected buses must use kits which are certified by EPA. Emissions requirements under either of the two options depend on the availability of retrofit/rebuild kits certified for each engine model. To be used for Option 1, kits must be certified as meeting a 0.10 g/bhp-hr PM standard or as achieving a 25 percent reduction in PM. Kits used for Option 2 must be certified as providing 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.

Under Option 1, additional information regarding cost must be submitted in the application for certification, in order for certification of that kit to trigger program requirements for a particular engine model. In order for the kit to serve as a trigger, the certifier must guarantee that the kit will be offered to affected operators for \$7,940 or less at the 0.10 g/bhp-hr PM level, or for \$2,000 or less for the 25 percent or greater reduction in PM. Both of the above amounts are based on 1992 dollars and include life cycle costs incremental to the cost of a standard rebuild.

##### II. Certification Application and Kit Identification

In an application signed November 17, 1998, Engelhard applied for certification of equipment under the Urban Bus Rebuild Requirements. The application is clarified in letters from Engelhard dated December 14, 1998, and June 30, 2000. The equipment is referred to as the ETX Plus rebuild kit and applies to 1988 through 1993 model year DDC 6V92TA urban bus engines equipped with DDEC II.

The ETX Plus kit is intended to be installed at the time of a standard engine rebuild, and results in one mechanical configuration to update all

applicable engines to an ETX Plus configuration of either 253 or 277 horsepower (Hp). The basis of the ETX Plus kit is a 6V92TA DDEC II engine that is rebuilt to a standard 1991 to 1993 DDC specification, but with some changes. When rebuilt with the ETX Plus kit, the engine will utilize an improved CMX<sup>(TM)</sup>-6 integrated catalytic converter muffler, a coated turbocharger, a specific blower drive gear, and must include other emission-related components identified on the engine specific parts list that is provided in the kit. (Use of parts other than the specific parts listed for the kit will place an engine in an uncertified kit configuration.)

The CMX-6 is designed to replace the existing noise muffler of a bus and incorporates Engelhard's oxidation catalyst technology to reduce PM emissions in the exhaust. The CMX-6 is different from the CMX-5 converter of the Engelhard kit that EPA certified earlier to the 0.10 g/bhp-hr standard for the same engines (see 63 FR 50225; September 21, 1998). Therefore, previously-certified CMX converters cannot be used in place of the new CMX-6 converter in the ETX Plus kit. The specific CMX-6 to be used depends on the type of coach as well as the type of engine. Engelhard's application provides a table listing the various catalytic converter kits available for different engine/coach combinations.

Engelhard indicates that the turbocharger of the ETX Plus kit has a coated housing and operates like a typical turbocharger but with improved efficiency and airflow. The improved airflow improves combustion efficiency which reduces engine-out PM.

The 1988 to 1990 model year engines also receive an upgraded software control program for the electronic control module, if necessary. The control program is listed on an updated ETX Plus parts list provided in the letter to EPA dated June 30, 2000, which can be found in the public docket at the address listed above.

The contents of the ETX Plus kit will vary depending upon the model year of the engine to be rebuilt. For the 1988–

1990 model year engines, the kit will include components necessary to update the older applicable engines to the 1991–1993 configuration. For 1991–1993 model year engines, the kit does not include the emission-related components that are typically replaced during an engine rebuild of those engines. However, the operator is still responsible for purchasing and using the components on the engine specific parts list of the kit because such components are emissions related and necessary to assure the engine is the certified ETX Plus configuration.

The engine specific parts list of the ETX Plus kit identifies the components that, while not provided with the kit, are necessary to complete an engine rebuild. The engine specific parts list for the 1988–1990 model year engines identifies only the cylinder head and blower (which are common to all model year engines). The components that are necessary to complete the ETX Plus rebuild for 1988–1990 engines, including those original equipment (OE), emission related components necessary to upgrade to the 1991–1993 model year configuration, are provided with the kit because the components would not typically be used for rebuilding 1988–1990 engines.

The engine specific parts list for 1991–1993 model year engines identifies the cylinder head and blower (again, common to all model year engines), cylinder kits, fuel injectors and camshafts. These components are necessary to complete an engine rebuild using the ETX Plus kit but would typically be replaced by an operator during rebuild of the 1991–1993 model year engines. It is an operator's responsibility to assure that all components of the ETX Plus kit, including the components of the engine specific parts list, are acquired and properly installed.

The emissions defect warranty will cover the components which Engelhard supplies in the ETX kit. Engelhard states that the ETX Plus kit will require no additional maintenance compared to a standard engine.

Using engine dynamometer testing conducted in accordance with the Federal Test Procedure (FTP) for heavy-duty diesel engines, Engelhard documented in its November 17, 1998 application, PM emissions complying with the 0.10 g/bhp-hr standard. This test data is shown below in Table 1. In Table 1 EPA has also included baseline data from testing conducted in conjunction with the Engelhard kit certified earlier to the 0.10 g/bhp-hr PM standard and described in the **Federal Register** on September 21, 1998 (63 FR 50225). The PM emissions level of an original engine, prior to installation of the Engelhard kit, may be less relevant because all emissions-related components are required to be replaced upon installation of the kit.

The same engine block (that is, same serial number) was used for all emissions testing. The engine was initially rebuilt to a 1988 California configuration, subsequently rebuilt to a 1991 through 1993 model year DDC DDEC II standard configuration (using a DDC DDEC II upgrade kit), and then finally rebuilt with the ETX Plus rebuild kit. The testing documentation related to each of the rebuilds can be found in the public docket A-93-42, category XXV-A, at the address listed above. Transient testing was performed in accordance with the federal test procedure of 40 CFR Part 86, subparts N and I.

The certification testing documents a PM emissions level that complies with the PM standard of 0.10 g/bhp-hr, and also shows that emissions of hydrocarbon (HC), carbon monoxide (CO), oxides of nitrogen (NO<sub>x</sub>), and smoke opacities comply with the applicable standards.

Based on the testing summarized in Table 1, EPA believes that all ETX Plus equipped engines will meet the 0.10 g/bhp-hr PM standard because installation of the kit upon engine rebuild results in the replacement of all emissions-related components with a specific set of components, the combination of which has been demonstrated to comply with the PM standard of 0.10 g/bhp-hr.

TABLE 1.—SUMMARY OF ENGELHARD TESTING OF A DDC 6V92TA DDEC II

Gaseous and particulate test	g/bhp-hr					
	HDDE standards			1988 6V92TA (California) baseline <sup>3</sup>	1991 6V92TA baseline <sup>3</sup>	6V92TA with ETX Plus kit <sup>3</sup>
	1988	1990	1991			
Test Date .....	.....	.....	.....	02/19/97	03/10/97	05/26/98
Test Cell .....	.....	.....	.....	7	7	7
HC .....	1.3	1.3	1.3	0.8	0.5	0.02
CO .....	15.5	15.5	15.5	1.4	1.9	0.4
NO <sub>x</sub> .....	10.7	6.0	5.0	5.5	4.7	5.0

TABLE 1.—SUMMARY OF ENGELHARD TESTING OF A DDC 6V92TA DDEC II—Continued

Gaseous and particulate test	g/bhp-hr					
	HDDE standards			1988 6V92TA (California) baseline <sup>3</sup>	1991 6V92TA baseline <sup>3</sup>	6V92TA with ETX Plus kit <sup>3</sup>
	1988	1990	1991			
PM .....	0.60	0.60	0.25	0.43	0.28	0.10
BSFC <sup>1</sup> .....	.....	.....	.....	0.481	0.498	0.488
Hp (R/O) <sup>2</sup> .....	.....	.....	.....	277/273	277/281	277/278
Smoke test	Maximum opacity standard					
ACCEL .....	20%			4%	7%	3%
LUG .....	15%			1%	1%	1%
PEAK .....	50%			6%	15%	6%

<sup>1</sup> Brake Specific Fuel Consumption (BSFC) is measured in units of lb/bhp-hr.

<sup>2</sup> Horsepower (Rated/Observed during testing).

<sup>3</sup> All 6V92TA testing was performed on engine identification number 6VF-203466. See discussion in the text. The DDC upgrade kit (25% reduction) was used to configure the engine to the 1991 model year.

Engelhard's application includes no life cycle cost information. Such information is required, pursuant to 40 CFR 85.1407, only to trigger the program standard of 0.10 g/bhp-hr for applicable engines. That 0.10 g/bhp-hr PM standard was triggered for both federal (i.e., 49-State) and California engines with the certification of the Engelhard ETX-2002 rebuild kit described in the **Federal Register** on September 21, 1998

(63 FR 50225). The effective date is discussed below in section VI, "Urban Bus Operator Responsibilities."

In accordance with program requirements of 40 CFR 85.1409, Engelhard's application includes emissions defect and emissions performance warranties for the ETX Plus kit.

The ETX Plus kit is certified to a PM emission level of 0.10 g/bhp-hr for all

1988 through 1993 DDC 6V92TA DDEC II urban bus engines using either diesel fuel #1 or #2 (including engines originally certified, or rebuilt, to meet California emissions standards). Table 2 below lists the applicable engine models and certification levels associated with the certification announced in today's **Federal Register**.

TABLE 2.—CERTIFICATION LEVELS

Applicable models	Applicable engine codes	Certified PM level
1988–1993 Detroit Diesel 6V92TA DDEC II .....	ALL (including those certified or rebuilt to meet California or 50-state emissions standards).	0.10 g/bhp-hr.

Today's certification of the ETX Plus kit includes certification for engines originally certified, or rebuilt, to meet emissions standards of California. The impact of this on urban bus operators is discussed below in the "Transit Operator Requirements" of section VI below.

### III. Summary and Analysis of Comments

Comments were received from three parties in response to the **Federal Register** document of April 29, 1999 (64 FR 232072): Johnson Matthey, Incorporated (JM), Engine Control Systems, Limited (ECS), and Golden Gate Transit. JM is a company that has several kits certified under the urban bus program, including a kit certified to the 0.10 g/bhp-hr standard for the same engines to which the ETX Plus kit is applicable. ECS is a company that has kits certified under the urban bus program, and also provides catalytic converters for a DDC kit that is certified to the 0.10 g/bhp-hr standard for the

same engines to which the ETX Plus kit is applicable. Golden Gate Transit is an operator of urban buses in an area to which the Urban Bus Rebuild Requirements apply.

Comments and issues generally fell into the following categories:

(A) Components in the ETX Plus kit; (B) Potential safety concern; (C) Durability and in-service concerns related to the ETX Plus kit; (D) Certification test engine; (E) Kit Compliance; and, (F) Other comments. These comments and issues are discussed below. The overwhelming majority of comments were provided by JM.

Copies of the complete comments and other documentation are available in the public docket, which is located at the address stated above.

#### A. Components in the ETX Plus Kit

1. JM notes that Engelhard intends to supply the ETX Plus kit components alone, while bus operators will procure the engine-specific components on their

own. JM states that EPA should require Engelhard to clearly state that transits are required to purchase and install all of the components in both the Engelhard-supplied kit and the non-Engelhard-supplied kit.

Engelhard states that it has clearly stated that a transit needs to install all of the specified components to be certified.

EPA notes that the Engelhard application shows that the ETX Plus Installation Instructions states "Ensure that all required parts are used per the Engelhard ETX Plus Parts List." Additionally, the components list provided by Engelhard in its letter dated June 30, 2000, show unique components lists for 1988–1990 and 1991–1993 6V92TA DDEC II engines, and installation of either list would result in an engine rebuilt to a standard 1991 to 1993 engine specification of either 253 or 277 horsepower.

2. Golden Gate Transit comments that there will be a "wide gap" in warranty coverage, between the components

Engelhard plans to put in the kit, and the warranty that DDC provides for other engine components that are not part of the certified kit, but are necessary to complete an engine rebuild when installing a kit. Emissions will be compromised if there is failure of engine components not in the certified kit, when past the DDC warranty period, and places the burden on the bus operator. Components that are not in the certified kit include pistons, cylinder liners, and piston rings. Golden Gate believes that EPA should apply the bus program warranty to all emission-related components of an engine, even if components are not in a certified kit.

EPA notes that the intent of the defect warranty of the regulation (40 CFR 85.1409) is to provide bus operators with the ability to obtain replacement components of a retrofit/rebuild kit that is still under warranty and fails to perform. Engelhard has met this requirement for the parts in its kits. Regarding the potential for a "wide gap" in warranty coverage between kit parts and other engine parts, Golden Gate is correct when referring to the kit applicable to 1991 through 1993 model year engines because certain engine parts are not provided with the kit. However, for kits for those model year engines, the warranty coverage for those standard engine parts when used with the kit (as they must) would be the same as the coverage when used with other standard engine rebuilds (such as rebuilding a 1991 model year engine to a standard 1991 configuration).

EPA notes that the ETX Plus kit for 1988 through 1990 model year engines includes the cylinder kits, fuel injectors, and camshafts and, all components of the kit are covered by the emission warranties required by 40 CFR 85.1409. These engine components are part of the kit because they are not standard rebuild parts for these model years.

EPA has no information that the presence of certified kits will result in the other components failing earlier than would otherwise occur. Therefore, EPA does not believe that there is a need for the kit certifier to warrant such components under the warranty requirements of the bus program. Further, the non-special emissions-related engine components are OEM type components and not unique with regard to the specific engine being rebuilt. In the absence of the bus program, an operator would bear the costs of such components replacement if beyond any manufacturer's warranty period. In summary, EPA does not believe that it is necessary for a kit certifier to warrant components that are not part of its kit, and does believe that

Engelhard has met its obligations under the regulatory warranty requirements of 40 CFR 85.1409.

3. In the preamble to the April 29, 1999 **Federal Register** document (64 FR 23072) that started the 45-day review of the Engelhard application, EPA stated that during the certification review it would address the issue of the supply method that Engelhard proposed for the ETX Plus kit and, whether the supply method compromises the ability of the kit to achieve the emission reductions in the field.

As noted previously, the ETX Plus kit is expected to be installed at the time of a standard engine rebuild, and the contents of the kit will vary depending upon the model year of the engine to be rebuilt. For rebuilding a 1988–1990 model year engine, the kit includes the original equipment emission related components needed to upgrade the engine to the 1991–1993 configuration. However, for a 1991–1993 model year engine, the kit will not contain those emission related components. This is because operators of 1991–1993 engines typically acquire such standard components when rebuilding 1991–1993 engines, and must do the same when installing the ETX Plus kit on these engines. In other words, urban bus operators are expected to acquire, from their routine supply sources, the standard components that are specified for the kit. EPA does not believe that this supply method will affect the ability of the kit to achieve emission reductions in the field and, therefore, EPA is not requiring that the kit for 1991–1993 engines provide the standard engine components that are typically acquired by the operator for a standard rebuild of the 1991–1993 engines. This supply method will not affect the in-use performance of the ETX Plus kit because EPA believes that operators will continue to procure the proper components as listed on Engelhard's engine specific parts list, which are typically replaced during a routine 1991–1993 engine rebuild. However, because these specific engine components are not common to 1988–1990 model year engines, the components are part of the kit for 1988–1990 engines.

The emissions performance warranty and emissions defect warranty provided by Engelhard as required by 40 CFR 85.1409, cover the components provided in the kit. This supply method is consistent with what has been provided for previous certifications, such as for the JM Cam Converter Technology (CCT™) upgrade kit for these same engines as described on December 3, 1998 at 63 FR 66798, and

the Engelhard ETX–2002 kit for the same engines as described on September 21, 1998 at 63 FR 50225.

4. JM notes that Engelhard includes the blower drive gear part number 5122918, which is for a non-hardened gear. However, this is not an appropriate component because DDC standardized the gear train to include hardened gears (JM refers to DDC service information bulletin 18–D–88, but does not provide it). According to JM, DDC has indicated that hardened and non-hardened gears should not be mixed.

Engelhard states that the appropriate blower drive gear will be specified depending on the application.

EPA notes that the blower drive gear, to be supplied with the ETX Plus kit, must be covered by the program warranty per 40 CFR 85.1409, because the blower drive gear specified by Engelhard is not part of a standard rebuild for the engine. In general, EPA believes that an emission-related component should be included in a certified "kit" if the component is not part of a standard rebuild for an engine (subject to the rebuild requirements). 5.A. JM notes that the certification word codes (CWC) on the ETX Plus components list are not compliant with the Consent Decree requirements that were agreed upon by the U.S. Justice Department and the engine manufacturer (DDC).

Engelhard states that the consent decree CWC's were not available when the original application was submitted. However, the appropriate CWC will be used.

EPA notes that Engelhard, in its letter to EPA dated June 30, 2000, has provided applicable CWCs for the engines for which the ETX Plus is applicable. EPA notes that no kits are certified that are to be re-programmed with an original certification word code because such software includes programming that EPA considers a defeat device that is prohibited by the Clean Air Act.

#### *B. Potential Safety Concern*

JM has several concerns regarding the use, operation, and durability of the ceramic coated turbocharger that is provided by Engelhard as part of the ETX Plus kit. First, JM states that the ceramic coating will most likely result in higher exhaust temperature in the piping between the turbocharger and the CMX. Higher than normal exhaust temperature could be a fire hazard. EPA should require Engelhard to provide exhaust temperature data for this coated technology to compare to existing engines operating with standard turbochargers, to determine whether

there is a safety hazard. JM suggests that additional insulation may be necessary on the piping and CMX catalytic muffler that are in close proximity to fluid lines, body panels, or the customer compartment.

In response, Engelhard states that only a very small portion of the turbocharger is coated and it is insufficient to produce a change in heat loss of the turbocharger. Also, Engelhard has told EPA that the coating is not designed as a thermal barrier, and that the turbocharger does not significantly change the exhaust temperature. Furthermore, the turbocharger is the same unit as used on the original ETX kit certified earlier as described in the **Federal Register** at 63 FR 50225 on September 21, 1998. In its letter to EPA dated June 30, 2000, Engelhard states that these units have been in-service on urban buses for the last several years without a problem.

EPA believes, as JM also notes, that there may be many different exhaust configurations in the various bus models for the piping between the turbocharger and CMX. Also, regardless of whether the ETX Plus kit is used, the heat radiated from this section of the exhaust system is related to the exhaust pipe configurations, plus other factors that influence engine load, such as passenger loading, terrain, etc. EPA is not convinced that there is a safety concern with the ETX Plus kit, given the description of the coating and the in-service experience to date. Operators with concerns regarding the variations of particular bus models, and the possibility for increased exhaust pipe temperatures, should discuss their concerns with Engelhard. EPA notes that kits are available from other manufacturers if concerns can not be resolved.

### *C. Durability Related to the ETX Plus Kit*

1. JM comments that EPA should be concerned about the actual level of PM attained by Engelhard's technology. It is a well-accepted fact that over time and use, both engine performance as well as catalyst performance will show some level of degradation resulting in an increase in emissions. JM says that the ETX Plus kit functions at a PM level of 0.103 to 0.105 g/bhp-hr which allows for no in-use deterioration. Because of the difficulty and impracticality of testing the performance of in-use kits, the industry would never know if this technology would consistently meet the 0.10 PM standard either initially or after any engine and/or catalyst deterioration.

As noted in other discussion on this subject, EPA is concerned about in-use deterioration. However, in its

comments, JM has neither substantiated a need to account for deterioration, nor determined what that amount or test margin should be. JM has not supplied any data relevant to deterioration of Engelhard's catalysts or on its own catalysts that might be relevant to the CMX-6. EPA's review of its electronic database of new engine certification applications for diesel-fueled, catalyst-equipped, urban bus engines does not support the need to account for PM deterioration. Of the 23 engine families certified since 1997 (EPA's electronic database goes back to model year 1997), 83 percent have deterioration factors of 1.000. This indicates that the engine manufacturers have determined that the over-whelming majority of their urban bus engine systems that use exhaust catalysts will have no measurable PM emissions deterioration over the useful life of these engines. These new urban bus engine families have a PM standard of 0.05 g/bhp-hr and a useful life of 290,000 miles. For the Urban Bus Rebuild Program, the most rigorous PM standard is 0.10 g/bhp-hr, and the emissions performance warranty period (comparable in concept to useful life for new engines) is 150,000 miles. In summary, the Urban Bus Rebuild Requirements do not burden certifiers with a durability demonstration requirement as part of the certification process, but instead rely on the emissions warranties required pursuant to 40 CFR 85.1409, and EPA authorities to decertify per 40 CFR 85.1413, and recall non-compliant certified kits.

JM is correct that it would be difficult to conduct an in-use testing program using the dynamometer test procedure that is used for kit certification. However, EPA expects that its ability to conduct future in-use testing programs may be facilitated by the availability of on-road testing systems such as the ROVER type of system that EPA has developed. ROVER is a mobile measurement system designed to measure exhaust emissions from vehicles under actual in-use conditions. While ROVER is not currently configured to measure emissions for determining compliance of certified kits with the urban bus program, the system has to date been used successfully in several heavy-duty on-road enforcement actions. This or other systems may be applicable to measuring the emissions associated with certified kits in the future.

Pursuant to 40 CFR 85.1413, EPA has authority to decertify equipment for various reasons, including if use of certified equipment is causing urban bus engine emissions to exceed emission requirements for any regulated

pollutant. Further, pursuant to 40 CFR 85.1406(f), Engelhard has agreed in its certification application to notify operators who have installed this equipment and repair the equipment without cost to the operator when EPA determines that a substantial number of the equipment kits, when properly maintained and used, and in actual use throughout the in-use compliance period, do not meet emission requirements.

2. JM has several questions related to durability and the turbocharger of the kit. JM asks how, if it is assumed that the coated turbocharger has a higher than normal exhaust temperature, the temperature will affect durability. JM asks whether the turbocharger will have to be rebuilt prior to 200,000 miles, or lead to quicker degradation of the lubricating oil, or whether the higher temperature will lead to degradation of the turbocharger performance. JM also expresses concerns for the durability of the ceramic coating on the turbocharger. JM suggests that due to the duty cycle of a turbocharger, there are concerns that the coating will not survive. EPA should require Engelhard to demonstrate that the elevated temperature does not affect the durability of the turbocharger, and to provide durability data to demonstrate that the coating will survive over the required 150,000 miles of transit operation.

Engelhard, as noted above in response to an earlier comment, has stated that the turbocharger does not significantly change the temperature of the exhaust.

Additionally, EPA notes that Engelhard, in its letter to EPA dated December 14, 1998, states that the turbocharger in the ETX kit is almost identical to a turbocharger in operation on a revenue-service 6V92 DDEC II bus with over 75,000 miles, and the transit operator is extremely happy with the improved fuel economy and performance due to the installation of the turbocharger. Engelhard also notes that a similar turbocharger operated on a Class 8 tractor trailer test rig utilized by Engelhard for over 150,000 miles with no degradation of performance. While there may be differences in operating cycles, and other factors, EPA believes that this type of in-use durability evaluation is relevant to the general durability of the unit, and therefore supportive of the durability of the turbocharger in the ETX Plus kit.

Moreover, in its letter to EPA dated June 30, 2000, Engelhard notes that the same turbocharger is used in its original ETX kit, which is described in the **Federal Register** on September 21, 1998 (63 FR 50225). Engelhard notes that this

unit has been used on many buses without a problem.

EPA notes that, while the program regulation does not contain specific requirements relating to demonstration of durability, EPA is concerned with equipment durability. This subject is discussed in the preamble to the final rule (at 58 FR 21379; April 21, 1993). Additionally, the regulation at 40 CFR 85.1409 require manufacturers to provide both an emission performance warranty, to extend for a period of 150,000 miles from when kits are installed and, an emission defect warranty, to extend for a period of 100,000 miles. The regulation is clear that EPA maintains the option of performing in-use testing. Based on the information provided by Engelhard, EPA at this point has no reason to request further information regarding durability.

3. JM comments that in the Engelhard letter of December 14, 1998 in response to EPA's question on field data and durability, Engelhard provides inadequate information. Engelhard compares its modified turbocharger to a standard, unmodified DDC turbocharger durability and offers one case for their modified turbocharger with no data to substantiate their claim. Additionally, Engelhard presents durability data from a Cummins B5.9 engine as proof of the durability of the CMX-6 catalytic muffler for transit bus operations. This is not an appropriate comparison for transit operation, because there are significant differences between these two engines and their respective applications. JM states that the information should not be considered evidence of durability for transit operation, and that EPA should require Engelhard to provide similar data from a unit operating on a transit bus before any consideration is given to certifying the ETX kit.

In response, EPA notes (as discussed above) that Engelhard has presented in-use examples relevant to the durability of the turbocharger in the ETX Plus kit. Regarding the CMX-6 catalyst of the ETX-Plus kit, Engelhard states that it is very similar to the current CMX catalysts and standard OEM catalysts. In support of its technology, Engelhard has submitted data from EPA's new engine certification program that indicate no PM deterioration from two 1994 model year engines using Engelhard catalysts. Also submitted are a graphical presentation showing the PM reduction performance over 1,000 hours of an Engelhard catalyst on a 1991 Cummins 5.9 liter engine, and an SAE paper written by Cummins on the durability of Engelhard diesel oxidation catalysts in

use. EPA believes that while these engine/vehicle applications may not be identical to an urban bus, such information is supportive of certification of important components of the ETX Plus kit. EPA at this point has no reason to request further information regarding durability.

4. ECS comments that a turbocharger, as a general design feature, has clearance between the intake compressor, exhaust impeller and housing to allow for expansion and contraction of components due to temperature changes. An abrade-able coating to eliminate clearances may initially improve turbocharger efficiency but as components expand and contract and bearings wear, further abrading of the coating must be expected. Therefore, some definite loss in turbocharger efficiency and increase in PM must occur. ECS believes that this bolsters their comment that the zero emissions deterioration position is not defensible in regard to this application given the nature of the coating and the intended operation of a turbocharger.

Engelhard responds that the break-in of a turbocharger and engine operates the engine at a very high temperature, thus the coated turbocharger will achieve its minimum clearance (thus abrading the maximum amount of coating) during break-in. There will not be any additional loss of coating during operation over the life of the kit. Turbochargers are designed to operate in excess of 300,000 miles before needing to be reconditioned. Bearing wear will be minimal and will have no effect at all on the performance of the coated turbocharger.

EPA has no evidence that the Engelhard turbocharger is any less durable than an original equipment unit. Further, the coated Engelhard turbocharger is part of the certified ETX Plus kit and is therefore covered by the emissions warranty requirement of the program regulations (40 CFR 85.1409).

#### *D. Test Engine*

JM states that EPA should require Engelhard to identify the origin of the 1988 DDC 6V92TA DDEC II test engine to determine whether it was an appropriate choice for testing. Also, the list of components used for the rebuild to the 1988 California DDEC II 277 Hp configuration was not provided in the Engelhard application. EPA should require Engelhard to provide the list.

Engelhard responds that a components list for the engine rebuild was provided previously to EPA but is not relevant to the emissions testing, and the components list (for the ETX

Plus kit) represents the status of the engine for the certification testing.

EPA notes that JM does not indicate why the origin of the test engine is important to determining whether the test engine is an appropriate choice for testing. Similarly, EPA does not know why the earlier (California) engine configuration is relevant to the configuration used for certification testing with the ETX Plus kit, because of the substantial number of parts replaced to generate the ETX Plus configuration. Finally, EPA notes that the components list for the test engine, in its 1988 model year California configuration, is available. This information was provided by Engelhard in conjunction with the Engelhard kit certified earlier to the 0.10 g/bhp-PM standard and described in the **Federal Register** on September 21, 1998 (63 FR 50225). The same engine block (that is, same serial number) was used for all emissions testing. The engine was initially rebuilt to a 1988 California configuration, subsequently rebuilt to a 1991 through 1993 model year DDC DDEC II standard configuration (using a DDC DDEC II upgrade kit), and then finally rebuilt with the ETX Plus rebuild kit. The testing documentation and lists of components used in each of the rebuilds can be found in the public docket A-93-42, category XXV-A, at the address listed above.

#### *E. Kit Compliance*

1. Engine Control Systems (ECS) comments that PM emissions actually exceed the 0.10 g/bhp-hr standard, and that there is therefore no basis for approval of this application. ECS notes that there must be zero emissions deterioration over the 150,000 miles of the emissions warranty requirement, and absolutely zero emission variance between different rebuilt engines. The Engelhard position on the matter does not allow for any emissions variance between different rebuild engines. ECS believes that this position cannot be defended to the transit industry.

EPA appreciates the concerns expressed by ECS. The program regulations require neither multiple certification tests nor durability demonstration. As discussed above, however, Engelhard has met the requirements of the urban bus program. EPA notes that its ability to conduct future in-use testing may be facilitated by the availability of on-road testing systems such as the ROVER type of system that EPA is currently evaluating.

2. JM states that it is their position that an oxidation catalyst, even in combination with a turbocharger that boosts exhaust temperatures above

typical temperatures, will not reduce a large enough portion of both the soluble organic fraction (SOF) and soot particles to reach 0.10 g/bhp-hr over the FTP transient cycle. JM is not convinced that this technology can and will consistently produce emission levels that will meet the 0.10 g/bhp-hr standard. EPA should require Engelhard to provide turbocharger exit temperatures across the FTP cycle, baseline FTP data, and a PM analysis for SOF to allow EPA and catalytic technology experts to assess the true likelihood that this technology can consistently meet the 0.10 PM emission standard. JM submits exhaust emission data from DDC indicating a composite PM level of 0.225 g/bhp-hr for a 1991 6V92TA DDEC II.

Engelhard responds that JM's summation is not correct. The ETX Plus kit includes a blower drive gear and improved turbocharger that dramatically affect the engine-out particulate. Additionally, Engelhard's CMX-6 catalyst is substantially more efficient, so that JM's conclusions are not correct. Engelhard's certification engine was not "tuned" as JM suggests and actually emitted 0.277 g/bhp-hr PM when rebuilt to a baseline 1991 277 hp 6V92 50-State DDEC configuration. After baseline testing, the Engelhard turbocharger, new blower drive gear and CMX-6 catalyst were added to achieve the 0.10 g/bhp-hr standard.

EPA notes that the certification test engine for the ETX Plus kit and the baseline engine emitting 0.277 g/bhp-hr PM is the same engine serial number used for testing of its original ETX kit (the certification of which is described on September 21, 1998 at 63 FR 50225). The 0.277 g/bhp-hr PM level of Engelhard's baseline test engine is on the high side compared to both the data that JM submitted for a 1991 configuration (0.225 g/bhp-hr), and from data supplied by DDC for new engine certification of the 1991 model year 6V92TA DDEC coach (engine family MDD0552FZL1), which shows a level of 0.25 g/bhp-hr. EPA notes that all the parameter data that JM requests is not required by the bus regulation. As noted above, Engelhard states that after baseline testing, the Engelhard turbocharger, new blower drive gear and CMX-6 catalyst was added to achieve the 0.10 g/bhp-hr standard of the urban bus program. In conclusion, Engelhard has demonstrated compliance of the ETX Plus kit with the 0.10 g/bhp-hr standard in accordance with the bus program requirements.

3. JM states that EPA should require Engelhard to provide baseline exhaust emission FTP data on the test engines so

that the initial PM emissions can be part of the overall assessment of the technology. This includes the baseline exhaust emissions for the 1988 California, and the 1991 model year federal engine. JM's concern is whether the baseline emissions are truly representative. JM asks, "Or was exceptional care taken in selection of components and in rebuilding the engine that the actual PM emissions were much lower, so that use of only an oxidation catalyst would reduce PM to 0.103 g/bhp-hr?" EPA should require Engelhard to provide this data to ensure that the test engine is representative.

Engelhard states that such information is not required for certifications because Engelhard is certifying the kit to a certain standard rather than a specific amount of reduction versus a baseline engine.

EPA notes that the emissions data that Engelhard presents in its certification application (signed November 17, 1998) demonstrates compliance with the 0.10 g/bhp-hr standard in accordance with section 85.1406(a). Additional hot start test data complying with the 0.10 g/bhp-hr PM standard is provided in Engelhard's letter to EPA dated December 14, 1998 (supporting documentation for this test is provided in the June 30, 2000 letter to EPA). While multiple tests, including testing of different stages of engine rebuild or different engine configurations, might provide additional comfort regarding the ability of a kit to meet standards, the regulations do not require this level of scrutiny. Indeed, it might be edifying to EPA and others to know the emissions reduction associated with each component of a kit. However, the program regulations are not intended to impose such a burden on a kit certifier. Additionally, as noted previously, EPA has made "baseline" engine emissions data available in Table 1 above.

4. JM states that Engelhard should submit baseline data for the 1988 California engine because it is essential to determine whether an oxidation catalyst can theoretically reduce emission on this engine below 0.10 g/bhp-hr level. Also, the selection of a California engine is inappropriate for comparison of fuel economy penalties for Federal engines because the 1988 California NO<sub>x</sub> standard (6.0 g/bhp-hr) is lower than the standard (10.7 g/bhp-hr) for federal engines. An engine operating with lower NO<sub>x</sub> has higher fuel consumption. By using a baseline engine with high fuel consumption, Engelhard would be able to show a lower fuel penalty when comparing the performance of the ETX kit. EPA should require Engelhard to provide a baseline

test of a federal engine for both the 1988—1990 model configuration as well as the 1991—1993 configuration in addition to the California baseline.

Engelhard responds that the baseline is not relevant because Engelhard is certifying a complete rebuild kit that essentially creates a new engine.

EPA notes that there is no specific regulatory requirement to submit data for fuel consumption comparison because Engelhard is not certifying the ETX Plus kit to life cycle cost requirements. However, this information is available for the certification test engine and when the (same serial number) engine was tested as a 1991 model year and 1988 model year California configurations. This data is provided in Table 1 above.

5. JM notes that the calculated PM level, when rounded to three places past the decimal, is 0.103 g/bhp-hr. JM argues that, while rounding is an acceptable practice, rounding off a number that is higher than the specific emissions standard is unacceptable because the standard was not achieved. EPA notes that the relevant PM standard for the Urban Bus Rebuild Program, as stated at 40 CFR 85.1403(b), is 0.10 g/bhp-hr. It is EPA's practice, in the context of its programs measuring exhaust emissions, to use the "rounding-off method" stated in American Standards and Testing and Materials (ASTM) Practice E29 entitled "Using Significant Digits in Test Data to Determine Conformance with Specifications." According to this method, the numeric value of the bus program PM standard (0.10) expresses an implied level of precision (that is, two places beyond the decimal point) to which emission calculations are rounded in order to compare to the standard to determine compliance. Therefore, the calculated value of the test data produced for Engelhard's ETX Plus kit (0.103 g/bhp-hr) rounds to 0.10 g/bhp-hr, and this rounded test result complies with the urban bus program standard of 0.10 g/bhp-hr.

6. JM notes that the Engelhard certification testing completed in May 1998 was done on an engine having piston ring set 23522064 (DDC part number). This ring set was superseded by DDC in January 1999 with a piston ring set with DDC part number 23524349. In a telefax to EPA dated September 15, 1998, DDC indicated that this new ring set includes a grooved fire control ring for improved lubrication and states that the new ring carries more oil to the cylinder walls resulting in an increase in oil consumption of 21 percent. (This telefax from DDC to EPA is attached to JM's comments to EPA



dated June 14, 1999.) In the telefax, DDC calculates that the increase in oil consumption will cause an increase in PM by an average of 0.002 g/bhp-hr. JM estimates that the PM increase will be higher from the increased oil consumption than is presented because the Engelhard engine is a 1991 model year and its base emissions are higher than that used in the DDC calculations. JM calculates that with the minimum increase of 0.002 g/bhp-hr, the ETX Plus kit with the new ring set will emit at a PM level of 0.105 g/bhp-hr. JM rounds this to 0.11 g/bhp-hr, and states this clearly does not meet the 0.10 g/bhp-hr standard.

Engelhard responds with a calculation, concluding that the increase in PM due to additional oil consumption would be impossible to measure. However, EPA believes that Engelhard has incorrectly assumed that the 0.002 g/bhp-hr is an engine-out increase. Instead, the 0.002 g/bhp-hr value was calculated in an engineering analysis performed by DDC as an average increase in catalyst-out total PM, for the catalysts of three different manufacturers.

EPA notes that DDC's revised cylinder kit (part number 23524343) is for use in the DDC rebuild kits for both DDEC and MUI engines, and expects that the cylinder kits will be also be used in engines rebuilt with the ETX Plus kit. Therefore, EPA believes that the calculations of the DDC engineering analysis that JM references, are relevant to the ETX Plus kit. In its analysis, DDC calculates the increase in catalyst-out PM from its 0.10 kit, due to the increased oil consumption with the new cylinder kit. DDC assumes that the additional oil consumption results in an increase only in the soluble organic fraction (SOF) of the total PM, that the exhaust catalyst will oxidize most of this additional SOF, and that the fuel-derived and soot components of the total PM are not affected by the revised cylinder kit changes. Therefore, EPA knows of no reason why the magnitudes calculated in the DDC analysis would not apply to the Engelhard engine, even though it is configured basically to a 1991 model year. The DDC analysis calculates the total catalyst-out PM increases associated with the catalytic converters of three different manufacturers that might be used with the DDC kit. When the highest catalyst-out PM increase (that is, that associated with the catalyst having the lowest PM conversion efficiency—22 percent) is added to the total PM of the ETX Plus kit (0.103 g/bhp-hr from the Engelhard certification testing), the total PM for the ETX Plus kit is estimated to be 0.105 g/

bhp-hr. While EPA does not know the conversion efficiency of the CMX-6 catalytic muffler unit of the ETX Plus kit, EPA expects it to be greater than the 22 percent conversion efficiency used in the DDC analysis for the catalyst with the lowest efficiency. In accordance with the ASTM E29 rounding practice referenced above, the rounded value of 0.105 g/bhp-hr for the ETX Plus kit complies with the urban bus program standard of 0.10 g/bhp-hr. Therefore, the ETX Plus kit when used in conjunction with an engine rebuild using the DDC's new piston ring set, will still meet the 0.10 g/bhp-hr standard.

7. JM notes that Engelhard submitted exhaust emission data for a hot-start test that showed a total PM measurement of 0.098 g/bhp-hr. JM states that EPA should require Engelhard to submit the formal data sheet from the test lab before it is used as part of any assessment of the technology. Also, JM notes that it results in a composite FTP PM level of 0.101 g/bhp-hr (presumably when combined with the cold-start test data from the certification test) to which the minimum value of 0.002 g/bhp-hr PM (the increase from the piston ring set change) must be added. JM states that this results in a final PM level of 0.103 g/bhp-hr that clearly does not meet the requirement for a 0.1 PM standard.

EPA notes that Engelhard, in its letter to EPA dated June 30, 2000, has submitted the formal data sheet from the test laboratory, for the additional hot-start test data. This hot-start data is submitted by Engelhard in support of its previously-submitted certification test data (which consists of cold and hot-start test data). Additionally, while Engelhard has not provided any cold start test data associated with the additional hot-start test, EPA notes that the "final PM level" of 0.103 g/bhp-hr mentioned by JM, if rounded per ASTM Practice E29 as has been discussed above, would be in compliance with the urban bus program standard for PM of 0.10 g/bhp-hr.

#### F. Other Comment

ECS comments that Engelhard has told EPA of Engelhard's intent to withdraw their original 0.10 DDEC II kit (the certification of which is described in the **Federal Register** on September 21, 1998 at 63 FR 50225) from the Urban Bus Program. ECS asks whether Engelhard will guarantee to offer the ETX Plus kit for actual sale to the transit industry. ECS suggests that applicants who have no intention to offer products for sale to the transit industry obviously have other commercial reasons for the application, and that EPA should deny certification to applicants that have no

intention to offer the products for sale to the transit industry. Applications for kits that will not be offered for sale are a misuse of the Urban Bus Program. Such applications dilute the EPA's ability to expedite other certification applications. Also, such dilution can result in undue financial hardship to other serious applicants and an unnecessary delay of competitive products to the marketplace.

EPA notes that the program regulations require, for kits certified to life cycle cost requirements, that a certifier guarantee to offer the kit for sale to all operators for less than the applicable life cycle cost. Such information is required, pursuant to 40 CFR 85.1407, only to trigger the program standard of 0.10 g/bhp-hr for applicable engines. Providing life cycle cost information is optional and the related guarantee is not specifically required from certifiers that do not intend their kit to trigger an emission standard.

Engelhard has not provided this information for the ETX Plus kit, but EPA has no reason to suspect that Engelhard will not offer the ETX Plus kit to the transit industry. However, EPA agrees with ECS that the urban bus program is intended to certify kits that are to be sold to the transit industry for use on urban bus engines.

#### IV. California Engines

The NO<sub>x</sub> emission standard for new engine certification applicable to 1988 through 1990 model year engines sold in the State of California is 6.0 g/bhp-hr. For 1991 through 1993, the standard is 5.0 g/bhp-hr. The emissions testing presented by Engelhard demonstrate a NO<sub>x</sub> emissions level that complies with the 5.0 g/bhp-hr standard. Therefore, today's certification of the ETX Plus kit for DDEC II engines applies to DDEC II engines certified to meet California emissions standards.

The kit certified today may require additional review by the California Air Resources Board (CARB) before use in the State of California. EPA recognizes that special situations may exist in California that are reflected in the unique emissions standards, engine calibrations, and fuel specifications of the State. While requirements of the federal urban bus program apply to several metropolitan areas in California, EPA understands the view of CARB that a kit certified under the urban bus program, to be used in California, must be provided with an executive order exempting it from the anti-tampering prohibitions of that State. Parties interested in additional information should contact the Aftermarket Part Section of CARB, at (818) 575-6848.



## V. Certification

EPA has reviewed this application, along with comments received from interested parties, and finds the ETX Plus kit described in the Engelhard application and other relevant documents:

(1) Complies with a PM emissions standard of 0.10 g/bhp-hr, without causing the applicable engine families to exceed other applicable emission requirements;

(2) Will not cause an unreasonable risk to the public health, welfare or safety;

(3) Will not result in any additional range of parameter adjustability; and

(4) Meets other requirements necessary for certification under the Urban Bus Rebuild Requirements (40 CFR Sections 85.1401 through 85.1415).

EPA hereby certifies this kit for use in the Urban Bus Retrofit/Rebuild Program. The equipment, the ETX Plus™ Emissions Rebuild Kit, may be used immediately by urban bus operators subject to the Urban Bus Rebuild Requirements.

## VI. Urban Bus Operator Responsibilities

Today's **Federal Register** document announces certification of the above-described Engelhard kit, when properly applied, as meeting the 0.10 g/bhp-hr PM standard of the Urban Bus Rebuild Requirements, for urban bus engines certified as meeting either federal and California emissions standards. Affected urban bus operators that choose to comply with compliance program 1 are required to use this or another kit that is certified to meet the 0.10 g/bhp-hr PM standard, for any engines listed in Table 2 which are rebuilt or replaced after the applicable deadline, as discussed below.

The 0.10 g/bhp-hr PM standard was triggered on September 21, 1998. As described in a **Federal Register** notice on September 21, 1998 (63 FR 50225), EPA certified the ETX-2002™ Emissions Rebuild Kit supplied by the Engelhard Corporation. The ETX kit applies to 1988 through 1993 model year Detroit Diesel Corporation 6V92TA DDEC II engines having electronic fuel control and rated at either 253 or 277 horsepower (hp). That certification means that transit operators using compliance program 1 must use rebuild kits certified to the 0.10 standard when rebuilding or replacing the applicable engines after March 22, 1999 (that is, 6 months after September 21, 1998).

The September 21, 1998 **Federal Register** notice states that certification of Engelhard's ETX kit, as it applies to engines of model years 1988 through

1990, is conditional pending demonstration by Engelhard that any replacement engine control module (ECM) or any replacement ECM program used in conjunction with the kit would not adversely impact the emissions of NO<sub>x</sub>. In a letter dated March 2, 1999, to Engelhard, EPA stated that the conditional status was removed and that the ETX kit can be used by transit operators in compliance with the requirement of the rebuild program. In a letter dated March 29, 1999 from EPA's Assistant Administrator for Enforcement and Compliance Assurance to Santa Clara Valley Transportation Authority, EPA stated that due to confusion surrounding the conditional certification, it will not take action against an operator who does not install 0.10 kits between March 22, 1999 and May 21, 1999. Further, EPA stated in the letter that it will extend this period of no action past May 21, 1999, if the general counsel for a bus operator certifies in writing to EPA that it has exercised due diligence since September 21, 1998, to procure the necessary 0.10 kits, but could not obtain them in time to begin installing 0.10 kits by May 22, 1999. In no event will the period of no action be longer than September 1, 1999. A copy of this letter is located in docket XXV-A located at the above address.

Urban bus operators who choose to comply with compliance program 2 may use the certified Engelhard kit, and those who use this kit may claim the respective PM certification level from Table 2 when calculating their Fleet Level Attained (FLA).

Urban bus operators must be aware of their responsibility for maintenance of records pursuant to 40 CFR Sections 85.1403 through 85.1404. The ETX Plus kit may not include, depending upon model year of the applicable engine, fuel injectors, engine camshafts, cylinder kits, or ECM software. As stated in the Urban Bus Rebuild Requirements (40 CFR 85.1401 through 85.1415), operators should maintain records for each engine in their fleet to demonstrate that they are in compliance with the Urban Bus Rebuild Requirements beginning on January 1, 1995. These records include purchase records, receipts, and part numbers for the parts and components used in the rebuilding of urban bus engines. Urban bus operators must be able to demonstrate that all components used in the rebuilding of engines are in compliance with program requirements. In other words, urban bus operators must be able to demonstrate that all required components of the kit certified

in today's **Federal Register** document are installed on applicable engines.

Dated: September 8, 2000.

**Robert Perciasepe,**

*Assistant Administrator for Air and Radiation.*

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## ENVIRONMENTAL PROTECTION AGENCY

[FRL-6870-3]

### Retrofit/Rebuild Requirements for 1993 and Earlier Model Year Urban Buses; Certification of Equipment on the Basis of Life Cycle Cost Criteria

**AGENCY:** Environmental Protection Agency (EPA)

**ACTION:** Notice of certification by EPA of equipment on the basis of compliance with the life cycle cost criteria of the Urban Bus Rebuild Requirements.

**SUMMARY:** In accordance with 40 CFR 85.1407(c), this notice announces the decision of EPA to expand the certification of certain equipment to include compliance with the life cycle cost criteria of the Urban Bus Rebuild Program (40 CFR Part 85, Subpart O).

A **Federal Register** notice dated December 3, 1998 (63 FR 66798) announced that EPA certified the JM CCT™ Upgrade Kit to comply with the 0.10 g/bhp-hr particulate matter (PM) standard of the Urban Bus Rebuild Program. The kit is applicable to 1985 through 1993 model year Detroit Diesel Corporation (DDC) 6V92TA DDEC II urban bus engines having electronic control of fuel injection. That certification is not based on the optional compliance with life cycle cost criteria of the program.

In documents dated January 26, 1999, JM provided life cycle cost information to EPA for the CCT kit, as it applies to engines of model years 1988 through 1993. A **Federal Register** notice (64 FR 11864) dated March 10, 1999, announced that EPA had received the cost information and made it available for public review, and asked for public comment. EPA has reviewed JM's life cycle cost information as well as the comments received, and with today's **Federal Register** notice is expanding certification of the JM equipment to include compliance with the life cycle cost criteria.

Today's **Federal Register** notice announces that JM's certification is expanded to include compliance with the life cycle cost criteria, and would therefore serve to "trigger" the 0.10 g/