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## ENVIRONMENTAL PROTECTION AGENCY

### 40 CFR Part 85

[FRL-6352-1]

#### Retrofit/Rebuild Requirements for 1993 and Earlier Model Year Urban Buses; Status of Equipment Certified and Emissions Levels to be Used by Operators Using Compliance Option 2

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

**ACTION:** Notice of availability.

**SUMMARY:** In an amendment (63 FR 14626, March 26, 1998) to the rule regarding retrofit/rebuild requirements for 1993 and earlier model year urban buses, EPA stated that it would review retrofit/rebuild equipment that was certified by July 1, 1998 and publish the post-rebuild particulate matter (PM) emission levels for urban bus engines affected by the program. Post-rebuild levels are used by operators for calculating target emission levels of their fleets under compliance Option 2. Today's **Federal Register** document fulfills EPA's obligation to review equipment certified by July 1, 1998, and to publish the post-rebuild PM levels.

**DATES:** This document is effective as of June 8, 1999.

**ADDRESSES:** This document, as well as other materials relevant to the final rule, is contained in Public Docket A-91-28. This docket is located in room M-1500, Waterside Mall (ground floor), U.S. Environmental Protection Agency, 401 "M" Street, SW, Washington, DC 20460.

Dockets may be inspected from 8:00 am until 5:30 p.m., Monday through Friday. As provided in 40 CFR Part 2, a reasonable fee may be charged by the Agency for copying docket materials.

**FOR FURTHER INFORMATION CONTACT:** William Rutledge, Engine Programs and Compliance Division (6403J), U.S. Environmental Protection Agency, 401 M Street SW, Washington, D.C. 20460. Telephone: (202) 564-9297. Email: RUTLEDGE.WILLIAM@EPA.GOV.

#### SUPPLEMENTARY INFORMATION:

##### I. Background

Section 219(d) of the Clean Air Act requires EPA to promulgate regulations that require certain 1993 and earlier model year urban buses having engines replaced or rebuilt after January 1, 1995, to comply with an emission standard or control technology reflecting the best

retrofit technology and maintenance practices reasonably achievable. On April 21, 1993, EPA published the final Retrofit/Rebuild Requirements for 1993 and Earlier Model Year Urban Buses (58 FR 21359).

The Urban Bus Retrofit/Rebuild Program requires affected operators of urban buses to choose between two compliance options. Option 1 establishes particulate matter (PM) emissions requirements for each urban bus in an operator's fleet whose engine is rebuilt or replaced. These requirements are to be met by the use of certified PM-reducing equipment. Option 2 is a fleet averaging program that specifies annual target levels for average PM emissions from all the pre-1994 model year urban buses in an operator's fleet. The April 1993 final rule states that EPA will determine post-rebuild levels to be used by operators for calculating their target fleet emission levels under the Option 2 averaging program. These emission levels are to be linked to equipment that is certified for use under compliance Option 1 and that meets an appropriate maximum life cycle cost requirement. The linkage of Option 2's post-rebuild levels to equipment certified under Option 1 assures that the two compliance options will produce equivalent emissions reductions.

The final rule divided Option 2 into two phases, the first applicable to the calculations of target fleet emission levels for calendar years 1996 and 1997, and the second applicable to the calculations for 1998 and thereafter. In the preamble to the final rule, EPA stated that it would review the retrofit/rebuild equipment that was certified by July 1, 1994 and again by July 1, 1996, and publish the respective post-rebuild emission levels for urban bus engines affected by the program. These reviews and updates of post-rebuild levels were necessary because EPA expected increasing numbers of kits to be certified as the program progressed, but as stated in the preamble to the final rule, EPA believed that all equipment likely to be available under the program would be certified by July 1, 1996. EPA first published post-rebuild levels based on equipment certified by July 1, 1994 in a **Federal Register** document dated September 2, 1994 (59 FR 45626). EPA subsequently updated the post-rebuild levels, based on equipment certified by July 1, 1996, in a **Federal Register** document dated August 16, 1996 (61 FR 42764).

In an amendment to the rule (63 FR 14626; March 26, 1998), EPA provided for the review of equipment certified by July 1, 1998, and the corresponding

revision of the post-rebuild levels as necessary. This amendment was necessary because certification of equipment was not proceeding at the pace originally expected, and EPA had certified several kits to the 0.10 g/bhp-hr standard after July 1996 that could not influence the post-rebuild levels revised in the August 16, 1996 **Federal Register** document. Today's corresponding post-rebuild level revision is necessary to assure that the two program compliance options remain equivalent in terms of emissions reductions. No further updates of the post-rebuild levels are contemplated, because most of the affected buses are expected to be retired from the fleet roughly by year 2008.

Today's **Federal Register** document fulfills EPA's obligation to review equipment certified by July 1, 1998, and to update the post-rebuild PM levels accordingly. The emission levels contained in today's document must be used by transit operators using Option 2 for determining their Target Level for the Fleet (TLF) for calendar years 2000 and thereafter, in accordance with 40 CFR 85.1403(c)(1)(iv). Operators using Option 2 are expected to take fleet actions no later than calendar year 1999 to ensure compliance with their TLF beginning in calendar year 2000.

Publication of today's document was delayed pending outcome of an Agency investigation concerning electronically-controlled engines equipped by the original manufacturers with strategies designed to decrease fuel consumption during certain driving modes that are not substantially included in the federal test procedure. The effect of such strategies is to substantially increase NOx emissions during these modes. Such electronic control strategies are considered by the Agency to be "defeat devices" as defined at 40 CFR 86.094-22, and thus would violate 40 CFR 85.1406 and 85.1408 if included in an urban bus retrofit application.

As a result of our concern about the harmful effect of these defeat devices, certification of kits designed to meet the 0.10 g/bhp-hr standard which happened to include these defeat devices, was made conditional. The conditions have been removed following the implementation of revisions to the fuel injection timing strategy of the kits to deal with the NOx emissions issue.

##### II. Review of Certified Equipment and Program Requirements

As of July 1, 1998, several equipment kits have been certified for 6V92TA engine models (both MUI and DDEC II) to meet the 0.10 g/bhp-hr standard for less than the applicable life cycle cost

requirement (\$7,940 in 1992 dollars). Other equipment has been certified for one engine model to meet the 25 percent reduction standard for less than the applicable life cycle cost requirement (\$2,000 in 1992 dollars). The following briefly describes these equipment kits. The reader is directed to the referenced **Federal Register** cites for more information regarding the individual kits. In general, the following describes equipment certified between July 1, 1996 and July 1, 1998 to comply with either the 25 percent reduction or 0.10 g/bhp-hr standard, and to meet the appropriate life cycle cost requirements. A list of other equipment certified for the urban bus rebuild program is available from the contact listed above.

**A. Engelhard Corporation's ETX™ Rebuild Kit for MUI Engines**

Engelhard Corporation's ETX™ rebuild kit is the first kit certified to comply with both the 0.10 g/bhp-hr PM standard and the life cycle cost requirements. It applies to 1979 through 1989 model year Detroit Diesel Corporations 6V92TA MUI (mechanical unit injector) engines. Certification of the kit is described in a **Federal Register** document dated March 14, 1997 (62 FR 12166). The technology consists of an engine rebuild "upgrade" kit, a catalytic converter-muffler, and a proprietary coating (referred to as the GPX-5m) applied to piston crowns and cylinder head combustion chambers. The engine upgrade portion of the kit includes cylinder kits, cylinder heads, camshafts, turbocharger, blower and drive gear, fuel injectors, and gasket kit. This equipment triggered program requirements for the applicable engines under compliance Option 1.

Since certification of the ETX kit, competing kits, provided by both Johnson Matthey, Incorporated (JMI) and Detroit Diesel Corporation (DDC), have been certified to the 0.10 g/bhp-hr standard for these engines. The Johnson Matthey kit is described in a **Federal Register** document dated November 6, 1997 (62 FR 60079) and the Detroit Diesel kit is described in a document dated May 14, 1998 (63 FR 26798). An application submitted by Turbo-Dyne

Incorporated has been summarized in the **Federal Register** (64 FR 19151; April 19, 1999) and is available for a 45-day public review period.

**B. Engelhard Corporation's ETX Rebuild Kit for DDEC Engines**

The Engelhard ETX rebuild kit for DDEC engines has similarities to the above-noted ETX kit for MUI engines, and is applicable to 1988 through 1993 model year, federal and California 6V92TA engines equipped with Detroit Diesel Electronic Control (DDEC). The kit is designed to update all DDEC engines to either 253 or 277 horsepower. The ETX kit uses many of the components of the DDC 6V92TA DDECII engine upgrade kit, along with an exhaust catalytic muffler, proprietary engine coatings on the cylinder head fire deck and piston crown, and an improved turbocharger. The kit is certified to comply with the 0.10 g/bhp-hr PM standard and is available for less than the life cycle cost limit of \$7,940 (in 1992 dollars).

Certification of the DDEC ETX kit is described in a **Federal Register** document published on September 21, 1998 (63 FR 50225). This equipment triggered program requirements for operators using Option 1 to use equipment certified to the 0.10 g/bhp-hr standard when rebuilding or replacing the applicable engines on or after March 21, 1999.

EPA has also certified other kits to the 0.10 g/bhp-hr standard for the 6V92TA DDECII engines. Certification of a JMI CCT upgrade kit was announced in the **Federal Register** on December 3, 1998 (63 FR 66798), and certification of a DDC kit was announced on February 26, 1999 (64 FR 9500).

**C. Engelhard Corporation's CMX Catalytic Muffler for Cummins' L10 EC**

EPA certified the Engelhard CMX catalytic muffler to reduce PM emissions by 25 percent for 1992—1993 model year Cummins L10 EC (electronically controlled) engines. This certification was announced in a **Federal Register** document dated March 20, 1998 (63 FR 13660). This equipment triggers the 25 percent reduction

standard for these engines under option 1 when rebuilt or replaced on or after September 21, 1998.

Currently, no other equipment has been certified under the urban bus program for these Cummins engines.

EPA has reviewed all equipment certified as of July 1, 1998. Table 1 lists the post-rebuild PM emission level for engine models affected by program regulations. In accordance with section 85.1403(c)(1)(iii), EPA selected 0.10 g/bhp-hr for the post-rebuild level if those engine models had equipment certified by July 1, 1998 to meet both the 0.10 g/bhp-hr standard and life cycle cost requirements. For those engine models for which no equipment was certified to the 0.10 g/bhp-hr standard as having complied with the applicable life cycle cost requirements by July 1, 1998, but for which equipment was certified by July 1, 1998 to meet the 25 percent reduction standard and to meet those applicable life cycle cost requirements, EPA selected as the lowest post-rebuild emission level (greater than 0.10 g/bhp-hr) certified for such equipment. For those engine models for which no equipment was certified by July 1, 1998, as meeting either the 25 percent or 0.10 g/bhp-hr emissions standards and life cycle cost requirements, the post-rebuild level has been selected to be equal to the pre-rebuild level as listed in 40 CFR 85.1403(c)(1)(iii). For engine models with a pre-rebuild level below 0.10 g/bhp-hr, the post-rebuild level has been selected to be equal to the pre-rebuild level listed in 40 CFR 85.1403(c)(1)(iii)(A).

Transit operators complying with Option 2 must use the applicable post-rebuild PM levels shown in Table 1 to calculate their TLF for calendar year 2000 and thereafter. The determination of which emission level (pre-rebuild or post-rebuild level) to use in the calculations must be made in accordance with 40 CFR 85.1403(c)(1)(iv), as amended on March 26, 1998. EPA will revise the instructions for the spreadsheet to reflect the new post-rebuild levels discussed in today's document. The instructions are available upon request from the contact listed above.

TABLE 1.—PM POST-REBUILD LEVELS (G/BHP-HR) FOR CALCULATING TLFs FOR CALENDAR YEAR 2000 AND THEREAFTER<sup>1</sup>

Engine model	Model year	Pre-rebuild level	Post-rebuild level <sup>2</sup>	Engine code	Engine family
DDC 6V92TA MUI .....	1979–87 .....	0.50 .....	0.10 .....	All ≤ 293 Hp .....	All.
	1988–1989 .....	0.30 .....	0.10 .....	All ≤ 293 Hp .....	All.
DDC 6V92TA DDEC I	1986–89 .....	0.30 .....	0.23 .....	All .....	All.
DDC 6V92TA DDEC II	1988–91 (w/out trap)	0.31 .....	0.10 .....	253 & 277 Hp .....	All.
	1992–93 (w/out trap)	0.25 .....	0.10 .....	253 & 277 Hp .....	All.
	1993 (w/ PM trap) ....	0.07 .....	0.07 .....	All .....	All.
DDC Series 50 .....	1993 .....	0.16 .....	0.16 .....	All .....	All.

TABLE 1.—PM POST-REBUILD LEVELS (G/BHP-HR) FOR CALCULATING TLFs FOR CALENDAR YEAR 2000 AND THEREAFTER<sup>1</sup>—Continued

Engine model	Model year	Pre-rebuild level	Post-Rebuild level <sup>2</sup>	Engine code	Engine family
DDC 6V71N .....	1973–87 .....	0.50 .....	0.38 .....	All .....	All.
DDC 6V71N .....	1988–89 .....	0.50 .....	0.38 .....	All .....	All.
DDC 6V71T .....	1985–86 .....	0.50 .....	0.38 .....	All .....	All.
DDC 8V71N .....	1973–84 .....	0.50 .....	0.38 .....	All .....	All.
DDC 6L71TA .....	1990 .....	0.59 .....	0.59 .....	All .....	All.
DDC 6L71TA .....	1988–89 .....	0.31 .....	0.23 .....	All .....	All.
DDC 6V71TA DDEC ..	1990–91 .....	0.30 .....	0.23 .....	All .....	All.
DDC 8V92TA .....	1979–87 .....	0.50 .....	0.38 .....	All .....	8V92TA.
	1988 .....	0.39 .....	0.29 .....	All .....	8V92TA.
DDC 8V92TA DDEC ..	1988 .....	0.41 .....	0.31 .....	All .....	8V92TA–DDEC II.
DDC 8V92TA .....	1989 .....	0.47 .....	0.35 .....	9E70 .....	KDD0736FW89.
DDC 8V92TA .....	1989 .....	0.39 .....	0.29 .....	9A90 .....	KDD0736FW89.
DDC 8V92TA .....	1989 .....	0.34 .....	0.26 .....	9G85 .....	KDD0736FW89.
DDC 8V92TA DDEC ..	1989 .....	0.41 .....	0.31 .....	1A .....	KDD0736FZH4.
DDC 8V92TA .....	1990 .....	0.47 .....	0.35 .....	9E70 .....	LDD0736FAH9.
DDC 8V92TA DDEC ..	1990 .....	0.49 .....	0.37 .....	1A .....	LDD0736FZH3.
DDC 8V92TA DDEC ..	1991 .....	0.25 .....	0.19 .....	1A or 5A .....	MDD0736FZH2.
DDC 8V92TA DDEC ..	1992–93 .....	0.21 .....	0.16 .....	1D .....	NDD0736FZH1 & PDD0736FZH X.
DDC 8V92TA DDEC ..	1992–93 .....	0.29 .....	0.22 .....	6A .....	NDD0736FZH 1 & PDD0736FZH X.
DDC 8V92TA DDEC ..	1992–93 .....	0.20 .....	0.15 .....	5A .....	NDD0736FZH 1 & PDD0736FZH X.
DDC 8V92TA DDEC ..	1992–93 .....	0.25 .....	0.19 .....	1A .....	NDD0736FZH 1 & PDD0736FZH X.
CUMMINS L–10 .....	1985–1987 .....	0.65 .....	0.34 .....	All .....	All.
	1988–1989 .....	0.55 .....	0.34 .....	All .....	All.
	1990–1992 .....	0.46 .....	0.34 .....	All .....	All.
L–10EC .....	1992 .....	0.25 .....	0.19 .....	All .....	All.
Cummins L–10 EC w/trap.	1993 .....	0.05 .....	0.05 .....	All .....	All.
Alternatively-Fueled Engines.	pre–1994 .....	0.10 .....	0.10 .....	All .....	All.
Other Engines .....	pre–1988 .....	0.50 .....	0.50 .....	All .....	All.
	1988–1993 .....	Cert'n Level <sup>3</sup> .....	Cert'n Level <sup>3</sup> .....	All .....	All.

<sup>1</sup> In accordance with 40 CFR 85.1403(c)(1)(iv).

<sup>2</sup> The instructions for the spreadsheet list these levels as post-rebuild-3 levels. The instructions are available upon request from the contact listed above.

<sup>3</sup> Use the certification level determined under EPA's new engine certification program.

An urban bus operator choosing to comply with Option 2 must be able to demonstrate at all times in a specified year that its fleet level attained (FLA) is equal to or less than its TLF for that year. Using the formulas in 40 CFR 85.1403(c)(1) and the PM emissions levels (including the above post-rebuild levels) in accordance with section 85.1403(a)(1)(iv), operators choosing Option 2 must calculate their TLF for calendar year 2000 and thereafter. The FLA is calculated using the formula of 40 CFR 85.1403(c)(2) and the certification level of the specific equipment installed on each bus. In order to ensure it is in compliance with its TLF at the start of calendar year 2000 and thereafter, transit operators choosing to comply with Option 2 are expected to begin taking appropriate actions (such as installing certified equipment and/or retiring buses) no later than calendar year 1999.

Dated: May 21, 1999.  
**Robert Perciasepe,**  
*Assistant Administrator for Air and Radiation.*  
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**ENVIRONMENTAL PROTECTION AGENCY**

**40 CFR Part 136**

[FRL–6354–3]

RIN 2040–AD07

**Guidelines Establishing Test Procedures for the Analysis of Pollutants; Measurement of Mercury in Water (EPA Method 1631, Revision B); Final Rule**

**AGENCY:** Environmental Protection Agency (EPA).  
**ACTION:** Final rule.

**SUMMARY:** This final regulation amends the “Guidelines Establishing Test Procedures for the Analysis of Pollutants” under section 304(h) of the Clean Water Act by adding EPA *Method 1631, Revision B: Mercury in Water by Oxidation, Purge and Trap, and Cold Vapor Atomic Fluorescence Spectrometry*. EPA Method 1631 measures mercury at the low levels associated with ambient water quality criteria (WQC). EPA has promulgated WQC for mercury at 12 parts-per-trillion (ppt) in the National Toxics Rule, and published a criterion for mercury at 1.3 ppt in the Water Quality Guidance for the Great Lakes System. The version of Method 1631 promulgated today includes changes to the method based on public comments at proposal (63 FR 28867, May 26, 1998). These changes increase measurement reliability at WQC levels. EPA recommends the use of clean sampling and laboratory techniques in conjunction with EPA Method 1631 to preclude contamination