State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER A-21-159

Relating to Certification of New Heavy-Duty Motor Vehicle Engines

CUMMINS ENGINE COMPANY, INC.

WHEREAS, sections 43100 and and 43102 of the Health and Safety Code authorize the Air Resources Board (ARB or Board) to certify new motor vehicles and new motor vehicle engines if the vehicles and engines meet the emission standards adopted by the Board pursuant to section 43101 in accordance with the test procedures adopted by the Board pursuant to section 43104;

WHEREAS, section 43105 of the Health and Safety Code authorizes the ARB to require any manufacturer to take corrective action as specified by the Board in the event any new motor vehicle or engine fails to meet the emission standards during the vehicle's or engine's useful life;

WHEREAS, section 39515 and 39516 of the Health and Safety Code authorize the Executive Officer to establish the necessity for and scope of the corrective actions which may be required of a manufacturer for violations of an emission standard in accordance with regulations of the Board;

WHEREAS, the Board has adopted regulations pertaining to in-use vehicle recalls and other corrective action in Title 13 California Code of Regulations (CCR) sections 2111 through 2149;

WHEREAS, the Cummins Engine Company, Inc. (Cummins) experienced repeated failures of the particulate matter (PM) trap on a substantial percentage of 1992 and 1993 model-year urban bus engines, specifically engine families NCE0611FZE5 and PCE0611F2E3, which caused the engines to violate California PM emission standard during the engine's useful life of 290,000 miles, as specified in 13 CCR section 2112(1)(7);

WHEREAS, in accordance with 13 CCR section 2113 and as a result of ongoing discussions with the ARB, Cummins submitted a voluntary recall plan to correct the nonconformity to the Executive Officer for approval;

WHEREAS, section 2130 of Title 13 CCR permits a manufacturer who cannot correct a sufficient number of vehicle or take other measures to bring an engine family into compliance with applicable emission standards in response to an ordered recall, to propose mitigation measures to offset the emissions of the noncomplying vehicles, provided the reductions from the recalled and repaired engines plus the mitigation measures ensure a net air quality benefit; are real and verifiable; and are implemented in a timely manner;

WHEREAS, sections 39600 and 43105 confer upon the Executive Officer the authority to approve a combination of vehicle recall and repair to correct the nonconformity and other mitigation measures to ensure that a net air quality benefit will result from a voluntary recall along the lines of the model set forth in 13 CCR section 2130;

WHEREAS, the Executive Officer finds:

1. Failure of the PM trap system on the affected 1992 and 1993 model-year engine families is likely to cause a substantial number of the urban buses to violate the applicable PM emission standard during their useful lives.

2. It is not economically feasible to repair the PM traps to ensure that average emission levels after repair will comply with the PM emission standard.

3. Replacement of the PM trap system on 1992 and 1993 model-year bus engines with an oxidation catalytic (OC) converter will solve the problem of trap deterioration and failure but will also result in PM emissions above the applicable PM standard.

4. Cummins has proposed to mitigate the excess PM emissions by agreeing to certify a specified number of new 1996 model-year engines for engine family TCE611FBCAAA (433A), and its derivative engine family in the 1996 model year, to a PM level substantially below the applicable PM emission standard set forth in 13 CCR section 1956.8 for these engine families.

5. Cummins has provided data and information demonstrating that the engine models listed below in this Order, within engine family TCE611FBCAAA (433A), comply with the certification standards set forth below and comply with the Board's emission control system warranty provisions set forth in 13 CCR section 2035 et seq.

6. Replacement of the PM trap with an OC converter on 143, 1992 and 1993 model-year bus engines combined with certification of 1995 and 1996 model-year bus engines to a stringent PM emission standard will result in approximately a 10 percent net PM emission benefit.

Now, therefore, pursuant to the authority vested in the undersigned by Executive Order G-45-9:

IT IS ORDERED AND RESOLVED, that the ARB approves the voluntary recall plan submitted by Cummins, attached hereto and incorporated by reference herein, in accordance with the procedures set forth in 13 CCR sections 2113-2121 and the conditions set forth in a letter, Reference Number C-95-200 and dated March 2, 1995, from Mr. R. B. Summerfield, Assistant Division Chief, Mobile Source Division, Air Resources Board, to Mr. Hugh M. Daugherty, Director of Engine Certification, Cummins Engine Company, Inc., attached hereto and incorporated by reference herein.

BE IT FURTHER ORDERED, that the following Cummins Engine Company, Inc. 1996 model-year diesel engines are certified for use in urban buses with a manufacturer's gross vehicle weight rating (GVWR) over 33,000 pounds:

Fuel Type: Compressed Natural Gas (CNG) or Liquefied Natural Gas (LNG)

Engine Family	Liters	(Cubic Inches)	Exhaust Emission Control Systems and Special Features
TCE611FBCAAA (433A)	10.0	611	Charge Air Cooler Turbocharger Oxidation Catalytic Converter Engine Control Module

BE IT FURTHER ORDERED, that Cummins shall comply with the following exhaust emission standards, in grams per brake horsepower-hour for the engine models within the 1996 model-year urban bus engine family TCE611FBCAAA (433A):

Non-Methane Hydrocarbons	Carbon Monoxide	Nitrogen Oxides	Particulates Family Limit
1.2	15.5	4.0	0.04

The following are the certification exhaust emission values for this engine family in grams per brake horsepower-hour:

Engine Family	Non-Methane Hydrocarbons	Carbon Monoxide	Nitrogen Oxides	Particulates
TCE611FBCAAA (433A)	0.2	0.4	1.7	0.02

BE IT FURTHER ORDERED, that in accordance with the terms specified in Cummins' recall plan and the ARB approval of the plan, the emission standards specified above shall be applied when determining compliance of the specified engines within the 1996 model-year engine family TCE611FBCAAA (433A) pursuant to 13 CCR sections 2113 through 2121.

BE IT FURTHER ORDERED, that the engine models within the 1996 model-year engine family TCE611FBCAAA (433A) shall conform with all other applicable California emission requirements.

BE IT FURTHER ORDERED, that the Bureau of Automotive Repair shall be notified and provided a copy of this Order and attachments for implementation and enforcement.

Executed at El Monte, California this 28th day of December 1995.

John Kowalski for

R. B. Summerfield
Assistant Division Chief
Mobile Source Division

E.O.# A-21-159

1996 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET
HEAVY-DUTY DIESEL-STANDARD ENGINES

Manufacturer Cummins Engine Company, Inc. Engine Family 433A TCE611FBCAAA

Displacement: / 10 Liters / 611 Cubic Inches

Maximum Rated Power: 260 HP @ 2100 RPM Engine Configuration: I-6

Ignition: Compression_ Compression with Glow Plug_ Spark X

Fuel Type(s): Dedicated X Flex-Fuel_ Dual-Fuel_ Diesel_ M100_ M85_

CNG X LNG X LPG___ Other (specify)_____

Diesel Cert Fuel: 13 CCR 2282___ 40 CFR 86.1313-90_____ 40 CFR 86.1313-94_

Primary Intended Service Class: LHD_ MHD_ HHD_ Urban Bus X

Exhaust ECS (include.MFI, TC, CAC): PCM, OC (TC, AC)

(use abbreviations per SAE J1930 SEP91)

Engine Model (Eng Code)	Rated HP @ RPM	Fuel Rate @ Rated HP mm3 / stroke (lbs/hr)	Fuel Pump & Injector Part No.	ECM/PCM Part No.	EGR Valve Part No.	PTOX / Catalytic Converter Part No.
L10-260G (1936) (1937) (1938)	260 @ 2100	(98)	Mixer 3090961	3080909	N/A	3077383
L10-240G (1936) (1937) (1938)	240 @ 2100	(90)	3090961	3080909	N/A	3077383

Date Issued:

Revisions:

SUBMITTED
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