| California Environmental Protection Agency AIR RESOURCES BOARD | CUMMINS INC. | EXECUTIVE ORDER U-R-002-0319 New Off-Road Compression-Ignition Engines |
|---|---|---|

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-02-003;

**IT IS ORDERED AND RESOLVED:** That the following compression-ignition engine and emission control system produced by the manufacturer are certified as described below for use in off-road equipment per Title 13, California Code of Regulations (13 CCR) section 2423 (k). Production engines shall be in all material respects the same as those for which certification is granted.

| MODEL YEAR | ON ROAD ENGINE FAMILY | ON-ROAD EXECUTIVE ORDER | DISPLACEMENT (liters) | FUEL TYPE | USEFUL LIFE (hours) |
|---|---|---|---|---|---|
| 2006 | 6CEXH0359BBG | A-021-0394 | 5.9 | CNG/LNG | 8000 |
| TYPICAL EQUIPMENT APPLICATION | | | | | |
| Street Sweeper, Forklift | | | | | |

The emission control systems, engine models and codes are listed in the attached on-road engine family Executive Order.

The following are the exhaust certification standards (STD) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

| RATED POWER CLASS | EMISSION STANDARD CATEGORY | | EXHAUST (g/kw-hr) | | | | | OPACITY (%) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | HC | NOx | NMHC+NOx | CO | PM | ACCEL | LUG | PEAK |
| 130 ≤ kW < 225 | Tier 2 | STD | N/A | N/A | 4.0 | 3.5 | 0.20 | 20 | 15 | 50 |

**BE IT FURTHER RESOLVED:** That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (supplemental emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

**This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.**

Executed at El Monte, California on this 8TH day of November 2005.

Allen Lyons, Chief
Mobile Source Operations Division

ATTACHMENT B 1 of 1 U-R-002-0319

| California Environmental Protection Agency AIR RESOURCES BOARD | CUMMINS, INC. | EXECUTIVE ORDER A-021-0394 New On-Road Heavy-Duty Engines |
|---|---|---|

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

**IT IS ORDERED AND RESOLVED:** The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

| MODEL YEAR | ENGINE FAMILY | ENGINE SIZES (L) | FUEL TYPE [1] | STANDARDS & TEST PROCEDURE | INTENDED SERVICE CLASS [2] | ECS & SPECIAL FEATURES [3] |
|---|---|---|---|---|---|---|
| 2006 | 6CEXH0359BBG | 5.9 | CNG/LNG | Diesel | MHDD | OC, HO2S, PCM, TBI, TC, CAC |

| ENGINE (L) | ENGINE MODELS / CODES (rated power, in hp) |
|---|---|
| 5.9 | BG-230 / 8198;FR91132 (230), BG-230 / 8776;FR91132 (230), BG-200 / 8198;FR91136 (200), BG-195 / 8198;FR91134 (195) |
| * | * |
| * | * |
| * | * |

* =not applicable; GVWR=gross vehicle weight rating; 13 CCR xyz=Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc=Title 40, Code of Federal Regulations, Section 86.abc; L=liter; hp=horsepower; kw=kilowatt;
1 CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas; E85=85% ethanol fuel; MF=multi fuel a.k.a. BF=bi fuel; DF=dual fuel; FF=flexible fuel;
2 L/M/H HDD=light/medium/heavy heavy-duty diesel; UB=urban bus; HDO=heavy duty Otto;
3 ECS=emission control system; TWC/OC=three-way/oxidizing catalyst; WU (prefix) =warm-up catalyst; DPF=diesel particulate filter; HO2S/O2S=heated/oxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI=throttle body fuel injection; SFI/MFI=sequential/multi port fuel injection; DGI=direct gasoline injection; GCARB=gaseous carburetor; IDI/DDI=indirect/direct diesel injection; TC/SC=turbo/super charger; CAC=charge air cooler; EGR=exhaust gas recirculation; PAIR/AIR=pulsed/secondary air injection; SPL=smoke puff limiter; ECM/PCM=engine/powertrain control module; EM=engine modification; 2 (prefix)=parallel; (2) (suffix)=in series; (2004may26)

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [ ] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.1 or 13 CCR 1956.8 are in parentheses.) [4]

| | NMHC | | NOx | | NMHC+NOx | | CO | | PM | | HCHO | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | FTP | EURO | FTP | EURO | FTP | EURO | FTP | EURO | FTP | EURO | FTP | EURO |
| STD | * | * | * | * | 1.8 | 1.8 | 15.5 | 15.5 | 0.01 | 0.01 | * | * |
| FEL | * | * | * | * | * | * | * | * | * | * | * | * |
| CERT | * | * | * | * | 1.4 | 1.3 | 1.0 | 0.4 | 0.004 | 0.002 | * | * |
| NTE | * | | * | | 2.25 | | 19.375 | | 0.0125 | | * | |

4 g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedure; EURO=Euro III European Steady-State Cycle; NTE=Not-to-Exceed; STD=standard or emission test cap; FEL=family emission limit; CERT=certification level; NMHC/HC=non-methane/hydrocarbon; NOx=oxides of nitrogen; CO=carbon monoxide; PM=particulate matter; HCHO=formaldehyde;

**BE IT FURTHER RESOLVED:** Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

**BE IT FURTHER RESOLVED:** The listed engine models have been certified to the optional reduced NMHC+NOx and PM emission standards listed above pursuant to 13 CCR 1956.1 or 13 CCR 1956.8.

**BE IT FURTHER RESOLVED:** For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 2nd day of September 2005.

Raphael Susnowitz
for Allen Lyons, Chief
Mobile Source Operations Division