| California Environmental Protection Agency AIR RESOURCES BOARD | DETROIT DIESEL CORPORATION | EXECUTIVE ORDER A-290-0102 New On-Road Heavy-Duty Engines |
|---|---|---|

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code (HSC) Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by HSC Sections 39515 and 39516 and Executive Order G-45-9; and

Pursuant to the December 15, 1998 Settlement Agreement between the Air Resources Board and the manufacturer, and any modifications thereof to the Settlement Agreement;

**IT IS ORDERED AND RESOLVED:** That the following 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 gross vehicle weight rating (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 SIZE (liter) | FUEL TYPE | STANDARDS & TEST PROCEDURE | INTENDED SERVICE CLASS |
|---|---|---|---|---|---|
| 2002 | 2DDXH12.7FGF | 12.7 | Compressed Natural Gas (CNG) or Liquefied Natural Gas (LNG) | Diesel | Urban Bus |

| SPECIAL FEATURES & EMISSION CONTROL SYSTEMS | ENGINE MODELS / CODES (rated power in horsepower, hp) |
|---|---|
| TC, CAC, ECM, Carburetor, O2S | S60 Bus LNG / 961 (330), 979 (400), 1403 (400)<br>S60 Bus CNG / 957 (330), 977 (400), 1402 (400)<br>S60 BUS CNG- Manual Transmission / 1368 (400)<br>S60 BUS LNG- Manual Transmission / 1369 (400) |

ABBREVIATIONS: OC=oxidizing catalyst TWC=three-way catalyst WU (prefix) =warm-up catalyst O2S=oxygen sensor HO2S=heated O2S TBI=throttle body fuel injection MFI=multiport fuel injection SFI=sequentialMFI DDI/IDI=direct /indirect diesel injection TC/SC=turbo/super charger CAC=charge air cooler EGR=exhaust gas recirculation AIR=secondary air injection PAIR=pulsed AIR SP=smoke puff limiter ECM/PCM=engine /powertrain control module EM=engine modification 2 (prefix)=parallel (2) (suffix)=in series

The following are the exhaust emission standards (STD), or family emission limit(s) (FEL) as applicable, and certification levels (CERT) for this engine family for hydrocarbons (HC) or non-methane hydrocarbons (NMHC), oxides of nitrogen (NOx), or NMHC+NOx, carbon monoxide (CO), particulate matter (PM), and formaldehyde (HCHO) in grams per brake horsepower-hour (g/bhp-hr) under the "Federal Test Procedure" (FTP) (Title 13, California Code of Regulations, (13 CCR) Section 1956.1 (urban bus) or 1956.8 (other than urban bus)), and under the "Euro III Test Procedure" (EURO) in the Settlement Agreement, including a EURO's "Not-to-Exceed" NOx standard: (The emission standards and certification levels for default operations permitted under 13 CCR Section 1956.1 or 1956.8 are in parentheses.)

| | | | | | | | | | | | | | EURO'S NOT-TO-EXCEED NOx STD | * |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| * = not applicable | HC | | NMHC | | NOx | | NMHC+NOx | | CO | | PM | | HCHO | |
| | FTP | EURO | FTP | EURO | FTP | EURO | FTP | EURO | FTP | EURO | FTP | EURO | FTP | EURO |
| (DIRECT) STD | * | * | 1.2 | * | * | * | * | * | 15.5 | * | * | * | * | * |
| AVERAGE STD | * | * | * | * | 4.0 | * | * | * | * | * | 0.05 | * | * | * |
| FEL | * | * | * | * | 2.5 | * | * | * | * | * | 0.03 | * | * | * |
| CERT | * | * | 0.8 | * | 2.0 | * | * | * | 2.0 | * | 0.02 | * | * | * |

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

**BE IT FURTHER RESOLVED:** That the listed engine models are conditionally certified subject to the following conditions: (1) The Settlement Agreement is in effect; and, (2) The manufacturer is in compliance with all applicable certification requirements of the Settlement Agreement and any modifications thereof.

Engines certified under this Executive Order shall conform to all applicable California emission regulations and all requirements under the Settlement Agreement and any modifications thereof.
The Bureau of Automotive Repair will be notified by copy of this Executive Order.
**This Executive Order is not valid for engines produced on or after October 1, 2002.**

Executed at El Monte, California on this 20th day of December 2001. R. B. Summerfield

R. B. Summerfield, Chief
Mobile Source Operations Division