

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER A-31-18  
Relating to Certification of New Motor Vehicle Heavy-Duty Engines

HINO MOTORS, LTD.

Pursuant to the authority vested in the Air Resources Board by Sections 43100, 43102, and 43103 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-45-3;

IT IS ORDERED AND RESOLVED: That the following Hino Motors, Ltd. 1987 model-year diesel engines have shown compliance with the transient test procedure and standards and are certified for use in motor vehicles with a manufacturer's gross vehicle weight rating greater than 8500 pounds:

| <u>Engine Family</u> | <u>Displacement<br/>Cubic Inches (Liters)</u> | <u>Exhaust Emission Control Systems<br/>(Special Features)</u>     |
|----------------------|---|--|
| HHM0038EAA7          | 234 (3.8)                                     | Engine Modification<br>(Diesel Injection-Direct)<br>(Turbocharger) |

Engine models and codes are listed on attachments.

The following are the certification emission values for these engine families:

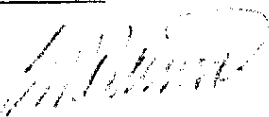
| <u>Engine Family</u> | <u>Hydrocarbons<br/>gm/bhp-hr</u> | <u>Carbon<br/>Monoxide<br/>gm/bhp-hr</u> | <u>Nitrogen Oxides<br/>gm/bhp-hr</u> |
|----------------------|-----------------------------------|--|--------------------------------------|
| HHM0038EAA7          | 0.6                               | 1.7                                      | 4.5                                  |

BE IT FURTHER RESOLVED: That the Executive Officer has been provided all material required to demonstrate certification compliance with the Board's emission control system warranty regulations (Title 13, California Administrative Code, Section 2036).

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 order.

Executed at El Monte, California this 23rd day of September, 1986.

  
K. D. Drachand, Chief  
Mobile Source Division

17.00.00.00

Sheets added by Requirement of Rule MAC84-02 & other Information

17-6-3

01.00.00

19\_87 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

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Manufacturer HINO MOTORS, LTD. Engine Family HHM0038EAA7  
 Evaporative Family \_\_\_\_\_ Engine Type L-4, 4 Stroke Cycle, TC  
 Liters (CID) 3.839 (234)

ABBREVIATIONS

Ignition System

CA-Centrifugal Advance  
 EEC-Electronic Engine Control  
 EI-Electronic Ignition  
 ESAC-Electronic Spark Advance Control  
 VA-Vacuum Advance  
 VR-Vacuum Retard

Exhaust Emissions Control System

AIP-Air Injection-Pump  
 AIV-Air Injection-Valve  
 CL-Closed Loop  
 EGR-Exhaust Gas Recirculation  
 EM-Engine Modification  
 OC-Oxidation Catalyst System  
 SPL-Smoke Puff Limiter or Throttle Delay  
 TOC-Trap Oxidizer, Continual  
 TOP-Trap Oxidizer, Periodical  
 TR-Thermal Reactor  
 TWC-Three-Way Catalyst System

Special Features

CCV-Combustion Chamber Valve  
 CFI-Central Fuel Injection  
 DID-Diesel Injection-Direct  
 DIP-Diesel Injection-Prechamber  
 EFI-Electronic Fuel Injection  
 IC-Intercooler or aftercooler  
 MFI-Mechanical Fuel Injection  
 TC-Turbocharger

Fuel System

CFI, CL, DID, DIP, EFI, MFI  
 nV-nVenturi Carburetor

VEHICLE MODELS:

Line: Front x Mid. \_\_\_\_\_ Rear \_\_\_\_\_

Drive: FWD \_\_\_\_\_ RWD x 4WD Full Time \_\_\_\_\_ 4WD Part Time \_\_\_\_\_

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HEAVY-DUTY DIESEL ENGINES

Manufacturer HINO MOTORS, LTD. Engine Family HHM0038EAA7  
 Liter (CID) 3.839 (234) Eng. Type L-4, 4 Stroke Cycle, Turbocharged  
 Emission Control Sys. and (Special Features) \_\_\_\_\_ Engine Modification (TC)(PID)

| Engine Model | Fuel Injection Pump Mfr. Part Number | Injector Mfr. Part Number | Maximum Rated HP at RPM | Fuel Rate mm <sup>3</sup> /stroke (lbs/Hr) | Maximum Rated Torque at RPM | Fuel Rate mm <sup>3</sup> /stroke (lbs/Hr) |
|--------------|--------------------------------------|---------------------------|-------------------------|--|-----------------------------|--|
| 04C-TC       | Diesel Kiki<br>22000-5520            | Diesel Kiki<br>23600-1880 | 120@<br>3,200           | 71<br>(49.5)                               | 246@<br>2,000               | 77<br>(33.5)                               |

Date of Issue August 1, 1986 Revisions: