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State of California AIR RESOURCES BOARD

EXECUTIVE ORDER A-31-20
Relating to Certification of New Heavy-Duty Motor Vehicle 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. 1988 model-year diesel engines are certified for use in motor vehicles with a manufacturer's gross vehicle weight rating (GVWR) over 8,500 pounds:

Engine Family	Displa Cubic Inch	cement es (Liters)	Exhaust Emission Control Systems (Special Features)
JHM0038EAA3	234	(3.839)	Engine Modification (Turbocharger) (Diesel Injection - Direct)
JHM0067DAA0	411	(6.728)	Engine Modification (Diesel Injection - Direct)
JHM0065EAA6	396	(6.485)	Engine Modification (Turbocharger)
JHM0065FAA9	396	(6.485)	(Diesel Injection - Direct) Engine Modification (Turbocharger) (Intercooler) (Diesel Injection - Direct)

Engine models and codes are listed on attachments.

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

Engine Family	Hydrocarbons _gm/bhp-hr	Carbon Monoxide gm/bhp-hr	Nitrogen Oxides gm/bhp-hr	Particulates gm/bhp-hr
JHM0038EAA3	0.4	2.1	5.4	0.5
JHM0067DAA0	0.4	2.6	5.5	0.4
JHM0065EAA6	0.4	1.8	5.3	0.4
JHM0065FAA9	0.6	3.2	5.7	0.5

HINO MOTORS, LTD.

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 28 day of August, 1987.

K. D. Drachand, Chief

Mobile Source Division

01.00.00	& Other in	nformation SOURCES BOAR	D SUPPLEMENTAL DATA	SHEET	E.O. # <u>A-31-20</u> Page 1 1 HDD
Ma acturer	HINO MOTO	RS, LTD.	Engine Family	ЈНМООЗ	8EAA3
Evaporative Family	NA.				e cycle, Turbocharged
			Liters (CID)	3.839	(234)
ABBREVIATIONS					;
Ignition System	•	Exhaust Emi	issions Control Syst	tem	Special Features
CA-Centrifugal Advance ECU-Electronic Control ESAC-Electronic Sparce Control VA-Vacuum Advance VR-Vacuum Retard	ol Unit on	AIV-Air Inj DBC-Dual Be EGR-Exhaust EIC-Electro EM-Engine M OC-Oxidatio OS-Oxygen S HOS-Heated SPL-Smoke F Throttle TOC-Trap Ox TOP-Trap Ox	t Gas Recirculation onic Injection Cont Modification on Catalyst Sensor Oxygen Sensor Puff Limiter or	rol	CCV,-Combustion Chamber Valve CFI-Central Fuel Injection or Throttle Body Injection DID-Diesel Injection- Direct DIP-Diesel Injection- Prechamber EFI-Electronic Fuel
System CFI, CL, DID, DIP, E nV-nVenturi Carburet		WUOC-Warm-	Up Oxidation Cataly -Up Three-Way Catal	st yt	Injection IC-Intercooler or Aftercooler MFI-Mechanical Fuel Injection OBD-On-Board Diagnostics TC-Turbocharger
VEHICLE MODELS:					

VE

Engine:	Front x	Mid	Rear
Drive:	FWD	RWD x	4WD Full Time 4WD Part Time

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1988 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET HEAVY-DUTY DIESEL ENGINES

LHDD

iter (CID))3	MOTORS, LTD. .839 (234) nd (Special Fea	Eng	. Type Turboo	Stroke charged	
Engine Model	Fuel Injection Pump Mfr. Part Number	Injector Mfr. Part Number	Maximum Rated HP at RPM	Fuel Rate num ³ /stroke (lbs/Hr)	Maximum Rated Torque at RPM	Fuel Rate mm ³ /stroke (lbs/Hr)
v04C~TD	Diesel Kiki 22000- 5781	Diesel Kiki 23600- 1981	125 @ 3,200	72.0 (50.2)	253 @ 2,000	80.0 (34.8)
	sue July 10,	1097	Revisi			

Sheets added by regulirement of Rule MAC84-02

17-3 E.O. # A-31-20

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1988 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

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Ma /acturer	HINO MOTORS, LTD.	Engine Family JHM0067DAA0
Evaporative Family	NA	Engine Type L-6, 4 Stroke cycle, Natural asp.
		Liters (CID) 6.728 (411)

ABBREVIATIONS

Ignition System

CA-Centrifugal Advance
ECU-Electronic Control Unit
EI-Electronic Ignition
ESAC-Electronic Spark Advance
Control
VA-Vacuum Advance
VR-Vacuum Retard

F System

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

Exhaust Emissions Control System

AIP-Air Injection-Pump AIV-Air Injection-Valve DBC-Dual Bed Catalyst EGR-Exhaust Gas Recirculation EIC-Electronic Injection Control EM-Engine Modification OC-Oxidation Catalyst OS-Oxygen Sensor HOS-Heated Oxygen Sensor SPL-Smoke Puff Limiter or Throttle Delay TOC-Trap Oxidizer, Continual TOP-Trap Oxidizer, Periodical TWC-Three-Way Catalyst WUOC-Warm-Up Oxidation Catalyst WUTWC-Warm-Up Three-Way Catalyt

Special Features

CCV,-Combustion Chamber Valve CFI-Central Fuel Injection or Throttle Body Injection DID-Diesel Injection-Direct DIP-Diesel Injection-Prechamber EFI-Electronic Fue1 Injection IC-Intercooler or Aftercooler MFI-Mechanical Fuel Injection OBD-On-Board Diagnostics TC-Turbocharger

VEHICLE MODELS:

Engine:	Front x	Mid	Rear
Drive:	FWD	RWD ×	4WD Full Time 4WD Part Time

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1988 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET HEAVY-DUTY DIESEL ENGINES

MHDD

	Control Sys. ar	28 (411) nd (Special Fea		. Type <u>Natura</u> Engine Mod		(010)
Engine Model	Fuel Injection Pump Mfr. Part Number	Injector Mfr. Part Number	Maximum Rated HP at RPM	Fuel Rate mm ³ /stroke (lbs/Hr)	Maximum Rated Torque at RPM	Fuel Rate mm ³ /stroke (lbs/Hr)
07C - F	Nippon Denso 22010- 5300 (OPT) 22010- 5310	Nippon Denso 23610- 1620	160 @ 3,000	67.5 (66.2)	304 @ 1,800	66.0 (38.8)
		•	·	·		·

77.00.00.00		added by informat	Requirement of Rule Ma ion	AC 84-02 17-5 E.O. # $A-31-20$
01.00.00	19 <u>88</u> AIR RE	SOURCES BO	ARD SUPPLEMENTAL DATA SHE	MHDD Page 1
Mai acturer	HINO MOTORS,	LTD.	Engine FamilyJH	M0065EAA6
Evaporative Family			L-6, 4 S Engine Type <u>Turbocha</u>	troke cycle, rged
·			Liters (CID) <u>6.485</u>	(396)
ABBREVIATIONS				
Ignition System		Exhaust E	missions Control System	Special Features
CA-Centrifugal Adv ECU-Electronic Cor EI-Electronic Igni ESAC-Electronic Sp Control VA-Vacuum Advance VR-Vacuum Retard	trol Unit tion	AIV-Air I DBC-Dual EGR-Exhau EIC-Elect EM-Engine OC-Oxidat OS-Oxyger HOS-Heate SPL-Smoke Thrott TOC-Trap TOP-Trap	njection-Pump Injection-Valve Bed Catalyst Ust Gas Recirculation Injection Control Injection Inj	Injection DID-Diesel Injection- Direct DIP-Diesel Injection- Prechamber EFI-Electronic Fuel
Fue System CFI, CL, DID, DIP, nV-nVenturi Carbui		WUOC-Warr	n-Up Oxidation Catalyst rm-Up Three-Way Catalyt	Injection IC-Intercooler or Aftercooler MFI-Mechanical Fuel Injection OBD-On-Board Diagnostics TC-Turbocharger
VEHICLE MODELS:				
F	y Mid	۵	ear	
	x Mid.		4-14-14-14-14-14-14-14-14-14-14-14-14-14	Dart Time
Drive: FWD	RWD	<u>x</u> 4	WD Full Time 4WD	Part Time

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1988 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET HEAVY-DUTY DIESEL ENGINES

MHDD

Manufactu	rer HINO	MOTORS, LTD.	{	Engine Family JHM0065EAA6 L-6, 4 Stroke cycle, ng. Type Turbocharged			
Liter (CI	D)6.	485 (396)	Eng				
Emission	Control Sys. a	nd (Special Fea					
Engine Model	Fuel Injection Pump Mfr. Part Number	Injector Mfr. Part Number	Maximum Rated HP at RPM	Fuel Rate num ³ /stroke (lbs/Hr)	Maximum Rated Torque at RPM	Fuel Rate mm ³ /stroke (lbs/Hr)	
H06C-TJ	Nippon Denso 22010- 5271	Nippon Denso 23610- 1610	180 @ 3,000	73.0 (71.5)	398 @ (1,600)	85.0 (44.4)	
		,					
Date of Is	sue July	10, 1987	Revisi	ons:			

01.00.00	19 <u>88</u> AIR RI	ESOURCES BOA	RD SUPPLEMENTAL		Page 1
				MH	DD Page 1
i ufacturer	HINO MOTOR	S, LTD.	_ Engine Family	JHM0065	FAA9
Evaporative Family	NA				e cycle, TC-IC
			Liters (CID)	6.48	5 (396)
ABBREVIATIONS					
Ignition System		Exhaust Em	issions Control	System	Special Features
CA-Centrifugal Adva ECU-Electronic Cont EI-Electronic Ignit ESAC-Electronic Spa Control VA-Vacuum Advance VR-Vacuum Retard	rol Unit ion	AIV-Air In, DBC-Dual Be EGR-Exhaus EIC-Electre EM-Engine I OC-Oxidatio OS-Oxygen S HOS-Heated SPL-Smoke I Throttle TOC-Trap Ox TOP-Trap Ox TWC-Three-I	Oxygen Sensor Puff Limiter or Delay Kidizer, Continuk Kidizer, Periodic Vay Catalyst	ontrol al cal	CCV-Combustion Chamber Valve CFI-Central Fuel Injection or Throttle Body Injection DID-Diesel Injection- Direct DIP-Diesel Injection- Prechamber EFI-Electronic Fuel
CFI, CL, DID, DIP, nV-nVenturi Carbure			Jp Oxidation Cat -Up Three-Way Ca		Injection IC-Intercooler or Aftercooler MFI-Mechanical Fuel Injection OBD-On-Board Diagnostics TC-Turbocharger
VEHICLE MODELS:					
Drive: FWD			rFull Time	4WD Part 1	ime
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Sheets added by Requirement of Rule MAC 84-02 & Other information E.

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1988 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET HEAVY-DUTY DIESEL ENGINES

MHDD

Manufactu	rer HINO	MOTORS, LTD.	E	ingine Family	ЈНМОО	65FAA9		
Liter (CI	D)	6.485 (396)	Eng	Eng. Type L-6, 4 Stroke cycle, To				
Emission (Control Sys. a	nd (Special Fea	itures)	Engine Mo	dificati	on (DID)(1c)		
Engine Model	Fuel Injection Pump Mfr. Part Number	Injector Mfr. Part Number	Maximum Rated HP at RPM	Fuel Rate mm ³ /stroke (lbs/Hr)	Maximum Rated Torque at RPM	Fuel Rate mm ³ /stroke (lbs/Hr)		
H06C-TH	Nippon Denso 22010- 5001	Nippon Denso 23610- 1590	225 @ · 2,700	92.0 (81.2)	470 @ 1,600	94.5 (49.4)		
						·		
Date of Iss		10, 1987	Revisio			/ 		