State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER A-20-55
Relating to Certification of New Motor Vehicle Heavy-Duty Engines

ISUZU MOTORS LIMITED

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 Isuzu Motors Limited 1987 model-year heavy-duty 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:

Engine Family	Displacement Cubic Inches	(Liters)	Exhaust Emission Control Systems (Special Features)
HSZ0235DAA1	235	(3.8)	Engine Modification (Diesel Injection-Direct)
HSZ0235EAA4	235	(3.8)	Engine Modification (Diesel Injection-Direct) (Turbocharger)
HSZ0353DABX	353	(5.8)	Engine Modification (Diesel Injection-Direct)
HSZ0353EAB2	353	(5.8)	Engine Modification (Diesel Injection-Direct) (Turbocharger)
HSZ0513EAB5	513	(8.4)	Engine Modification (Diesel Injection-Direct) (Turbocharger)

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
HSZ0235DDA1	1.1	4.9	4.4
HSZ0235EAA4	0.6	2.5	4.8
HSZ0353DABX	1.1	3.9	4.8
HSZ0353EAB2	0.5	1.8	4.3
HSZ0513EAB5	1.0	2.5	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 1st day of August, 1986.

K. D. Drachand, Chief
Mobile Source Division

E.O. # A-20-55

1987 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET

Manufacturer ISUZU MOTORS LIMITED

Evaporative Family NA

Engine Family	HSZ0235DAA1, HSZ0353DABX,	HSZ0235EAA4, HSZ0353EAB2,	HSZ0513EAB5
Engine Type	L4 L6	L4 L6	L6
Liters (CID)	3.851(235) 5.785(353)	3.851(235) 5.785(353)	8.407(513)

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: NA

Engine: Front _____ Mid. _____ Rear _____

Drive: FWD _____ RWD _____ 4WD Full Time _____ 4WD Part Time _____

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1987 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET
HEAVY-DUTY DIESEL ENGINES

LHDD

Manufacturer ISUZU MOTORS LIMITED Engine Family HSZ0235DAA1

Liter (CID) 3.85l (235) Eng. Type L4

Emission Control Sys. and (Special Features) EM (DID)

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)
4BD1H	DIESEL KIKI CO., LTD. 8941573502 8941573512 8941778730	DIESEL KIKI CO., LTD. 1153001340	88 HP 3200 RPM	55.1 mm^3/stroke (39.2 lbs/Hh)	173 ft-lb 1900 RPM	55.1 mm^3/stroke (23.3 lbs/Hr)

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1987 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET
HEAVY-DUTY DIESEL ENGINES

LHDD

Manufacturer ISUZU MOTORS LIMITED Engine Family HSZ0235EAA4

Liter (CID) 3.851 (235) Eng. Type L4

Emission Control Sys. and (Special Features) EM (DID,TC)

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)
4BD1TH	DIESEL KIKI CO., LTD. 8941699192 8941573532 8941778750	DIESEL KIKI CO., LTD. 1153001420	100 HP 3000 RPM	68.9 mm^3/stroke (46.0 lbs/Hr)	213 ft-lb 1900 RPM	69.3 mm^3/stroke (29.2 lbs/Hr)

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1987 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET
HEAVY-DUTY DIESEL ENGINES

MHDD

Manufacturer ISUZU MOTORS LIMITED Engine Family HSZ0353DABX

Liter (CID) 5.785 (353) Eng. Type L6

Emission Control Sys. and (Special Features) EM (DID)

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)
6BD1H	DIESEL KIKI CO., LTD 1156017150 1156017160 1156017170 1156017180 1156017191 1156020080 1156020340 1156020390 1156020110 1156020120 1156020150 1156020160 1156020270 1156020280	DIESEL KIKI CO., LTD 1153001340	126 HP 3200 RPM	53.2 mm^3/stroke (56.2 lbs/Hr)	234 ft-lb 1900 RPM	50.6 mm^3/stroke (31.7 lbs/Hr)

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HEAVY-DUTY DIESEL ENGINES

MHDD

Manufacturer ISUZU MOTORS LIMITED Engine Family HSZ0353EAB2

Liter (CID) 5.785 (353) Eng. Type L6

Emission Control Sys. and (Special Features) EM (DID, TC)

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)
6BDTH	DIESEL KIKI CO., LTD 1156014081 1156014121 1156015690 1156015870 1156015911 1156018070 1156018710 1156020360 1156020190 1156020200 1156020230 1156020240 1156020310 1156020320	DIESEL KIKI CO., LTD 1153001420	155 HP 3000 RPM	68.5 mm^3/stroke (67.8 lbs/Hr)	313 ft-lb 1900 RPM	68.0 mm^3/stroke (42.6 lbs/Hr)

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HEAVY-DUTY DIESEL ENGINES

Manufacturer ISUZU MOTORS LIMITED Engine Family HSZ0513EAB5

Liter (CID) 8.407 (513) Eng. Type L6

Emission Control Sys. and (Special Features) EM (DID, TC)

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)
6SA1TH	DIESEL KIKI CO., LTD 1156020491 1156021140 1156021150 1156021160 1156021170 1156021180	DIESEL KIKI CO., LTD 1153001860	200 HP 2500 RPM	93.5 mm^3/stroke (77.9 lbs/Hr)	456 ft-lb 1700 RPM	96.4 mm^3/stroke (54.7 lbs/Hr)

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