

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER A-20-77
Relating to Certification of New Heavy-Duty Motor Vehicle 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 1989 model-year diesel engines are certified for use in motor vehicles with a manufacturer's gross vehicle weight rating (GVWR) over 8,500 pounds:

<u>Engine Family</u>	<u>Displacement</u> <u>Liters (Cubic Inches)</u>		<u>Exhaust Emission Control Systems</u> <u>(Special Features)</u>
KSZ0235EAAX	3.856	(235)	Engine Modification (Diesel Injection - Direct) (Turbocharger)
KSZ0353EAB8	5.785	(353)	Engine Modification (Diesel Injection - Direct) (Turbocharger)
KSZ0396DAB4	6.494	(396)	Engine Modification (Diesel Injection - Direct)
KSZ0396FABX	6.494	(396)	Engine Modification (Diesel Injection - Direct) (Turbocharger) (Intercooler)
KSZ0513EAB0	8.407	(513)	Engine Modification (Diesel Injection - Direct) (Turbocharger)

Engine models and codes are listed on attachments.

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

<u>Hydrocarbons</u> <u>gm/bhp-hr</u>	<u>Carbon</u> <u>Monoxide</u> <u>gm/bhp-hr</u>	<u>Nitrogen Oxides</u> <u>gm/bhp-hr</u>	<u>Particulates</u> <u>gm/bhp-hr</u>
1.3	15.5	6.0	0.60

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

<u>Engine Family</u>	<u>Hydrocarbons gm/bhp-hr</u>	<u>Carbon Monoxide gm/bhp-hr</u>	<u>Nitrogen Oxides gm/bhp-hr</u>	<u>Particulates gm/bhp-hr</u>
KSZ0235EAAX	0.6	1.5	5.1	0.54
KSZ0353EAB8	0.6	1.6	5.1	0.50
KSZ0396DAB4	0.8	3.7	5.4	0.51
KSZ0396FABX	0.4	2.3	4.6	0.49
KSZ0513EAB0	0.8	1.5	5.5	0.37

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 and attachments.

Executed at El Monte, California this 1st day of July, 1988


K. D. Drachand, Chief
Mobile Source Division

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HEAVY-DUTY DIESEL ENGINESLHDD

Manufacturer ISUZU MOTORS LIMITED Engine Family KSZ0235EAAX
 Liter (CID) 3.856(235) Eng. Type L4
 Emission Control Sys. and (Special Features) EM (DID, TC)

Engine Model (CODE)	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)
4BD1T (EA-1)	DIESEL KIKI CO., LTD. 8944551021 8944574770	DIESEL KIKI CO., LTD. 1153001420	121 HP 3000 RPM	70.0 mm ³ /stroke (46.7 lbs/Hr)	235 ft-lb 2200 RPM	70.0 mm ³ /stroke (34.2 lbs/Hr)

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HEAVY-DUTY DIESEL ENGINESMHDD

Manufacturer ISUZU MOTORS LIMITED Engine Family KSZ0353EAB8
 Liter (CID) 5.785(353) Eng. Type L6
 Emission Control Sys. and (Special Features) EM (DID, TC)

Engine Model (CODE)	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)
6BD1T (EB-1)	DIESEL KIKI CO., LTD. 1156022281 1156022741	DIESEL KIKI CO., LTD. 1153002120	165 HP 3000 RPM	68.1 mm ³ /stroke (68.1 lbs/Hr)	335 ft-lb 1900 RPM	68.1 mm ³ /stroke (43.1 lbs/Hr)

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 HEAVY-DUTY DIESEL ENGINES

MH100

Manufacturer ISUZU MOTORS LIMITED Engine Family KSZ0396DAB4
 Liter (CID) 6.494(396) Eng. Type L6
 Emission Control Sys. and (Special Features) EM (DID)

Engine Model (CODE)	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)
6BG1 (DB-1)	DIESEL KIKI CO., LTD. 1156024821 1156024831	DIESEL KIKI CO., LTD. 1153002120	150 HP 3000 RPM	62.3 mm ³ /stroke (62.3 lbs/Hr)	281 ft-lb 1800 RPM	59.5 mm ³ /stroke (35.8 lbs/Hr)

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 HEAVY-DUTY DIESEL ENGINES

MHDD

Manufacturer ISUZU MOTORS LIMITED Engine Family KSZ0396FABX
 Liter (CID) 6.494(396) Eng. Type L6
 Emission Control Sys. and (Special Features) EM (DID, IC, TC)

Engine Model (CODE)	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)
6BG1X (FB-1)	DIESEL KIKI CO., LTD. 1156022153	DIESEL KIKI CO., LTD. 1153002190	185 HP 2800 RPM	81.6 mm ³ /stroke (76.3 lbs/Hr)	398 ft-lb 1700 RPM	79.7 mm ³ /stroke (45.2 lbs/Hr)

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HEAVY-DUTY DIESEL ENGINES

Manufacturer ISUZU MOTORS LIMITED Engine Family KSZ0513EAB0
 Liter (CID) 8.407(513) Eng. Type L6
 Emission Control Sys. and (Special Features) EM (DID, TC)

Engine Model (CODE)	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)
6SA1T (EB-1)	DIESEL KIKI CO., LTD. 1156025150	DIESEL KIKI CO., LTD. 1153002070	220 HP 2500 RPM	101.3 mm ³ /stroke (84.4 lbs/Hr)	542 ft-lb 1700 RPM	106.8 mm ³ /stroke (60.6 lbs/Hr)

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