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State of California AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-5-6

Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

KOMATSU AMERICA INTERNATIONAL COMAPANY

Pursuant to the authority vested in the Air Resources Board by Sections 43000.5, 43013 and 43018 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-45-9;

IT IS ORDERED AND RESOLVED: That the following Komatsu America International Company 1996 model-year engine, with rated power between 175 and 750 horsepower, and exhaust emission control systems are certified as described below for use in heavy-duty off-road equipment:

Typical Equipment Usage: Construction Equipment

<u>Fuel Type</u>: Diesel

Engine Family	Liters	(Cubic Inches)	Exhaust Emission Control Systems and Special Features
TKL15.RZDARA (140)	15.2	(927)	Turbocharger Charge Air Cooler

Engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

The total hydrocarbons (THC), carbon monoxide (CO), nitrogen oxides (NOx), and particulate matters (PM) certification exhaust emission standards, in grams per brake horsepower-hour (g/bhp-hr), and the opacity of smoke emission standards, in percent (%), during acceleration (Accel), lugging (Lug), and peak (Peak) modes, for this engine family are (Title 13, California Code of Regulations, Section 2423):

Exhaust Emissions (g/bhp-hr)			Smoke	Smoke Opacity (%)			
<u>THC</u>	<u>co</u>	<u>NOx</u>	<u>PM</u>	<u>Accel</u>	Luq	<u>Peak</u>	
1.0	8.5	6.9	0.4	20	15	50	

The THC, CO, NOx and PM exhaust emission certification values, in g/bhp-hr, and the opacity of smoke emission certification values, in percent (%), for this engine family are:

	Exhaust Emission (g/bhp-hr)			Smoke	Opacity	(
Engine Family	<u>THC</u>	<u>co</u>	<u>NOx</u>	<u>PM</u>	<u>Accel</u>	Luq	<u>Peak</u>
TKL15.RZDARA (140)	0.2	0.4	5.8	0.1	15	5	34

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BE IT FURTHER RESOLVED: That the listed engine models comply with the "Exhaust Emission Standards and Test Procedures--Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2423) for the aforementioned model year.

BE IT FURTHER RESOLVED: That the listed engine models also comply with the "Emission Control Labels--1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model year.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Section 2425 et seq.).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

Executed at El Monte, California this

R. B/ Summerfield

day of February 1996.

Assistant Division Chief Mobile Source Division

E.O.#<u>U-R-5-6</u>

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199<u>6</u> AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET HEAVY-DUTY OFF-ROAD DIESEL ENGINES

anufacturer <u>KOMATSU AMERICA INTERNATIONAL COMPANY</u> Engine Family <u>TKL15.RZDARA</u>
isplacement: 15.2 / 927 Liters/Cubic Inches Eng Config: I-6
ll Codes in Eng Fam: CA 49S 50S_XX Cert Test Procedures: ARB EPAXX
Valves/Ports per Cylinder 2 Strokes per Combustion Cycle 4-STROKE
Aximum Rated Power: <u>335</u> HP (<u>250</u> KW) @ <u>2100</u> RPM
gnition: Compression XX Compression with Glow Plug Spark
uel Type(s): Dedicated <u>X</u> Flex-Fuel Dual-Fuel Diesel <u>XX</u> M100 M85
CNG LNG LPG Other (specify)
Diesel Cert Fuel: 40 CFR 86.1313-94 <u>XX</u> Other (specify)
rimary Service Equipment: <u>CONSTRUCTION EQUIPMENT</u>
Exhaust ECS (e.g., MFI, TC, CAC):TC, CAC
(use abbrewistions per SNR J1930 JUN93)

(use abbreviations per SAE J1930 JUN93)

Engine Model	Rated HP	Fuel Rate @ ₃ Rated HP	Fuel Pump & Injector	ECM/PCM	EGR Valve	PTOX / Catalytic
(Eng Code)	@ RPM	mm ³ / stroke (lbs/hr)	Part No.	Part No.	Part No.	Converter Part No.
S6D140E-2 (K1)	335 @ 2100	177 (212.4)	6211-72-9010 6211-12-3100	·		
D140E-2 (K2)	300 @ 2100	159 (190.8)	6211-72-1470 6211-12-3100			
S6D140E-2 (K3)	330 @ 2100	175 (210.0)	6211-72-1310 6211-12-3100			
Date Issued: Revisions:	+		+ I			