

 AIR RESOURCES BOARD	Komatsu Limited	EXECUTIVE ORDER U-R-005-0156
		New Off-Road Compression-Ignition Engines

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 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-02-003;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engine and emission control system produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2003	3KLXL23.2FD3	23.2	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Engine Control Module, Direct Diesel Injection, Turbocharger, Charge Air Cooler			Loader and Other Industrial Equipment	

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

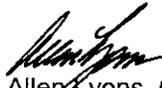
RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
225 ≤ KW < 450	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	20	15	50
		CERT	--	--	6.0	1.2	0.17	15	4	25

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

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

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 9th day of December 2002.


 Allen Lyons, Chief
 Mobile Source Operations Division

ATTACHMENT Pg 1 of 1 LARGE ENGINE MODEL SUMMARY

02/9/9

U-R-005-0056

Manufacturer: KOMATSU LTD. Process Code: New Submission

EPA Engine Family: 3KLXL23.2FD3 Manufacturer Family Name: SAA6D170E-3

1. Engine Code 2. Engine Model 3. BHP @RPM (SAE Gross) 4. Fuel Rate: mm/stroke @ peak HP (for diesel only) 5. Fuel Rate: (lbs/hr) @ peak HP (for diesels only) 6. Torque @ RPM (SEA Gross) 7. Fuel Rate: mm/stroke@peak torque 8. Fuel Rate: (lbs/hr)@peak torque 9. Emission Control Device Per SAE J1930

2C03	SAA6D170E-3	522@2000	299	197	1801@1400	433	200	DDI, EM,EC,TC,CAC
2C04	SAA6D170E-3	740@2000	386	258	2401@1400	486	227	EM,EC
2C05	SAA6D170E-3	716@2000	372	249	2177@1400	418	196	EM,EC
2C06	SAA6D170E-3	660@1800	384	230	2188@1300	459	199	EM,EC
2C09	SAA6D170E-3	522@2000	299	197	1801@1400	433	200	EM,EC