California Environmental Protection Agency Air Resources Board	KOMATSU LIMITED	EXECUTIVE ORDER U-R-005-0430 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-14-012;

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)
2016	GKLXL04.5AAI	4.5	Diesel	8000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Exhaust Gas Recirculation, Diesel Oxidation Catalyst, Selective Catalytic Reduction-Urea, Ammonia Oxidation Catalyst and Engine Control Module	Loaders, Dozer, Excavator

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for non-methane hydrocarbon (NMHC), 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 (%)		
			NMHC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
75 ≤ kW < 130	Tier 4 Final	STD	0.19	0.40	N/A	5.0	0.02	N/A	N/A	N/A
		CERT	0.04	0.10	--	0.03	0.02	--	--	--

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 16 day of December 2015.

Annette Hebert, Chief
Emissions Compliance, Automotive Regulations and Science Division

Engine Model Summary Template

Attachment 1 of 1

U-R-005-04130
11-25-2015

Engine Family	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
GKLXL04.5AAI	4189:FR94118	SAA4D107E-3	173@2500	115	65	520@1500	155	52	SCR-U ~~SCR~~;DOC,DDI,TC, EGR,CAC,ECM
GKLXL04.5AAI	4731:FR95086	SAA4D107E-3	121@2100	89	42	368@1500	103	35	~~SCR~~;DOC,DDI,TC, EGR,CAC,ECM
GKLXL04.5AAI	4731:FR94563	SAA4D107E-3	148@2000	111	50	472@1500	134	45	~~SCR~~;DOC,DDI,TC, EGR,CAC,ECM
GKLXL04.5AAI	4731:FR95089	SAA4D107E-3	128@2000	97	44	442@1350	127	39	~~SCR~~;DOC,DDI,TC, EGR,CAC,ECM
GKLXL04.5AAI	4731:FR95092	SAA4D107E-3	133@2200	94	47	431@1450	125	41	~~SCR~~;DOC,DDI,TC, EGR,CAC,ECM

SCR-U
ANOX