California Environmental Protection Agency Air Resources Board	JCB POWER SYSTEMS LTD.	EXECUTIVE ORDER U-R-049-0039 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 engines and emission control systems 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)
2015	FJCBL04.4S09	4.4	Diesel	8,000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Electronic Control Module, Exhaust Gas Recirculation, Selective Catalytic Reduction-Urea	Crane, Loader, Tractor, Dozer, Pump, Compressor, Forklift

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	0.35	--	0.1	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 18 day of February 2015.

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

JCB Power Systems LTD.

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Engine Model Summary Template

ATTACHMENT 1 OF 3

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 (SAE Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
FJCBL04.4S09	444 TA4-68	D1A	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	D1A	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	D1A	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-68	B1A	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-68	B1C	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	B1A	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	B1C	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	B1A	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	B1C	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-68	B2A	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	B2A	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	B2A	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-68	E1A	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-68	E1C	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	E1A	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	E1C	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	E1A	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	E1C	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-68	L1A	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-68	L1C	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	L1A	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	L1C	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	L1A	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR

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Engine Model Summary Template

ATTACHMENT 2 OF 3

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 (SAE Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
FJCBL04.4S09	444 TA4-93	L1C	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-68	C1A	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-68	C1C	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	C1A	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	C1C	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	C1A	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	C1C	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-68	V1A	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-68	V1C	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	V1A	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	V1C	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	V1A	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	V1C	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-68	W1A	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-68	W1C	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	W1A	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	W1C	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	W1A	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	W1C	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-68	I1A	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-68	I1C	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	I1A	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	I1C	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR

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Engine Model Summary Template

ATTACHMENT 3 OF 3

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 (SAE Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
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FJCBL04.4S09	444 TA4-93	I1C	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-68	I2A	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-68	I2C	91.6 @2200	56	27.7	319 @ 1450	78	25.4	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	I2A	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	I2C	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	I2A	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	I2C	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
* FJCBL04.4S09	444 TA4-93	J1A	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
* FJCBL04.4S09	444 TA4-93	J1C	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	L1B	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	L1B	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	I1B	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	I1D	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	I2B	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-81	I2D	109 @ 2200	66	32.6	380 @ 1450	93	30.3	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	I1B	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	I1D	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	I2B	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR
FJCBL04.4S09	444 TA4-93	I2D	125.1 @ 2200	75	37.1	406 @ 1500	98	33.1	DFI, ECM, EGR, TC, CAC, SCR

* New Models