California Environmental Protection Agency Air Resources Board	CUMMINS INC.	EXECUTIVE ORDER U-R-002-0637 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)
2016	GCEXL12.0AAA	12.0	Diesel	8000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Electronic Control Module, Diesel Oxidation Catalyst, Particulate Trap Oxidizer, Selective Catalytic Reduction-Urea, Ammonia Oxidation Catalyst	Crane, Loader, Tractor, Dozer, Pump, and Compressor

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
130 ≤ kW ≤ 560	Tier 4 Final	STD	0.19	0.40	N/A	3.5	0.02	N/A	N/A	N/A
		CERT	0.01	0.17	--	0.04	0.01	--	--	--

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 7TH day of October 2015.

M. Tuente

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

Engine Model Summary Template

U-R-002-0637 Attachment pg 1/2 4/5/2016

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
GCEXL12.0AAA	4271:FR20584	QSG12	460@2100	229	163	1752@1400	324	142	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4272:FR20532	QSG12	460@2100	235	167	1696@1400	311	147	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4271:FR20531	QSG12	430@2100	215	153	1696@1400	298	141	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4271:FR20529	QSG12	400@2100	201	143	1600@1400	284	134	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4271:FR20530	QSG12	400@2100	201	143	1500@1400	271	128	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4459:FR20583	QSG12	400@2100	201	143	1400@1400	253	119	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4459:FR20528	QSG12	375@2100	189	134	1450@1400	262	124	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4459:FR20527	QSG12	350@2100	178	126	1350@1400	242	114	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4459:FR20526	QSG12	335@2100	171	121	1250@1400	222	105	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4459:FR20533	QSG12	355@2000	181	122	1373@1400	247	117	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4272:FR20536	QSG12	513@1900	275	176	1696@1400	311	147	DDI, ECM, TC, CAC, DOC, DPF, SCR

+ Amex

Engine Model Summary Template

U-R-002-0637 Attachment pg 2/2 4/5/2016

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
GCEXL12.0AAA	4271:FR20535	QSG12	435@1900	225	144	1600@1400	284	134	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4459:FR20534	QSG12	375@1900	194	124	1359@1400	242	114	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4272:FR20543	QSG12	500@1800	281	171	1600@1400	292	138	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4271:FR20542	QSG12	475@1800	252	153	1600@1400	284	134	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4271:FR20541	QSG12	450@1800	239	145	1600@1400	284	134	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4271:FR20540	QSG12	430@1800	228	139	1500@1400	271	128	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4459:FR20539	QSG12	400@1800	212	129	1450@1400	262	124	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4459:FR20538	QSG12	375@1800	198	120	1350@1400	242	114	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4459:FR20537	QSG12	350@1800	187	114	1275@1400	228	108	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4459:FR20735	QSG12	335@2100	195	119	1120@1400	171	110	DDI, ECM, TC, CAC, DOC, DPF, SCR
GCEXL12.0AAA	4271:FR20736	QSG12	440@2100	240	146	1471@1400	223	138	DDI, ECM, TC, CAC, DOC, DPF, SCR

+ Amax