California Environmental Protection Agency AIR RESOURCES BOARD	Cummins Inc.	EXECUTIVE ORDER U-R-002-0145 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-45-9;

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)
2002	2CEXL0505ABD	8.3	Diesel	8000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Direct Diesel Injection, Turbocharger, Charge Air Cooler	Crane, Loaders, Tractor, Dozer, Pump, Compressor

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
130 ≤ KW < 225	Tier 1	STD	1.3	9.2	N/A	11.4	0.54	20	15	50
		CERT	0.2	5.7	--	0.6	0.17	12	4	35

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 18th day of December 2001.

R. B. Summerfield, Chief
Mobile Source Operations Division

Engine Model S mmary Form

ATTACHMENT

U-R-002-0145

Manufacturer: **Cummins Inc.**

Engine category: **Nonroad Over 50 Hp**

EPA Engine Family: **2CEXL0505ABD**

Mfr Family Name: **G413**

Process Code: **Running Change**

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
8185;FR90882	C8.3-C	265@2200	143	106.1	922@1500	182	92.1	TC, CAC
8185;FR90884	C8.3-C	250@2200	133	98.7	880@1450	176	86.0	TC, CAC
8185;FR90883	C8.3-C	250@2200	133	98.7	880@1450	176	86.0	TC, CAC
8185;FR90886	C8.3-C	240@2200	130	96.4	824@1500	164	82.9	TC, CAC
2996;FR90895	C8.3-C	205@2200	115	83.6	714@1500	142	70.2	TC, CAC
8185;FR91194	C8.3-C	260@2200	138	102.7	890@1500	174	87.8	TC, CAC
8185;FR90883	C8.3-C	250@2200	132	98.2	853@1500	166	83.9	TC, CAC
8197;FR91002	C8.3-C	185@2200	106	78.8	575@1500	127	64.1	TC, CAC
8197;FR91003	C8.3-C	202@2000	113	76.3	675@1350	130	59.0	TC, CAC
8211;FR90887	C8.3-C	230@2200	126	93.6	820@1400	162	76.5	TC, CAC
8185;FR90884	C8.3-C	250@2200	132	98.2	853@1500	166	83.9	TC, CAC
2996;FR90892	C8.3-C	215@2200	120	89.0	668@1500	141	71.4	TC, CAC
2996;FR90893	C8.3-C	207@2200	114	84.8	743@1400	146	68.7	TC, CAC