

 AIR RESOURCES BOARD	Cummins Inc.	EXECUTIVE ORDER U-R-002-0209
		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)
2004	4CEXL060.AAA	45.0, 60.0	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Direct Diesel Injection, Turbocharger, Charge Air Cooler, Engine Control Module			Mine Truck	

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
kW > 560	Tier 1	STD	1.3	9.2	N/A	11.4	0.54	20	15	50
		CERT	0.2	8.7	--	1.7	0.16	14	4	24

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 22ND day of July 2003.



Allen Lyons, Chief
 Mobile Source Operations Division

Engine Model Summary Form

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U-R-00Z-0209

Manufacturer: **Cummins Inc.**
 Engine category: **Nonroad CI**
 EPA Engine Family: **4CEXL060.AAA**
 Mr Family Name: **A593**
 Process Code: **New Submission**

1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesels 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
2850.FR6343	QSK60-C	2750@1900	552	943	8050@1500	560	756	DDI, EG,TC,CAC
2850.FR6340	QSK60-C	2500@1900	495	845	7257@1500	515	694	EG,TC,CAC
2850.FR6359	QSK60-C	2160@1800	459	743	6616@1400	483	608	EG,TC,CAC
2850.FR6339	QSK60-C	2700@1900	535	915	7840@1500	546	737	EG,TC,CAC
2851.FR6343	QSK60-C	2750@1900	552	943	8050@1500	560	756	EG,TC,CAC
2851.FR6339	QSK60-C	2700@1900	535	915	7840@1500	546	737	EG,TC,CAC
2851.FR6340	QSK60-C	2500@1900	495	845	7257@1500	515	694	EG,TC,CAC
2851.FR6359	QSK60-C	2160@1800	459	743	6616@1400	483	608	EG,TC,CAC
2848.FR6331	QSK60-C	2000@1900	406	694	6169@1500	436	588	EG,TC,CAC
2848.FR6332	QSK60-C	1875@1900	383	654	6169@1500	436	588	EG,TC,CAC
2848.FR6329	QSK60-C	2500@1900	497	850	7257@1500	506	682	EG,TC,CAC
2848.FR6330	QSK60-C	2300@1900	462	789	6677@1500	468	631	EG,TC,CAC
2848.FR6378	QSK60-C	2000@1800	423	684	6169@1500	436	588	EG,TC,CAC
2848.FR6379	QSK60-C	1875@1800	398	645	6169@1500	436	588	EG,TC,CAC
2849.FR6331	QSK60-C	2000@1900	406	694	6199@1500	436	588	EG,TC,CAC
2849.FR6332	QSK60-C	1875@1900	383	654	6169@1500	436	588	EG,TC,CAC
2849.FR6329	QSK60-C	2500@1900	497	850	7257@1500	506	682	EG,TC,CAC
2849.FR6330	QSK60-C	2300@1900	462	789	6677@1500	468	631	EG,TC,CAC
2849.FR6379	QSK60-C	1875@1800	398	645	6169@1500	436	588	EG,TC,CAC
2849.FR6378	QSK60-C	2000@1800	423	684	6169@1500	436	588	EG,TC,CAC
2855.FR6369	QSK60-C	1800@1900	368	628	6274@1500	429	579	EG,TC,CAC
2948.FR6369	QSK60-C	1800@1900	368	628	6274@1500	429	579	EG,TC,CAC
2469.FR6289	QSK45-C	1500@1900	402	515	5042@1300	464	407	EG,TC,CAC
2469.FR6388	QSK45-C	1200@1900	327	419	4424@1300	403	353	EG,TC,CAC
2469.FR6307	QSK45-C	1350@1800	377	458	4525@1300	419	367	EG,TC,CAC
2823.FR6262	QSK45-C	2000@1900	535	686	5805@1500	530	636	EG,TC,CAC
2823.FR6291	QSK45-C	1500@1800	419	509	4727@1500	442	447	EG,TC,CAC
2823.FR6305	QSK45-C	1500@1800	444	530	5042@1500	460	474	EG,TC,CAC

2823;FR6408	QSK45-C	2250@1900	602	772	6299@1500	579	586	DDA	EC,TC,CAC
2853;FR6289	QSK45-C	1500@1900	402	515	5042@1300	464	407		EC,TC,CAC
2853;FR6388	QSK45-C	1200@1900	327	419	4424@1300	403	353		EC,TC,CAC
2853;FR6307	QSK45-C	1350@1800	377	458	4525@1300	419	367		EC,TC,CAC
2854;FR6262	QSK45-C	2000@1900	535	586	5805@1500	530	536		EC,TC,CAC
2854;FR6291	QSK45-C	1500@1800	419	509	4727@1500	442	447		EC,TC,CAC
2854;FR6305	QSK45-C	1600@1800	444	539	5042@1500	469	474		EC,TC,CAC
2854;FR6408	QSK45-C	2250@1900	602	772	6299@1500	579	586		EC,TC,CAC
2823;FR6435	QSK45-C	1675@1800	466	566.2	5375@1500	502	508.1	V	EC,TC,CAC
2854;FR6435	QSK45-C	1675@1800	466	566.2	5375@1500	502	508.1		EC,TC,CAC

ATTACHMENT P3 2.8.2 U-R-002-0208