California Environmental Protection Agency AIR RESOURCES BOARD	CUMMINS INC.	EXECUTIVE ORDER U-R-002-0532 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 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)
2010	ACEXL015.AAH	15.0	Diesel	8000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Direct Diesel Injection, Turbocharger, Charge Air Cooler, Engine Control Module	Loader, Tractor, and Other Industrial Equipment

The engine models and codes are attached.

The following are the exhaust certification standards (STD), or family emission limit(s) (FEL) as applicable, 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
225 ≤ kW < 560	Tier 3	STD	N/A	N/A	4.0	3.5	0.20	20	15	50
		FEL	N/A	N/A	N/A	N/A	0.17	N/A	N/A	N/A
		CERT	--	--	3.9	0.9	0.12	15	2	23

BE IT FURTHER RESOLVED: That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of any engine within this engine family under 13 CCR Sections 2423 and 2427.

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 13th day of August 2009.

Annette Hebert, Chief
Mobile Source Operations Division

Engine Model Summary Template

U-R-002-0532
Attachment
1/10/2011

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
ACEXL015.AAH	3087:FR10568	QSX15-C	600@2100	317	224.5	1875@1400	408	192.5	DDI,ECM,TC, CAC
ACEXL015.AAH	3087:FR10569	QSX15-C	560@1800	341	207	1875@1400	408	192.5	DDI,ECM,TC,
ACEXL015.AAH	3087:FR10593	QSX15-C	535@2100	283	200.5	1873@1400	408	192.5	DDI,ECM,TC,
ACEXL015.AAH	3087:FR10595	QSX15-C	630@2100	322	228.1	1875@1400	375	176.9	DDI,ECM,TC,
ACEXL015.AAH	3087:FR10661	QSX15-C	535@2100	277	196.3	1806@1400	383	181	DDI,ECM,TC,
ACEXL015.AAH	3087:FR10663	QSX15-C	665@2100	338	239	1875@1400	408	192.5	DDI,ECM,TC,
ACEXL015.AAH	3087:FR10689	QSX15-C	540@2100	286	202.5	1875@1400	408	192.5	DDI,ECM,TC,
ACEXL015.AAH	3087:FR10715	QSX15-C	575@2100	309	218.7	1875@1400	408	192.5	DDI,ECM,TC,
ACEXL015.AAH	3087:FR10758	QSX15-C	665@2100	339	239	1875@1400	408	192.5	DDI,ECM,TC,
ACEXL015.AAH	3088:FR10565	QSX15-C	485@2000	261	176	1783@1400	388	183	DDI,ECM,TC,
ACEXL015.AAH	3088:FR10570	QSX15-C	520@2100	280	198	1743@1400	379	179	DDI,ECM,TC,
ACEXL015.AAH	3088:FR10572	QSX15-C	450@2100	241	171	1550@1400	344	162.5	DDI,ECM,TC,
ACEXL015.AAH	3088:FR10573	QSX15-C	450@2000	253	170.5	1550@1400	344	162.5	DDI,ECM,TC,
ACEXL015.AAH	3088:FR10574	QSX15-C	450@1800	274	166.5	1550@1400	341	160.8	DDI,ECM,TC,
ACEXL015.AAH	3088:FR10577	QSX15-C	500@2100	268	190	1743@1400	379	179	DDI,ECM,TC,
ACEXL015.AAH	3088:FR10581	QSX15-C	400@2100	217	154	1452@1400	322	152.2	DDI,ECM,TC,
ACEXL015.AAH	3088:FR10583	QSX15-C	500@2000	280	189	1743@1400	379	179	DDI,ECM,TC,
ACEXL015.AAH	3088:FR10596	QSX15-C	375@1800	235	142.5	1346@1400	301	142	DDI,ECM,TC,
ACEXL015.AAH	3088:FR10659	QSX15-C	435@2100	232	164	1469@1400	320	151	DDI,ECM,TC,
ACEXL015.AAH	3088:FR10660	QSX15-C	485@2100	257	181.8	1637@1400	359	169.4	DDI,ECM,TC,
ACEXL015.AAH	3088:FR10682	QSX15-C	475@1800	287	174	1625@1400	349	164.6	DDI,ECM,TC,
ACEXL015.AAH	3088:FR10683	QSX15-C	425@1800	258	156.5	1452@1400	316	149	DDI,ECM,TC,
ACEXL015.AAH	3088:FR10716	QSX15-C	450@2000	250	168.8	1655@1400	372	175.6	DDI,ECM,TC,
ACEXL015.AAH	3088:FR10753	QSX15-C	450@2000	253	170.5	1434@1400	319	150.8	DDI,ECM,TC,
ACEXL015.AAH	3088:FR10829	QSX15-C	485@2100	257	181.8	1637@1400	359	169.4	DDI,ECM,TC,
ACEXL015.AAH	3087:FR10886	QSX15-C	535@2100	294	207.9	1806@1400	406	191.8	DDI,ECM,TC,
ACEXL015.AAH	3088:FR10939	QSX15-C	450@2100	241	171	1550@1400	344	162.5	DDI,ECM,TC,
ACEXL015.AAH	3087:FR10830	QSX15-C	600@1800	350	212.5	1875@1400	408	192.5	DDI,ECM,TC,

Engine Model Summary Template

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
ACEXL015.AAH	3088:FR10971	QSX15-C	450@2100	241	171	1550@1400	344	162.5	DDI,ECM,TC ccc
ACEXL015.AAH	3717;FR10936	QSX15-G	665@2000	338	233				DDI,ECM,TC,