California Environmental Protection Agency AIR RESOURCES BOARD	CATERPILLAR INC.	EXECUTIVE ORDER U-R-001-0352 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 December 15, 1998 Settlement Agreement between the Air Resources Board and the manufacturer, and any modifications thereof to the Settlement Agreement;

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)
2009	9CPXL15.2ESW	15.2	Diesel	8000

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

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
450 < KW < 560	Tier 3	STD	N/A	N/A	4.0	3.5	0.20	20	15	50
		CERT	--	--	3.7	3.4	0.15	11	6	15

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 15 day of January 2009.

Annette Hebert, Chief
Mobile Source Operations Division

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
9CPXL15.2ESW	Cert Test 2	C15	713@1800	401	242.7	NA	NA	NA	EM. DI. TC,
9CPXL15.2ESW	1 Cert Engine	C15	717@1800	399	241.7	NA	NA	NA	EM. DI. TC,
9CPXL15.2ESW	2	C15	347@1850	200	124.4	1449@1300	296	129.4	EM. DI. TC,
9CPXL15.2ESW	3	C15	475@2100	249	176.1	1601@1400	333	157	EM. DI. TC,
9CPXL15.2ESW	4	C15	540@2100	281	198	1817@1400	364	171.2	EM. DI. TC,
9CPXL15.2ESW	5	C15	580@2100	309	218.3	1954@1400	389	183.1	EM. DI. TC,
9CPXL15.2ESW	6	C15	595@2100	318	224.3	2005@1400	398	187.3	EM. DI. TC,
9CPXL15.2ESW	7	C15	401@1900	220	140.6	1438@1200	304	122.6	EM. DI. TC,
9CPXL15.2ESW	8	C15	408@1700	244	139.4	1589@1200	326	131.7	EM. DI. TC,
9CPXL15.2ESW	9	C15	389@1700	232	132.9	1512@1200	311	125.7	EM. DI. TC,
9CPXL15.2ESW	10	C15	369@1700	221	126.4	1435@1200	299	120.6	EM. DI. TC,
9CPXL15.2ESW	11	C15	394@1800	231	139.7	1498@1200	308	124.2	EM. DI. TC,
9CPXL15.2ESW	12	C15	359@1800	210	127	1286@1200	266	107.4	EM. DI. TC,
9CPXL15.2ESW	13	C15	354@1800	210	126.9	1285@1200	273	110.4	EM. DI. TC,
9CPXL15.2ESW	14	C15	331@1800	194	117.6	1232@1200	258	104.2	EM. DI. TC,
9CPXL15.2ESW	15	C15	347@1850	207	128.7	1449@1300	297	130	EM. DI. TC,
9CPXL15.2ESW	16	C15	440@2100	231	162.8	1483@1400	314	148	EM. DI. TC,
9CPXL15.2ESW	17	C15	474@2100	244	172.8	1685@1400	342	161.2	EM. DI. TC,
9CPXL15.2ESW	18	C15	347@1850	200	124.5	1449@1300	297	129.8	EM. DI. TC,
9CPXL15.2ESW	19	C15	478@1800	280	170	1591@1300	322	141	EM. DI. TC,
9CPXL15.2ESW	20	C15	437@1800	258	156	1452@1300	295	129	EM. DI. TC,
9CPXL15.2ESW	21	C15	540@2100	281	198	1817@1400	379	179	EM. DI. TC,
9CPXL15.2ESW	22	C15	478@1800	280	170	1591@1300	322	141	EM. DI. TC,
9CPXL15.2ESW	23	C15	437@1800	258	156	1451@1300	295	129	EM. DI. TC,
9CPXL15.2ESW	24	C15	394@1800	231	140	1498@1200	308	124	EM. DI. TC,
9CPXL15.2ESW	25	C15	354@1800	202	122	1285@1200	262	106	EM. DI. TC,
9CPXL15.2ESW	26	C15	440@2100	231	163	1483@1400	312	147	EM. DI. TC,
9CPXL15.2ESW	27	C15	475@2100	249	176	1601@1400	333	157	EM. DI. 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
9CPXL15.2ESW	28	C15	393@1800	233	140.8	1330@1200	272	109.9	EM. DI. TC,
9CPXL15.2ESW	29	C15	362@1800	213	129.2	1282@1200	265	107.1	EM. DI. TC,
9CPXL15.2ESW	30	C15	362@1800	214	129.8	1283@1200	267	107.7	EM. DI. TC,
9CPXL15.2ESW	31	C15	333@1800	201	121.9	1235@1200	258	104	EM. DI. TC,
9CPXL15.2ESW	32	C15	443@2100	230	162.2	1574@1400	317	149.5	EM. DI. TC,
9CPXL15.2ESW	33	C15	361@2100	191	135	1283@1400	264	124	EM. DI. TC,
9CPXL15.2ESW	34	C15	412@2100	213	150.3	1465@1400	300	141.3	EM. DI. TC,
9CPXL15.2ESW	35	C15	475@2100	249	176	1601@1400	333	157	EM. DI. TC,
9CPXL15.2ESW	36	C15	359@1800	209	127	1286@1200	268	108	EM. DI. TC,
9CPXL15.2ESW	37	C15	394@1800	229	139	1498@1200	306	123	EM. DI. TC,
9CPXL15.2ESW	38	C15	394@1800	230	140	1498@1200	307	124	EM. DI. TC,
9CPXL15.2ESW	39	C15	359@1800	210	128	1286@1200	269	109	EM. DI. TC,
9CPXL15.2ESW	40	C15	569@1800	331	201	NA	NA	NA	EM, DI, TC,
9CPXL15.2ESW	41	C15	643@1800	374	227	NA	NA	NA	EM, DI, TC,
9CPXL15.2ESW	42	C15	713@1800	406	246	NA	NA	NA	EM, DI, TC,
9CPXL15.2ESW	43	C15	569@1800	331	201	NA	NA	NA	EM, DI, TC,
9CPXL15.2ESW	44	C15	643@1800	374	227	NA	NA	NA	EM, DI, TC,
9CPXL15.2ESW	45	C15	713@1800	406	246	NA	NA	NA	EM, DI, TC,
9CPXL15.2ESW	46	C15	393@1800	251	152	1330@1200	282	114	EM, DI, TC,
9CPXL15.2ESW	47	C15	362@1800	233	141	1282@1200	272	110	EM, DI, TC,
9CPXL15.2ESW	48	C15	362@1800	233	141	1282@1200	272	110	EM, DI, TC,
9CPXL15.2ESW	49	C15	333@1800	217	131	1235@1200	260	105	EM, DI, TC,
9CPXL15.2ESW	50	C15	436@1800	254	154	1689@1350	327	149	EM. DI. 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
9CPXL15.2ELW	Cert Test 2	C15	865@1800	473	286.3	NA	NA	NA	EM, DI, TC,
9CPXL15.2ELW	1 Cert Engine	C15	865@1800	465	281.6	NA	NA	NA	EM, DI, TC,
9CPXL15.2ELW	2	C15	865@1800	465	281.6	NA	NA	NA	EM, DI, TC,
9CPXL15.2ELW	3	C15	787@1800	423	256.2	NA	NA	NA	EM, DI, TC,
9CPXL15.2ELW	4	C15	787@1800	423	256.2	NA	NA	NA	EM, DI, TC,
9CPXL15.2ELW	5	C15	787@1800	423	256.2	NA	NA	NA	EM, DI, TC,
9CPXL15.2ELW	6	C15	787@1800	423	256.2	NA	NA	NA	EM, DI, TC,