

	<p align="center">CATERPILLAR, INC.</p>	<p align="center">EXECUTIVE ORDER U-R-001-0213 New Off-Road Compression-Ignition Engines</p>
--	--	---

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)
2003	3CPXL15.8ESK	15.8	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Direct Diesel Injection, Turbocharger, Charge Air Cooler and Engine Control Module			Loader, Tractor and Excavator	

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
225<KW<560	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	20	15	50
		CERT	--	--	5.7	0.6	0.09	6	1	11

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 25TH day of November 2002.


 Allen Lyons, Chief
 Mobile Source Operations Division

Engine Model Summary Form

U-R-001-02L3

Manufacturer: CATERPILLAR INC.
 Engine category: Nonroad Over 50 Hp
 EPA Engine Family: 3CPXL15.8ESK
 Mfr Family Name: NA
 Process Code: New Submission

1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm ³ /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 ³ /stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
1-Cert Engine	3456/C-16	680 @ 2100	336	237.6	2296 @ 1400	448	211.0	EM, DI, TC, ECM, CAC
2	3456/C-16	692 @ 1800	381	230.8	N/A	N/A	N/A	EM, DI, TC, ECM,
3	3456/C-16	692 @ 1800	381	230.8	N/A	N/A	N/A	EM, DI, TC, ECM,
4	3456/C-16	616 @ 1800	338	204.5	N/A	N/A	N/A	EM, DI, TC, ECM,
5	3456/C-16	616 @ 1800	338	204.5	N/A	N/A	N/A	EM, DI, TC, ECM,
6	3456/C-16	613 @ 1800	420	211.9	N/A	N/A	N/A	EM, DI, TC, ECM,
7	3456/C-16	613 @ 1800	420	211.9	N/A	N/A	N/A	EM, DI, TC, ECM,
8	3456/C-16	553 @ 1500	377	190.4	N/A	N/A	N/A	EM, DI, TC, ECM,
9	3456/C-16	553 @ 1500	377	190.4	N/A	N/A	N/A	EM, DI, TC, ECM,
10	3456/C-16	493 @ 1500	335	168.9	N/A	N/A	N/A	EM, DI, TC, ECM,
11	3456/C-16	493 @ 1500	335	168.9	N/A	N/A	N/A	EM, DI, TC, ECM,
12	3456/C-16	680 @ 2100	336	237.7	1957 @ 1400	377	177.3	EM, DI, TC, ECM,
13	3456/C-16	600 @ 2100	292	206.4	2029 @ 1400	397	186.8	EM, DI, TC, ECM,
14	3456/C-16	512 @ 2100	255	179.9	1820 @ 1400	348	163.9	EM, DI, TC, ECM,
15	3456/C-16	660 @ 2100	326	230.0	2232 @ 1400	430	202.5	EM, DI, TC, ECM,
16	3456/C-16	500 @ 2100	247	174.2	1691 @ 1400	317	149.3	EM, DI, TC, ECM,
17	3456/C-16	550 @ 2100	268	189.3	1859 @ 1400	353	166.3	EM, DI, TC, ECM,
18	3456/C-16	630 @ 2100	308	217.7	2130 @ 1400	427	201.4	EM, DI, TC, ECM,
19	3456/C-16	600 @ 2100	292	206.4	2029 @ 1400	397	186.8	EM, DI, TC, ECM,
20	3456/C-16	552 @ 2100	307	186.1	1851 @ 1400	368	173.4	EM, DI, TC, ECM,
21	3456/C-16	650 @ 2000	326	219.2	2021 @ 1500	375	189.0	EM, DI, TC, ECM,
22	3456/C-16	615.5 @ 1800	338	204.5	N/A	N/A	N/A	EM, DI, TC, ECM,
23	3456/C-16	483 @ 1800	269	162.6	N/A	N/A	N/A	EM, DI, TC, ECM,
24	3456/C-16	547 @ 1800	310	188.0	N/A	N/A	N/A	EM, DI, TC, ECM,
25	3456/C-16	547 @ 1800	310	188.0	N/A	N/A	N/A	EM, DI, TC, ECM,
26	3456/C-16	483 @ 1800	268	162.0	N/A	N/A	N/A	EM, DI, TC, ECM,
27	3456/C-16	483 @ 1800	268	162.0	N/A	N/A	N/A	EM, DI, TC, ECM,
28	3456/C-16	434 @ 1800	291	150.0	N/A	N/A	N/A	EM, DI, TC, ECM,
29	3456/C-16	434 @ 1800	291	150.0	N/A	N/A	N/A	EM, DI, TC, ECM,
30	3456/C-16	378 @ 1800	255	128.6	N/A	N/A	N/A	EM, DI, TC, ECM,
31	3456/C-16	378 @ 1800	255	128.6	N/A	N/A	N/A	EM, DI, TC, ECM,
32	3456/C-16	480 @ 1800	280	178.7	2060 @ 1200	412	166.4	EM, DI, TC, ECM,