California Environmental Protection Agency AIR RESOURCES BOARD	CATERPILLAR, INC.	EXECUTIVE ORDER U-R-001-0194 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	2CPXL12.0ESK	12.0	Diesel	8000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Direct Diesel Injection, Turbocharger, Charge Air Cooler and Engine Control Module	Loader 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
130≤KW<225	Tier 1	STD	1.3	9.2	N/A	11.4	0.54	20	15	50
225≤KW<450	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	20	15	50
		CERT	0.2	5.7	5.9	1.7	0.17	8	2	14

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 20th day of December 2001.

R. B. Summerfield, Chief
Mobile Source Operations Division

ATTACHMENT 1 OF 1

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category: **Nonroad Over 50 hp**

EPA Engine Family: **2CPXL12.0ESK**

Mfr Family Name: **N/A**

Process Code: **New Submission**

U-R-001-0194

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
Note: Peak HP	and Peak torque	fuel rates are	nominal values.	Due to product-	ion engine avgs.	these fuel rates	may change	
1-Cert Engine	3196/C-12	515 @ 2100	252	177.6	1622 @ 1400	328	154.4	EM, DI, TC, ECM,
2	3196/C-12	370 @ 2100	175	123.5	1200 @ 1400	226	106.7	EM, DI, TC, ECM,
3	3196/C-12	400 @ 2100	190	134.5	1275 @ 1400	241	113.6	EM, DI, TC, ECM,
4	3196/C-12	425 @ 2100	206	145.5	1350 @ 1400	263	123.7	EM, DI, TC, ECM,
5	3196/C-12	455 @ 2100	217	153.0	1450 @ 1400	285	134.3	EM, DI, TC, ECM,
6	3196/C-12	500 @ 2100	242	170.6	1575 @ 1400	312	146.7	EM, DI, TC, ECM,
7	3196/C-12	425 @ 2100	204	143.8	1433 @ 1400	278	131.0	EM, DI, TC, ECM,
8	3196/C-12	340 @ 2100	165	116.6	1238 @ 1400	227	107.0	EM, DI, TC, ECM,
9	3196/C-12	380 @ 2100	185	131.0	1384 @ 1400	257	121.2	EM, DI, TC, ECM,
10	3196/C-12	305 @ 2200	150	111.2	1061 @ 1400	198	93.0	EM, DI, TC, ECM,
11	3196/C-12	405 @ 2000	211	142.2	1244 @ 1400	241	113.5	EM, DI, TC, ECM,
12	3196/C-12	304 @ 2100	147	103.8	1058 @ 1400	203	95.6	EM, DI, TC, ECM,
13	3196/C-12	287 @ 2100	138	97.6	1002 @ 1400	192	90.5	EM, DI, TC, ECM,
14	3196/C-12	430 @ 1800	254	153.6	N/A	N/A	N/A	CAC EM, DI, TC, ECM,
15	3196/C-12	430 @ 1800	266	161.4	N/A	N/A	N/A	EM, DI, TC, ECM,
16	3196/C-12	468 @ 1800	266	161.4	N/A	N/A	N/A	EM, DI, TC, ECM,
17	3196/C-12	489 @ 1800	293	177.4	N/A	N/A	N/A	EM, DI, TC, ECM,
18	3196/C-12	534 @ 1800	293	177.4	N/A	N/A	N/A	EM, DI, TC, ECM,
19	3196/C-12	338 @ 1500	252	127.4	N/A	N/A	N/A	EM, DI, TC, ECM,
20	3196/C-12	367 @ 1500	253	127.4	N/A	N/A	N/A	EM, DI, TC, ECM,
21	3196/C-12	388 @ 1500	297	149.7	N/A	N/A	N/A	EM, DI, TC, ECM,
22	3196/C-12	425 @ 1500	297	149.7	N/A	N/A	N/A	EM, DI, TC, ECM,
23	3196/C-12	333 @ 1500	208	126.0	N/A	N/A	N/A	EM, DI, TC, ECM,
24	3196/C-12	362 @ 1800	208	126.0	N/A	N/A	N/A	EM, DI, TC, ECM,
25	3196/C-12	355 @ 1800	225	136.0	N/A	N/A	N/A	EM, DI, TC, ECM,
26	3196/C-12	392 @ 1800	225	136.0	N/A	N/A	N/A	EM, DI, TC, ECM,
27	3196/C-12	391 @ 1800	239	145.0	N/A	N/A	N/A	EM, DI, TC, ECM,
28	3196/C-12	428 @ 1800	239	145.0	N/A	N/A	N/A	EM, DI, TC, ECM,
29	3196/C-12	259 @ 1500	197	99.2	N/A	N/A	N/A	EM, DI, TC, ECM,
30	3196/C-12	282 @ 1500	197	99.2	N/A	N/A	N/A	EM, DI, TC, ECM,
31	3196/C-12	280 @ 1500	214	108.2	N/A	N/A	N/A	EM, DI, TC, ECM,