State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-148
Relating to Certification of New Off-Road Compression-Ignition Equipment Engines

CATERPILLAR, INC.

Pursuant to the authority vested in the Air Resources Board (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 exhaust emission control system produced by the manufacturer are certified as described below for use in off-road equipment:

Model Year: 2001

Typical Equipment Usage: Loader, Generator and Other Industrial Equipment

Fuel Type: Diesel

Engine Family	Engine Displacement (liters)	Useful Life (hours)	Exhaust Emission Control Systems and Special Features
1CPXL10.5MRG	10.5	8000	Direct Diesel Injection Turbocharger Charge Air Cooler Smoke Puff Limiter

Engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

The exhaust emission certification standards and certification values for total hydrocarbons (THC), carbon monoxide (CO), oxides of nitrogen (NOx), and particulate matter (PM) (units are expressed in grams per kilowatt-hour (g/kw-hr)), and the opacity-of-smoke certification standards and certification values in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family are as follows (Title 13, California Code of Regulations, Section 2423, as amended by Board approval on January 28, 2000):

Engine Power Rating (kw)	Emission Standard Category		Exhaust Emissions (g/kw-hr)				Smoke Opacity (%)		
			THC	CO	NOx	PM	Accel	Lug	Peak
130≤KW<225	Tier 1	Standard	1.3	11.4	9.2	0.54	20	15	50
		Certification	0.5	2.1	9.1	0.26	16	4	36

BE IT FURTHER RESOLVED: That, at the request of the manufacturer, the listed engine models are **conditionally certified** to, and shall be required to comply with, all amendments to Title 13, California Code of Regulations, Sections 2420 through 2427 adopted by the Board on January 28, 2000 at its hearing "TO CONSIDER AMENDMENTS TO OFF-ROAD COMPRESSION-IGNITION ENGINE REGULATIONS: 2000 AND LATER EMISSION STANDARDS, COMPLIANCE REQUIREMENTS AND TEST PROCEDURES." The listed engine models comply with all such amendments, including, but not limited to:

- the amended "Emission Control Labels—1996 and Later Off-Road Compression-Ignition Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model year;
- the Board's amended emission control system warranty provisions (Title 13, California Code of Regulations, Sections 2425 and 2426) for the listed engine models, as demonstrated by materials submitted by the manufacturer; and
- new California requirements for the Selective Enforcement Audit (SEA) for the listed engine models, as demonstrated by the manufacturer's submission of materials.

BE IT FURTHER RESOLVED: That the conditional certification described in the paragraph above is conditioned on the amendments being approved by the California Office of Administrative Law (OAL) pursuant to Government Code Section 11349.3, and where necessary, authorized by the Administrator of the U. S. Environmental Protection Agency (U.S. EPA) pursuant to Section 209(e)(2) of the Federal Clean Air Act. In the event that the OAL disapproves the amendments or the U.S. EPA decides not to authorize them, the ARB shall notify the manufacturer that the listed engine models must comply with the "California Exhaust Emission Standards and Test Procedures for 1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Sections 2420 through 2427) adopted on May 12, 1993, as applicable. Failure to demonstrate compliance within 45 days after notification by the Air Resources Board shall be cause for the Board to revoke the Executive Order and deem the listed engine models uncertified.

The conditional certification described herein is not conditioned on further U.S. EPA action on amendments determined by the Board to be within the scope of an existing U.S. EPA authorization.

Engines certified under this Executive Order must conform to the above requirements under Title 13, California Code of Regulations, Chapter 9, Article 4, and all other applicable California emission laws and regulations.

Executed at El Monte, California this 14th day of December 2000.

R. B. Summerfield, Chief
Mobile Source Operations Division

ATTACHMENT

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**
Engine category: **Nonroad Over 50 Hp**
EPA Engine Family: **1CPXL10.5MRG**
Mfr Family Name: **NA**
Process Code: **New Submission**

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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.	DI, TC, CAC, SPL
2	3306	295 @ 2000	160	107.0	929 @ 1400	192	90.0	EM, DI, TC, SPL,
3	3306	300 @ 2200	159	118.0	991 @ 1400	203	95.0	EM, DCAC, SPL,
4	3306	285 @ 2200	146	108.0	934 @ 1400	183	86.0	EM, DCAC, SPL,
5	3306	260 @ 2200	134	99.0	817 @ 1400	162	76.0	EM, DCAC, SPL,
6	3306	300 @ 2100	161	114.0	986 @ 1400	198	93.0	EM, DCAC, SPL,
7	3306	300 @ 2100	160	113.0	985 @ 1400	194	92.0	EM, DCAC, SPL,
8	3306	270 @ 2100	146	103.0	884 @ 1400	181	85.0	EM, DCAC, SPL,
9	3306	290 @ 2000	160	108.0	963 @ 1400	194	91.0	EM, DCAC, SPL,
10	3306	275 @2000	149	100.0	897 @ 1400	181	85.0	EM, DCAC, SPL,
11	3306	300 @ 1850	176	110.0	992 @ 1400	202	95.0	EM, DI, TC, SPL,
12	3306	300 @ 1800	179	109.0	1017 @ 1400	207	97.0	EM, DCAC, SPL,
13	3306	300 @ 1800	179	109.0	1020 @ 1400	207	97.0	EM, DCAC, SPL,
14	3306	300 @ 1800	181	110.0	1015 @ 1400	204	96.0	EM, DCAC, SPL,
15	3306	300 @ 1800	178	108.0	1014 @ 1400	204	96.0	EM, DCAC, SPL,
16	3306	285 @ 1800	170	103.0	981 @ 1200	206	83.0	EM, DCAC, SPL,
17	3306	260 @ 1800	154	93.0	888 @ 1200	187	75.0	EM, DCAC, SPL,
18	3306	265 @ 2200	138	102.0	847 @ 1400	168	79.0	EM, DCAC, SPL,
19	3306	260 @ 2200	134	99.0	854 @ 1400	163	77.0	EM, DCAC, SPL,
20	3306	250 @ 2200	130	96.0	800 @ 1400	159	75.0	EM, DCAC, SPL,
21	3306	230 @ 2200	120	89.0	738 @ 1400	149	70.0	EM, DCAC, SPL,
22	3306	225 @ 2200	118	87.0	701 @ 1400	141	67.0	EM, DCAC, SPL,
23	3306	250 @ 2100	132	93.0	791 @ 1400	156	74.0	EM, DCAC, SPL,
24	3306	250 @ 2100	132	93.0	791 @ 1400	156	74.0	EM, DCAC, SPL,
25	3306	195 @ 2100	106	74.0	630 @ 1400	119	55.0	EM, DCAC, SPL,
26	3306	231 @ 2000	123	83.0	718 @ 1400	144	68.0	EM, DCAC, SPL,
27	3306	210 @ 2000	113	76.0	653 @ 1400	131	62.0	EM, DCAC, SPL,
28	3306	265 @ 1800	155	94.0	942 @ 1200	185	75.0	EM, DCAC, SPL,
29	3306	250 @ 1800	145	88.0	848 @ 1400	166	78.0	EM, DCAC, SPL, CAC

ATTACHMENT

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category:

EPA Engine Family: **1CPXL10.5MRG**

Mfr Family Name:

Process Code: **New Sub - continued**

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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.	DDI, TC, LA C, SPL
30	3306	250 @ 1800	149	90.0	887 @ 1400	177	83.0	EM, DI, TC, SPL,
31	3306	250 @ 1800	145	88.0	848 @ 1400	166	78.0	EM, DCAC, SPL,
32	3306	250 @ 1800	145	88.0	832 @ 1400	166	78.0	EM, DCAC, SPL,
33	3306	230 @ 1800	133	81.0	782 @ 1200	162	65.0	EM, DCAC, SPL,
34	3306	210 @ 1800	121	74.0	704 @ 1200	143	58.0	EM, DCAC, SPL,
35	3306	300 @ 2200	154	114.0	952 @ 1400	198	93.4	EM, DCAC, SPL,
36	3306	300 @ 2200	154	113.6	988 @ 1400	195	91.7	EM, DCAC, SPL,
37	3306	275 @ 2200	140	103.4	853 @ 1400	176	82.8	EM, DCAC, SPL,
38	3306	275 @ 2200	140	103.4	893 @ 1400	176	82.8	EM, DCAC, SPL,
39	3306	300 @ 2100	160	112.7	1020 @ 1400	206	97.0	EM, DI, TC, SPL,
40	3306	215 @ 2100	113	79.8	685 @ 1400	135	63.7	EM, DCAC, SPL,
41	3306	300 @ 2100	160	112.7	1020 @ 1400	199	93.8	EM, DCAC, SPL,
42	3306	279 @ 2200	149	110.1	906 @ 1400	187	88.0	EM, DCAC, SPL,
43	3306	270 @ 2200	139	102.6	876 @ 1400	176	83.1	EM, DCAC, SPL,
44	3306	288 @ 2200	148	109.6	1023 @ 1400	202	95.1	EM, DCAC, SPL,
45	3306	285 @ 2200	148	109.5	920 @ 1400	187	88.2	EM, DCAC, SPL,
46	3306	245 @ 2200	128	94.8	798 @ 1400	155	72.8	EM, DCAC, SPL,
47	3306	240 @ 2200	125	92.4	745 @ 1400	156	73.3	EM, DCAC, SPL,
48	3306	229 @ 2200	116	86.1	735 @ 1400	146	68.6	EM, DCAC, SPL,
49	3306	229 @ 2200	116	86.1	735 @ 1400	146	68.6	EM, DCAC, SPL,
50	3306	229 @ 2200	122	90.1	699 @ 1400	142	67.0	EM, DCAC, SPL,
51	3306	229 @ 2200	122	90.1	699 @ 1400	142	67.0	EM, DCAC, SPL,
52	3306	258 @ 2200	133	98.3	947 @ 1400	191	89.7	EM, DCAC, SPL,
53	3306	258 @ 2200	133	98.3	947 @ 1400	191	89.7	EM, DCAC, SPL,
54	3306	257 @ 2200	139	98.4	867 @ 1400	169	79.8	EM, DCAC, SPL,
55	3306	257 @ 2100	139	98.4	867 @ 1400	169	79.8	EM, DCAC, SPL,
56	3306	247 @ 2100	132	93.1	828 @ 1400	164	77.0	EM, DCAC, SPL,
57	3306	247 @ 2100	132	93.1	828 @ 1400	164	77.0	EM, DCAC, SPL,
58	3306	247 @ 2100	132	93.1	828 @ 1400	164	77.0	EM, DCAC, SPL,
59	3306	247 @ 2100	132	93.1	828 @ 1400	164	77.0	EM, DCAC, SPL,
60	3306	229 @ 1850	134	83.1	800 @ 1200	180	72.5	EM, DCAC, SPL,