

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-147
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: Other Industrial Equipment

Fuel Type: Diesel

<u>Engine Family</u>	<u>Engine Displacement (liters)</u>	<u>Useful Life (hours)</u>	<u>Exhaust Emission Control Systems and Special Features</u>
1CPXL10.5MRF	10.5	8000	Direct Diesel Injection Turbocharger 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 (NO_x), 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):

<u>Engine Power Rating (kw)</u>	<u>Emission Standard Category</u>		<u>Exhaust Emissions (g/kw-hr)</u>				<u>Smoke Opacity (%)</u>		
			<u>THC</u>	<u>CO</u>	<u>NO_x</u>	<u>PM</u>	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>
37≤KW<130	Tier 1	Standard	N/A	N/A	9.2	N/A	20	15	50
130≤KW<225	Tier 1	Standard	1.3	11.4	9.2	0.54	20	15	50
All Above		Certification	0.9	2.7	7.6	0.46	13	1	34

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.

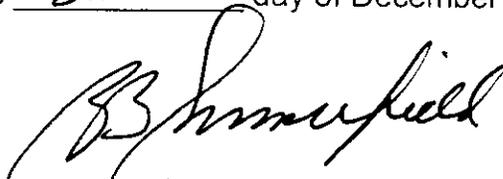
BE IT FURTHER RESOLVED: That the conditional certification described in the paragraph above is conditioned on the amendments being approved by the California Office of Administrative Law (OAL) pursuant to Government Code Section 11349.3, and where necessary, authorized by the Administrator of the U. S. Environmental Protection Agency (U.S. EPA) pursuant to Section 209(e)(2) of the Federal Clean Air Act.

- A. 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.
- B. In the event that the OAL disapproves the amendments or the U.S. EPA decides not to authorize them, the conditional certification herein of the listed engine models with rated power greater than or equal to 19 KW but less than 130 KW shall be deemed null and void.

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 21st day of December 2000.



R. B. Summerfield, Chief
Mobile Source Operations Division

ATTAC MENT

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**
 Engine category: **Nonroad Over 50 Hp**
 EPA Engine Family: **1CPXL10.5MRF**
 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 1 - Cert Engine	and Peak Torque 3306	fuel rates are 255 @ 1800	nominal values. 163	Due to product- ion engine avgs. 98.5	949 @ 1200	these fuel rates 201	may change. 81.1	DD, TC, SPL
2	3306	215 @ 2200	120	88.8	753 @ 1400	153	71.8	EM, DI, TC, SPL
3	3306	200 @ 2200	107	79.4	658 @ 1400	127	59.8	EM, DI, TC, SPL
4	3306	200 @ 2000	112	75.6	652 @ 1400	131	61.5	EM, DI, TC, SPL
5	3306	210 @ 2000	119	79.5	687 @ 1400	143	66.7	EM, DI, TC, SPL
6	3306	190 @ 2000	107	72.0	619 @ 1400	123	58.1	EM, DI, TC, SPL
7	3306	200 @ 1800	122	73.8	732 @ 1200	149	60.2	EM, DI, TC, SPL
8	3306	200 @ 1800	122	73.8	710 @ 1200	145	58.7	EM, DI, TC, SPL
9	3306	175 @ 1800	108	65.6	637 @ 1200	132	53.4	EM, DI, TC, SPL
10	3306	150 @ 1800	90	54.2	541 @ 1200	99	40.1	EM, DI, TC, SPL
11	3306	154 @ 1900	93	59.1	536 @ 1200	109	43.9	EM, DI, TC, SPL
12	3306	151 @ 1900	91	57.9	514 @ 1200	104	42.1	EM, DI, TC, SPL
13	3306	204 @ 1900	122	78.1	705 @ 1200	149	60.3	EM, DI, TC, SPL
14	3306	171 @ 1900	104	66.5	600 @ 1200	127	51.3	EM, DI, TC, SPL
15	3306	186 @ 1900	112	71.7	623 @ 1200	128	51.5	EM, DI, TC, SPL
16	3306	211 @ 1900	126	80.6	712 @ 1200	151	61.0	EM, DI, TC, SPL
17	3306	201 @ 1900	121	77.1	701 @ 1200	149	60.0	EM, DI, TC, SPL
18	3306	209 @ 1900	128	81.8	723 @ 1200	154	62.2	EM, DI, TC, SPL
19	3306	179 @ 1900	112	71.2	642 @ 1400	134	63.1	EM, DI, TC, SPL
20	3306	164 @ 1900	99	63.0	577 @ 1200	123	49.6	EM, DI, TC, SPL
21	3306	225 @ 2000	132	88.5	752 @ 1400	154	72.6	EM, DI, TC, SPL
22	3306	176 @ 1900	106	67.5	601 @ 1200	123	49.7	EM, DI, TC, SPL
23	3306	164 @ 1900	98	62.8	576 @ 1200	132	53.3	EM, DI, TC, SPL
24	3306	179 @ 1900	108	68.7	611 @ 1200	125	50.5	EM, DI, TC, SPL
25	3306	199 @ 1900	122	77.8	711 @ 1400	146	68.5	EM, DI, TC, SPL
26	3306	189 @ 1900	115	73.5	676 @ 1400	139	65.5	EM, DI, TC, SPL
27	3306	179 @ 1900	110	70.4	640 @ 1400	130	61.3	EM, DI, TC, SPL
28	3306	179 @ 1800	114	68.9	644 @ 1400	134	62.9	EM, DI, TC, SPL
29	3306	179 @ 1900	110	70.4	640 @ 1400	130	61.3	EM, DI, TC, SPL
30	3306	189 @ 1800	118	71.7	679 @ 1400	141	66.3	EM, DI, TC, SPL
31	3306	189 @ 1900	115	73.5	676 @ 1400	139	65.5	EM, DI, TC, SPL