

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-137

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, Tractor and 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>
1CPXL06.6MRB	6.6	8000	Direct Diesel Injection Turbocharger Smoke Puff Limiter Charge Air Cooler

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):

<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>NOx</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	0.3	2.0	8.4	0.34	14	4	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

ATTACHMENT

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**
 Engine category: **Nonroad Over 50 Hp**
 EPA Engine Family: **1CPXL06.6MRB**
 Mfr Family Name: **N/A**
 Process Code: **New Submission**

U-R-1-137

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.	DDT, TC, AC, SPL
1	3116	220 @ 2600	163kw 100	87.4	586 @ 1650	115	63.8	EM, DI, TC, SPL,
3	3116	200 @ 2400	94	75.9	575 @ 1450	115	56.2	EM, DÇAC, SPL,
4	3116	190 @ 2400	89	72.0	551 @ 1400	111	52.4	EM, DÇAC, SPL,
5	3116	200 @ 2300	96	74.6	573 @ 1450	115	56.1	EM, DÇAC, SPL,
6	3116	205 @ 2200	104	76.5	604 @ 1450	121	59.1	EM, DÇAC, SPL,
7	3116	195 @ 2200	95	70.4	592 @ 1450	117	57.1	EM, DÇAC, SPL,
8	3116	185 @ 2200	92	68.0	544 @ 1450	108	52.6	EM, DÇAC, SPL,
9	3116	175 @ 2200	87	64.2	515 @ 1400	103	48.3	EM, DÇAC, SPL,
10	3116	185 @ 2100	96	67.5	552 @ 1450	110	53.6	EM, DÇAC, SPL,
11	3116	180 @ 2000	96	64.7	545 @ 1450	108	52.9	EM, DI, TC, SPL,
12	3116	190 @ 2600	85	74.2	490 @ 1650	96	53.2	EM, DÇAC, SPL,
13	3116	180 @ 2500	79	66.5	460 @ 1650	89	49.2	EM, DÇAC, SPL,
14	3116	200 @ 2400	97	78.4	550 @ 1450	111	54.1	EM, DÇAC, SPL,
15	3116	175 @ 2400	82	66.4	482 @ 1450	97	47.4	EM, DÇAC, SPL,
16	3116	165 @ 2400	79	64.0	453 @ 1450	91	44.6	EM, DÇAC, SPL,
17	3116	150 @ 2400	73	58.6	420 @ 1400	85	40.1	EM, DÇAC, SPL,
18	3116	190 @ 2200	96	71.4	555 @ 1450	112	54.6	EM, DÇAC, SPL,
19	3116	160 @ 2200	80	59.5	458 @ 1450	92	45.1	EM, DÇAC, SPL,
20	3116	150 @ 2200	76	56.1	423 @ 1450	86	41.8	EM, DÇAC, SPL,
21	3116	140 @ 2200	71	52.5	405 @ 1450	79	38.6	EM, DÇAC, SPL,
22	3116	150 @ 2100	79	55.7	446 @ 1450	90	43.9	EM, DÇAC, SPL,
23	3116	145 @ 2000	80	53.6	441 @ 1450	89	43.4	EM, DÇAC, SPL,
24	3116	150 @ 1950	84	55.4	467 @ 1450	94	45.9	EM, DÇAC, SPL,
25	3116	192 @ 1800	109	66.0	607 @ 1450	121	59.1	EM, DÇAC, SPL,
26	3116	180 @ 1800	103	62.3	606 @ 1450	121	59.1	EM, DÇAC, SPL,
27	3116	160 @ 1800	92	55.8	509 @ 1450	103	50.0	EM, DÇAC, SPL,
28	3116	130 @ 1800	77kw 77	46.8	422 @ 1450	87	42.2	EM, DÇAC, SPL,
29	3116	210 @ 2300	98	75.8	569 @ 1400	112	52.8	EM, DÇAC, SPL,
30	3116	187 @ 2300	88	68.4	561 @ 1500	113	56.9	EM, DÇAC, SPL,
31	3116	180 @ 2200	89	66.1	525 @ 1400	106	49.7	EM, DÇAC, SPL,
32	3116	177 @ 2000	91	61.2	604 @ 1400	130	61.2	EM, DÇAC, SPL,