

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-140
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>	Engine Displacement <u>(liters)</u>	Useful Life <u>(hours)</u>	<u>Exhaust Emission Control Systems and Special Features</u>
1CPXL07.2MRB	7.2	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	0.2	1.3	8.4	0.30	14	3	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.

- 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 NT

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**
 Engine category: **Nonroad Over 50 Hp**
 EPA Engine Family: **1CPXL07.2MRB**
 Mfr Family Name: **NA**
 Process Code: **New Submission**

U-R-1-140

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 3126	fuel rates are 255 @ 2200 ^{~189}	nominal values. 134	Due to product- ion engine avgs. 99.3	742 @ 1450	these fuel rates 150	may change. 73.0	DDI, TC, LAC, SPL EM, DI, TC, SPL,
2	3126	230 @ 2600	103	89.9	575 @ 1950	114	75.0	EM, D CA C, SPL,
3	3126	250 @ 2500	119	100.3	683 @ 1650	132	73.1	EM, D CA C, SPL,
4	3126	260 @ 2400	128	103.4	740 @ 1450	148	72.2	EM, D CA C, SPL,
5	3126	255 @ 2400	125	100.9	725 @ 1450	145	70.5	EM, D CA C, SPL,
6	3126	240 @ 2400	116	93.9	683 @ 1450	135	65.7	EM, D CA C, SPL,
7	3126	230 @ 2400	111	90.0	654 @ 1450	129	62.7	EM, D CA C, SPL,
8	3126	220 @ 2400	106	85.7	626 @ 1400	123	57.7	EM, D CA C, SPL,
9	3126	260 @ 2600	122	106.5	683 @ 1650	139	77.3	EM, D CA C, SPL,
10	3126	250 @ 2200	131	97.1	729 @ 1450	146	71.4	EM, DI, TC, SPL,
11	3126	240 @ 2200	125	92.7	700 @ 1450	139	68.0	EM, D CA C, SPL,
12	3126	230 @ 2200	119	88.1	670 @ 1450	133	64.8	EM, D CA C, SPL,
13	3126	215 @ 2200	111	81.9	625 @ 1400	123	57.8	EM, D CA C, SPL,
14	3126	195 @ 2100	103	73.1	576 @ 1450	114	55.7	EM, D CA C, SPL,
15	3126	230 @ 2200	119	88.1	670 @ 1450	133	64.8	EM, D CA C, SPL,
16	3126	225 @ 2200	113	83.7	724 @ 1400	150	70.5	EM, D CA C, SPL,
17	3126	221 @ 2200	110	81.7	710 @ 1400	135	63.8	EM, D CA C, SPL,
18	3126	221 @ 2200	110	81.7	710 @ 1400	135	63.8	EM, D CA C, SPL,
19	3126	225 @ 2200	113	83.7	724 @ 1400	150	70.5	EM, D CA C, SPL,
20	3126	221 @ 2200	110	81.7	710 @ 1400	135	63.8	EM, D CA C, SPL,
21	3126	221 @ 2200	110	81.7	710 @ 1400	135	63.8	EM, D CA C, SPL,
22	3126	217 @ 2200	109	80.7	696 @ 1400	144	67.9	EM, D CA C, SPL,
23	3126	204 @ 2200	104	77.0	721 @ 1400	149	70.1	EM, D CA C, SPL,
24	3126	204 @ 2200	102	75.3	653 @ 1400	126	59.1	EM, D CA C, SPL,
25	3126	201 @ 2200	101	74.6	643 @ 1400	123	58.1	EM, D CA C, SPL,
26	3126	201 @ 2200	101	74.6	643 @ 1400	123	58.1	EM, D CA C, SPL,
27	3126	196 @ 2200	100	74.1	692 @ 1400	143	67.5	EM, D CA C, SPL,
28	3126	163 @ 2200	84	62.4	595 @ 1400	113	53.4	EM, D CA C, SPL,
29	3126	163 @ 2200	85	63.2	595 @ 1400	113	53.4	EM, D CA C, SPL,
30	3126	163 @ 2200	84	62.4	595 @ 1400	113	53.4	EM, D CA C, SPL,
31	3126	158 @ 2200 ^{~117 kw}	80	59.3	578 @ 1400	110	51.9	EM, D CA C SPL,