

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-136
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, Pump, Generator and Other Industrial Equipment

Fuel Type: Diesel

<u>Engine Family</u>	Engine Displacement (liters)	Useful Life (hours)	<u>Exhaust Emission Control Systems and Special Features</u>
1CPXL78.1ERK	69.0 and 78.1	8000	Direct Diesel Injection Turbocharger Engine Control Module 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 hydrocarbons (HC), 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>Standard Certification</u>	<u>Exhaust Emissions (g/kw-hr)</u>				<u>Smoke Opacity (%)</u>		
			<u>HC</u>	<u>CO</u>	<u>NOx</u>	<u>PM</u>	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>
560<KW	Tier 1	Standard Certification	1.3 0.4	11.4 1.2	9.2 8.3	0.54 0.13	20 9	15 2	50 20

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 21st day of December 2000.


R. B. Summerfield, Chief
Mobile Source Operations Division

ATTACHMENT

Engine Model Summary Form

Manufacturer: **Caterpillar Inc.**
 Engine category: **Nonroad CI**
 EPA Engine Family: **1CPXL78.1ERK**
 Mfr Family Name:
 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
1	3516	3230@1800	690	1115	9419@1800	N/A	N/A	EM,DI,TC,ECM
2	3516	2300@1750	520	817	8235@1300	624	728	EM,DI,TC,ECM
3	3516	1900@1750	404	634	6837@1300	501	585	EM,DI,TC,ECM
4	3516	1379@1600	328	472	5692@1100	403	398	EM,DI,TC,ECM
5	3516	1655@1750	358	563	5952@1300	429	501	EM,DI,TC,ECM
6	3516	1648@1200	540	582	7208@1200	N/A	N/A	EM,DI,TC,ECM
7	3516	1855@1200	607	654	8111@1200	N/A	N/A	EM,DI,TC,ECM
8	3516	2034@1200	670	721	8897@1200	N/A	N/A	EM,DI,TC,ECM
9	3516	2374@1800	492	795	6920@1800	N/A	N/A	EM,DI,TC,ECM
10	3516	2628@1800	544	879	7663@1800	N/A	N/A	EM,DI,TC,ECM
11	3516	2876@1800	602	972	8386@1800	N/A	N/A	EM,DI,TC,ECM
12	3516	2316@1800	483	780	6752@1800	N/A	N/A	EM,DI,TC,ECM
13	3516	2534@1800	526	849	7389@1800	N/A	N/A	EM,DI,TC,ECM
14	3516	1855@1200	603	649	8111@1200	N/A	N/A	EM,DI,TC,ECM
15	3516	2549@1800	517	836	7433@1800	N/A	N/A	EM,DI,TC,ECM
16	3516	1855@1200	596	642	8111@1200	N/A	N/A	EM,DI,TC,ECM
17	3516	1855@1200	596	642	8111@1200	N/A	N/A	EM,DI,TC,ECM
18	3516	2300@1750	489	768	8235@1300	575	671	EM,DI,TC,ECM
19	3516	1900@1750	404	634	6837@1300	501	585	EM,DI,TC,ECM
20	3516	2000@1800	435	703	6749@1350	N/A	N/A	EM,DI,TC,ECM
21	3516	2100@1800	456	736	6749@1350	N/A	N/A	EM,DI,TC,ECM
22	3516	2200@1800	477	771	6749@1350	N/A	N/A	EM,DI,TC,ECM

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