

File

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-134  
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 Pump

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>
1CPXL34.5ERK	34.5	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>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	1.3	11.4	9.2	0.54	20	15	50
		Certification	0.4	0.8	7.9	0.21	12	2	26

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 21<sup>st</sup> day of December 2000.



R. B. Summerfield, Chief  
Mobile Source Operations Division

# ATTACHMENT

## Engine Mode Summary Form

Manufacturer: **Caterpillar Inc.**  
 Engine category: **Nonroad CI**  
 EPA Engine Family: **1CPXL34.5ERK**  
 Mfr Family Name:  
 Process Code: **New Submission**

U-R-1134

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	3508	1676@1800	714	577	4887@1800	N/A	N/A	EM,DI,TC,ECM
2	3508	936@1800	413	334	3618@1300	524	306	EM,DI,TC,ECM
3	3508	880@1750	394	310	3325@1300	471	275	EM,DI,TC,ECM
4	3508	1000@1750	462	363	3599@1300	525	306	EM,DI,TC,ECM
5	3508	861@1750	376	295	3046@1300	426	249	EM,DI,TC,ECM
6	3508	775@1200	521	281	3390@1200	N/A	N/A	EM,DI,TC,ECM
7	3508	915@1200	599	323	4000@1200	N/A	N/A	EM,DI,TC,ECM
8	3508	988@1200	663	357	4322@1200	N/A	N/A	EM,DI,TC,ECM
9	3508	1234@1800	526	425	3597@1800	N/A	N/A	EM,DI,TC,ECM
10	3508	1341@1800	583	471	3910@1800	N/A	N/A	EM,DI,TC,ECM
11	3508	1502@1800	635	513	4379@1800	N/A	N/A	EM,DI,TC,ECM
12	3508	915@1200	578	311	4000@1200	N/A	N/A	EM,DI,TC,ECM
13	3508	1298@1800	545	440	3785@1800	N/A	N/A	EM,DI,TC,ECM
14	3508	915@1200	578	311	4000@1200	N/A	N/A	EM,DI,TC,ECM
15	3508	920@1750	413	324	3311@1300	472	275	EM,DI,TC,ECM
16	3508	1019@1800	434	351	2971@1800	N/A	N/A	EM,DI,TC,ECM
17	3508	900@1200	574	309	4230@900	752	304	EM,DI,TC,ECM
18	3508	1000@1800	418	337	3233@1350	494	299	EM,DI,TC,ECM
19	3508	1050@1800	436	352	3233@1350	494	299	EM,DI,TC,ECM
20	3508	1100@1800	455	367	3233@1350	494	299	EM,DI,TC,ECM

CAC

DDI, TC, CAC, ECM