State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-105

Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

CATERPILLAR, INC.

Pursuant to the authority vested in the Air Resources Board by Sections 43000.5, 43013 and 43018 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 Caterpillar, Inc. 2000 model-year engine, with rated power greater than 750 horsepower, and exhaust emission control systems are certified as described below for use in heavy-duty off-road equipment:

Typical Equipment Usage: Loader, Pump, Excavator and Generator

Fuel Type: Diesel

Engine Family	Liters	(Cubic Inches)	Exhaust Emission Control Systems and Special Features
YCPXL34.5ERK	34.5	(2118)	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 total hydrocarbons (THC), carbon monoxide (CO), nitrogen oxides (NOx), and particulate matter (PM) certification exhaust emission standards, in grams per brake horsepower-hour (g/bhp-hr), and the opacity of smoke emission standards, in percent (%), during acceleration (Accel), lugging (Lug), and peak (Peak) modes, for this engine family are (Title 13, California Code of Regulations, Section 2423):

Exhaust Emissions (g/bhp-hr)				Smoke Opacity (%)		
THC	CO	NOx	PM	Accel	Lug	Peak
1.0	8.5	6.9	0.4	20	15	50

The THC, CO, NOx and PM exhaust emission certification values, in g/bhp-hr, and the opacity of smoke emission certification values, in percent (%), for this engine family are:

Exhaust Emissions (g/bhp-hr)				Smoke Opacity (%)		
THC	CO	NOx	PM	Accel	Lug	Peak
0.3	0.6	5.9	0.2	12	2	26

BE IT FURTHER RESOLVED: That the listed engine models comply with the "Exhaust Emission Standards and Test Procedures--Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2423) for the aforementioned model year.

BE IT FURTHER RESOLVED: That the listed engine models also comply with the "Emission Control Labels--1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model year.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Section 2425 et seq.).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

Executed at El Monte, California this 20 day of October 1999.

John Lundeson for
R. B. Summerfield, Chief
Mobile Source Operations Division

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**

Engine category: **Nonroad CI**

EPA Engine Family: **YCPXL34.5ERK**

Mfr Family Name: **N/A**

Process Code: **New Submission**

EO: U-R-1-105

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 Cert Engine	3508	1676@1800	714	577.0	4887 @ 1800	N/A	N/A	EM,DI,TC,ECM
2	3508	923@1800	413	333.5	3618 @ 1300	524	305.5	EM,DI,TC,CAC,ECM
3	3508	880@1750	394	309.7	3325 @ 1300	471	274.6	EM,DI,TC,CAC,ECM
4	3508	1000@1750	462	362.5	3599 @ 1300	525	306.0	EM,DI,TC,CAC,ECM
5	3508	860@1750	376	295.3	3046 @ 1300	426	248.6	EM,DI,TC,CAC,ECM
6	3508	775@1200	515	277.3	3390 @ 1200	N/A	N/A	EM,DI,TC,CAC,ECM
7	3508	915@1200	599	322.5	4000 @ 1200	N/A	N/A	EM,DI,TC,CAC,ECM
8	3508	988@1200	663	356.9	4322 @ 1200	N/A	N/A	EM,DI,TC,CAC,ECM
9	3508	1234@1800	526	424.6	3597 @ 1800	N/A	N/A	EM,DI,TC,CAC,ECM
10	3508	1341@1800	583	471.0	3910 @ 1800	N/A	N/A	EM,DI,TC,CAC,ECM
11	3508	1502@1800	635	512.9	4379 @ 1800	N/A	N/A	EM,DI,TC,CAC,ECM
12	3508	912@1200	576	310.4	3988 @ 1200	N/A	N/A	EM,DI,TC,CAC,ECM
13	3508	1298@1800	547	441.8	3785 @ 1800	N/A	N/A	EM,DI,TC,CAC,ECM
14	3508	915@1200	578	311.3	4000 @ 1200	N/A	N/A	EM,DI,TC,CAC,ECM
15	3508	920@1750	413	324.3	3311 @ 1300	472	275.2	EM,DI,TC,CAC,ECM
16	3508	1019@1800	430	346.9	2971@1800	N/A	N/A	EM,DI,TC,CAC,ECM

ECM, TC, CAC