State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-112
Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

CATERPILLAR, INC.

Pursuant to the authority vested in the Air Resources Board at Sections 43000.5, 43013, and 43018 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned at Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-9; and

IT IS ORDERED AND RESOLVED: That the following diesel engines and the exhaust emission control systems produced by the manufacturer are certified as described below for use in heavy-duty off-road equipment:

Model Year: 2000

Typical Equipment Usage: Industrial equipment

Engine Power Ratings Range: 175 – 750 horsepower, inclusive

Fuel Type: Diesel

Engine Family	Displacement Liters	Displacement Cubic Inches	Exhaust Emission Control Systems and Special Features
YCPXL10.4MRB	10.4	638	Smoke Puff Limiter Turbocharger Charge Air Cooler

The 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 in grams per brake horsepower-hour (g/hp-h) for total hydrocarbons (THC), carbon monoxide (CO), nitrogen oxides (NOx), and particulate matter (PM), and the opacity-of-smoke certification standards and certification values in percent (%) during acceleration (Accel), lugging (Lug), and the peak-values from either mode (Peak) for this engine family are as follows (Title 13, California Code of Regulations, Section 2423):

	Exhaust Emissions (g/hp-h)				Smoke Opacity (%)		
	THC	CO	NOx	PM	Accel	Lug	Peak
Standard	1.0	8.5	6.9	0.4	20	15	50
Certification	0.3	0.8	6.1	0.3	16	9	20

BE IT FURTHER RESOLVED: That the listed engine models comply with "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 "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, Sections 2425 *et seq.*).

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

Executed at El Monte, California this 7 day of December 1999.

R. B. Summerfield, Chief
Mobile Source Operations Division

6/2/99

LARGE ENGINE MODEL SUMMARY

EO: U-R-1-112

Manufacturer: **CATERPILLAR INC.**

Process Code: **New Submission**

EPA Engine Family: **YCPXL10.4MRB**

Manufacturer Family Name: **NA**

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.	
1 - Cert Engine	3208	300 @ 2400	105	113.0	802 @ 1690	122	92.5	EM, DI, TC, SPL,
2	3208	250 @ 2400	86	93.1	674 @ 1690	101	76.5	EM, DI~~CAC~~, SPL,
3	3208	245 @ 2400	85	91.4	662 @ 1690	99	75.1	EM, DI~~CAC~~, SPL,
4	3208	235 @ 2400	81	87.6	637 @ 1690	95	72.1	EM, DI~~CAC~~, SPL,
5	3208	230 @ 2400	80	85.7	625 @ 1690	93	70.5	EM, DI~~CAC~~, SPL,
6	3208	225 @ 2400	50	84.0	612 @ 1690	91	69.1	EM, DI~~CAC~~, SPL,
7	3208	231 @ 2350	81	85.1	635 @ 1690	93	70.4	EM, DI~~CAC~~, SPL,
8	3208	300 @ 2600	102	119.5	800 @ 1690	122	92.2	EM, DI~~CAC~~, SPL,
9	3208	275 @ 2600	93	108.8	732 @ 1690	110	83.6	EM, DI~~CAC~~, SPL,
10	3208	271 @ 2500	89	103.9	722 @ 1690	109	82.4	EM, DI~~CAC~~, SPL, CAC ↑ TC, CAC, SPL