State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-85

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. 1999 model-year engine, with rated power between 175 and 750 horsepower, and exhaust emission control systems are certified as described below for use in heavy-duty off-road equipment:

Typical Equipment Usage: Industrial Equipment and Generator

Fuel Type: Diesel

Engine Family	Liters	(Cubic Inches)	Exhaust Emission Control Systems and Special Features
XCPXL10.5MRD	10.5	(644)	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 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
0.2	1.4	4.6	0.1	17	3	38

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 16th day of December 1998.

John Kowalski for

R. B. Summerfield, Chief
Mobile Source Operations Division

LARGE ENGINE MODEL SUMMARY

10/21/98

EO: U-R-1-85

Manufacturer: CATERPILLAR INC.

Process Code: New Submission

EPA Engine Family: XCPXL10.5MRD

Manufacturer Family Name: N/A

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	3306	397 @ 1800	243	147.0	1448 @ 1200	337	136.0	EM, DI , TC, SPL, CAC
2	3306	377 @ 1800	220	133.0	1265 @ 1350	293	133.0	EM, DI, TC, SPL, CAC
3	3306	343 @ 2200	222	122.0	933 @ 1350	269	122.0	EM, DI, TC, SPL, CAC
4	3306	360 @ 2200	181	134.0	1177 @ 1400	225	106.0	EM, DI, TC, SPL, CAC
5	3306	345 @ 2200	174	129.0	1120 @ 1400	214	101.0	EM, DI, TC, SPL, CAC
6	3306	335 @ 2200	170	126.0	1080 @ 1400	206	97.0	EM, DI, TC, SPL, CAC
7	3306	315 @ 2200	160	118.0	1008 @ 1400	191	90.0	EM, DI, TC, SPL,
8	3306	300 @ 2200	146	108.0	874 @ 1400	187	88.0	EM, DI, TC, SPL,
9	3306	370 @ 2000	195	131.0	1244 @ 1400	238	112.0	EM, DI, TC, SPL,
10	3306	355 @ 2000	188	127.0	1184 @ 1400	225	106.0	EM, DI, TC, SPL,
11	3306	335 @ 2000	177	119.0	1100 @ 1400	210	99.0	EM, DI, TC, SPL,
12	3306	325 @ 2000	172	116.0	1058 @ 1400	200	94.0	EM, DI, TC, SPL,
13	3306	305 @ 2000	161	108.0	977 @ 1400	187	88.0	EM, DI, TC, SPL, CAC
14	3306	375 @ 1800	217	131.0	1444 @ 1350	244	111.0	EM, DI, TC, SPL,
15	3306	360 @ 1800	210	127.0	1355 @ 1350	228	104.0	EM, DI, TC, SPL,
16	3306	340 @ 1800	197	119.0	1250 @ 1350	214	97.0	EM, DI, TC, SPL,
17	3306	320 @ 1800	185	112.0	1139 @ 1350	196	89.0	EM, DI, TC, SPL,
18	3306	300 @ 1800	174	105.0	1050 @ 1350	181	82.0	EM, DI, TC, SPL,
19	3306	306 @ 2000	163	109.4	1004 @ 1400	191	89.9	EM, DI, TC, SPL,
20	3306	306 @ 2000	168	113.1	1004 @ 1400	199	93.9	EM, DI, TC, SPL,
21	3306	382 @ 1800	218	132.0	1303 @ 1400	248	117.0	EM, DI, TC, SPL,
22	3306	349 @ 1800	226	137.0	1185 @ 1400	238	112.0	EM, DI, TC, SPL,
23	3306	349 @ 1800	226	137.0	1185 @ 1400	238	112.0	EM, DI, TC, SPL,