State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-53

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. 1998 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, Wheel Loader, Excavator, Track Loader, Motor Grader

Fuel Type: Diesel

Engine Family	Liters	(Cubic Inches)	Exhaust Emission Control Systems and Special Features
WCPXL06.6MRB	6.6	(403)	Turbocharger Charge Air Cooler Smoke Puff Limiter

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 matters (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-hp)				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 (%)		
Engine Family	THC	CO	NOx	PM	Accel	Lug	Peak
WCPXL06.6MRB	0.2	1.1	6.3	0.2	16	4	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 9th day of December 1997.

R. B. Summerfield, Chief
Mobile Source Operations Division

LARGE ENGINE MODEL SUMMARY

10/15/97

EO: U-R-1-53

Manufacturer: CATERPILLAR INC. Process Code: New Submission

EPA Engine Family: WCPXL06.6MRB 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	3116	220 @ 2600	100	87.4	586 @ 1650	115	63.8	EM, DI, TC, SPL,
3	3116	200 @ 2400	94	75.9	313 @ 1450	115	56.2	EM, DI, AC, SPL,
4	3116	190 @ 2400	89	72.0	551 @ 1400	111	52.4	EM, DI, AC, SPL,
5	3116	200 @ 2300	96	74.6	573 @ 1450	115	56.1	EM, DI, AC, SPL,
6	3116	205 @ 2200	104	76.5	604 @ 1450	121	59.1	EM, DI, AC, SPL,
7	3116	195 @ 2200	95	70.4	592 @ 1450	117	57.1	EM, DI, AC, SPL,
8	3116	185 @ 2200	92	68.0	544 @ 1450	108	52.6	EM, DI, AC, SPL,
9	3116	175 @ 2200	87	64.2	515 @ 1400	103	48.3	EM, DI, AC, SPL,
10	3116	185 @ 2100	96	67.5	552 @ 1450	110	53.6	EM, DI, AC, SPL,
11	3116	180 @ 2000	96	64.7	545 @ 1450	108	52.9	EM, DI, AC, SPL,
12	3116	190 @ 2600	85	74.2	490 @ 1650	96	53.2	EM, DI, AC, SPL,
13	3116	180 @ 2500	79	66.5	460 @ 1650	89	49.2	EM, DI, AC, SPL,
14	3116	200 @ 2400	97	78.4	550 @ 1450	111	54.1	EM, DI, AC, SPL,
15	3116	175 @ 2400	82	66.4	482 @ 1450	97	47.4	EM, DI, AC, SPL,
16	3116	165 @ 2400	79	64.0	453 @ 1450	91	44.6	EM, DI, AC, SPL,
17	3116	150 @ 2400	73	58.6	420 @ 1400	85	40.1	EM, DI, AC, SPL,
18	3116	190 @ 2200	96	71.4	555 @ 1450	112	54.6	EM, DI, AC, SPL,
19	3116	160 @ 2200	80	59.5	458 @ 1450	92	45.1	EM, DI, AC, SPL,
20	3116	150 @ 2200	76	56.1	423 @ 1450	86	41.8	EM, DI, AC, SPL,
21	3116	140 @ 2200	71	52.5	405 @ 1450	79	38.6	EM, DI, AC, SPL,
22	3116	150 @ 2100	79	55.7	446 @ 1450	90	43.9	EM, DI, AC, SPL,
23	3116	145 @ 2000	80	53.6	441 @ 1450	89	43.4	EM, DI, AC, SPL,
24	3116	150 @ 1950	84	55.4	467 @ 1450	94	45.9	EM, DI, AC, SPL,
25	3116	192 @ 1800	109	66.0	607 @ 1450	121	59.1	EM, DI, AC, SPL,
26	3116	180 @ 1800	103	62.3	606 @ 1450	121	59.1	EM, DI, AC, SPL,
27	3116	160 @ 1800	92	55.8	509 @ 1450	103	50.0	EM, DI, AC, SPL,
28	3116	130 @ 1800	77	46.8	422 @ 1450	87	42.2	EM, DI, AC, SPL,
29	3116	210 @ 2300	98	75.8	569 @ 1400	112	52.8	EM, DI, AC, SPL,
30	3116	187 @ 2300	88	68.4	561 @ 1500	113	56.9	EM, DI, AC, SPL,
31	3116	180 @ 2200	89	66.1	525 @ 1400	106	49.7	EM, DI, AC, SPL,
32	3116	177 @ 2000	91	61.2	604 @ 1400	130	61.2	EM, DI, AC, SPL,
33	3116	174 @ 2200	85	63.0	512 @ 1400	102	47.9	EM, DI, AC, SPL,

35	3116	166 @ 2000	86	[illegible].8	547 @ 1400	106	50.1	EM, DC, AC, SPL, CAC
36	3116	161 @ 1950	85	55.7	536 @ 1400	104	49.1	EM, DC, AC, SPL, CAC
37	3116	151 @ 2000	78	52.8	495 @ 1400	96	45.2	EM, DC, AC, SPL, CAC
38	3116	151 @ 2000	80	54.0	495 @ 1400	96	45.2	EM, DC, AC, SPL, CAC

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