

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-59

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, Dozer, Motor Grader

Fuel Type: Diesel

<u>Engine Family</u>	<u>Liters (Cubic Inches)</u>		<u>Exhaust Emission Control Systems and Special Features</u>
WCPXL10.5MRF	10.5	(638)	Turbocharger 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):

<u>Exhaust Emissions (g/bhp-hp)</u>				<u>Smoke Opacity (%)</u>		
<u>THC</u>	<u>CO</u>	<u>NOx</u>	<u>PM</u>	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>
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:

<u>Engine Family</u>	<u>Exhaust Emissions (g/bhp-hr)</u>				<u>Smoke Opacity (%)</u>		
	<u>THC</u>	<u>CO</u>	<u>NOx</u>	<u>PM</u>	<u>Accel</u>	<u>Lug</u>	<u>Peak</u>
WCPXL10.5MRF	0.7	2.0	5.7	0.4	13	1	34

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

EO: U-R-1-59

Manufacturer: **CATERPILLAR INC.** Process Code: **NAW Submission**

EPA Engine Family: **WCPXL10.5MRE** 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	3306	225 @ 2000	135	90.7	760 @ 1400	159	75.0	EM, DI, TC, SPL
2	3306	215 @ 2200	120	88.8	754 @ 1400	156	73.0	EM, DI, TC, SPL
3	3306	205 @ 2200	117	86.8	725 @ 1400	147	69.0	EM, DI, TC, SPL
4	3306	200 @ 2200	107	79.4	621 @ 1400	127	60.0	EM, DI, TC, SPL
5	3306	190 @ 2200	109	80.7	669 @ 1400	134	63.0	EM, DI, TC, SPL
6	3306	200 @ 2100	116	82.3	708 @ 1400	142	67.0	EM, DI, TC, SPL
7	3306	210 @ 2000	125	84.1	746 @ 1400	151	71.0	EM, DI, TC, SPL
8	3306	200 @ 2000	119	80.0	708 @ 1400	142	67.0	EM, DI, TC, SPL
9	3306	190 @ 2000	109	72.0	619 @ 1400	123	58.0	EM, DI, TC, SPL
10	3306	190 @ 2000	113	76.2	674 @ 1400	133	63.0	EM, DI, TC, SPL
11	3306	170 @ 2000	95	64.0	552 @ 1400	110	52.0	EM, DI, TC, SPL
12	3306	220 @ 1800	131	79.2	797 @ 1200	164	66.0	EM, DI, TC, SPL
13	3306	220 @ 1800	135	81.7	809 @ 1200	164	66.0	EM, DI, TC, SPL
14	3306	200 @ 1800	122	73.8	731 @ 1200	149	60.0	EM, DI, TC, SPL
15	3306	185 @ 1800	113	68.5	675 @ 1200	136	55.0	EM, DI, TC, SPL
16	3306	175 @ 1800	108	65.2	637 @ 1200	129	52.0	EM, DI, TC, SPL
17	3306	150 @ 1800	90	54.2	541 @ 1200	99	40.0	EM, DI, TC, SPL
18	3306	154 @ 1900	92	59.1	536 @ 1200	109	43.9	EM, DI, TC, SPL
19	3306	205 @ 1900	126	80.4	732 @ 1200	168	67.7	EM, DI, TC, SPL
20	3306	198 @ 1900	121	77.4	706 @ 1200	158	63.9	EM, DI, TC, SPL
21	3306	164 @ 1900	98	62.8	576 @ 1200	132	53.3	EM, DI, TC, SPL
22	3306	194 @ 1900	118	75.7	687 @ 1200	155	62.7	EM, DI, TC, SPL
23	3306	200 @ 1900	122	77.8	756 @ 1200	167	67.5	EM, DI, TC, SPL
24	3306	189 @ 1900	115	66.3	718 @ 1200	164	66.3	EM, DI, TC, SPL
25	3306	179 @ 1900	110	62.6	680 @ 1200	155	62.6	EM, DI, TC, SPL
26	3306	179 @ 1800	114	68.9	684 @ 1200	156	62.8	EM, DI, TC, SPL
27	3306	179 @ 1900	110	70.4	680 @ 1200	155	62.6	EM, DI, TC, SPL
28	3306	189 @ 1800	118	71.7	722 @ 1200	164	66.3	EM, DI, TC, SPL
29	3306	189 @ 1800	115	73.5	718 @ 1200	164	66.3	EM, DI, TC, SPL
30	3306	194 @ 1800	122	74.1	742 @ 1200	170	68.5	EM, DI, TC, SPL
31	3306	194 @ 1900	118	75.5	738 @ 1200	169	67.9	EM, DI, TC, SPL

Large Engine Part Number Summary

Manufacturer: **CATERPILLAR INC.**
 EPA Engine Family: **WCPXL10.5MRE**

Manufacturer Family Name: **NA**

EO: **U-R-1-59**

Electronic

Engine Code	Engine Model	Injection Pump	Injector	Turbo Charge	Electronic Control Module	After Treatment Device (Specify)	Smoke Puff Limiter	Description	Part Number
1 - 17	3306	1312652	7W7038	1137919	NA	NA	1115162	NA	NA
18	3306	1113769	7W7038	1137919	NA	NA	NA	NA	NA
19 - 20	3306	1113769	7W7038	1137919	NA	NA	1115162	NA	NA
21	3306	1113769	7W7038	1137919	NA	NA	NA	NA	NA
22 - 31	3306	1113769	7W7038	1137919	NA	NA	1115162	NA	NA