

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-120
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: Generator and Industrial equipment

Engine Power Ratings Range: 175 horsepower and greater

Fuel Type: Diesel

<u>Engine Family</u>	<u>Displacement</u>		<u>Exhaust Emission Control Systems and Special Features</u>
	<u>Liters</u>	<u>Cubic Inches</u>	
YCPXL27.0MRH	27.0	1658	Smoke Puff Limiter (Engine Codes 1 through 12 only) 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 engines with power ratings between 175 and 750 horsepower, inclusive, 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):

	<u>Exhaust Emissions (g/hp-h)</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>
Standard	1.0	8.5	6.9	0.4	20	15	50
Certification	0.1	1.9	6.4	0.2	18	8	26

The exhaust emission certification standards and certification values in grams per brake horsepower-hour (g/hp-h) for engines with power ratings above 750 horsepower 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):

	<u>Exhaust Emissions (g/hp-h)</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>
Standard	1.0	8.5	6.9	0.4	20	15	50
Certification	0.1	1.5	5.8	0.3	N/A	N/A	N/A


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

LARGE ENGINE MODEL SUMMARY

EO:U-R-1-120

Process Code: **New Submission**

Manufacturer: **CATERPILLAR INC.**

NA

Manufacturer Family Name:

EPA Engine Family: **YCPXL27.0MRH**

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
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Note: Peak HP and Peak Torque		fuel rates are		nominal values.		Due to product-		ion engine avgs.		these fuel rates		may change.	
1	3412	750 @ 1800	220	266.1	2430 @ 1350	248	225.0	EM, DI, TC, SPL,					
2	3412	725 @ 1800	213	257.7	2328 @ 1350	238	216.3	EM, DÇAC, SPL,					
3	3412	715 @ 1800	210	253.8	2253 @ 1350	234	212.4	EM, DÇAC, SPL,					
4	3412	650 @ 1800	190	230.0	2039 @ 1350	209	189.7	EM, DÇAC, SPL,					
5	3412	625 @ 1800	182	220.9	1949 @ 1350	200	181.4	EM, DÇAC, SPL,					
6	3412	750 @ 1900	211	269.9	2393 @ 1350	245	222.6	EM, DÇAC, SPL,					
7	3412	750 @ 2000	203	273.5	2342 @ 1400	237	222.9	EM, DÇAC, SPL,					
8	3412	725 @ 2000	196	263.6	2244 @ 1400	227	213.4	EM, DÇAC, SPL,					
9	3412	750 @ 2100	195	276.1	2231 @ 1400	231	217.8	EM, DÇAC, SPL,					
10	3412	725 @ 2100	188	266.0	2187 @ 1400	222	209.1	EM, DÇAC, SPL,					
11	3412	700 @ 2100	182	256.6	2084 @ 1400	211	198.9	EM, DÇAC, SPL,					
12	3412	650 @ 2100	169	238.5	1896 @ 1400	192	181.2	EM, DÇAC, SPL,					
13 - Cert Engine		913 @ 1800	286	346.0	NA	NA	NA	EM, DÇAC, CAC					
14	3412	839 @ 1800	286	346.0	NA	NA	NA	EM, DI, TC, CAC					
15	3412	764 @ 1800	256	310.0	NA	NA	NA	EM, DI, TC, CAC					
16	3412	913 @ 1800	256	310.0	NA	NA	NA	EM, DI, TC, CAC					
17	3412	839 @ 1800	231	279.0	NA	NA	NA	EM, DI, TC, CAC					
18	3412	764 @ 1800	231	279.0	NA	NA	NA	EM, DI, TC, CAC					

TC, CAC, SPL