

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-129
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 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: Tractor, Excavator, Combine and Industrial equipment

Engine Power Ratings Range: 175 – 750 horsepower, inclusive

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>	
YCPXL12.0ERM	12.0	736	Engine Control Module 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/bhp-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):

	<u>Exhaust Emissions (g/bhp-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	0.2	0.8	4.0	0.1	2	1	2

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 29TH day of December 1999.



for R. B. Summerfield, Chief
Mobile Source Operations Division

LARGE ENGINE MODEL SUMMARY

EO: U-R-1-129

Process Code: **New Submission**

Manufacturer: **CATERPILLAR INC.**

EPA Engine Family: **YCPXL12.0ERM**

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
----------------	-----------------	------------------------	---	---	-----------------------------	---------------------------------------	--------------------------------------	--

1-Cert Engine	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	
Peak HP	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	
and Peak torque	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	3196	
fuel rates are	500 @ 2100	420 @ 2100	420 @ 2100	385 @ 2100	380 @ 2100	370 @ 2100	350 @ 2100	340 @ 2100	350 @ 2100	385 @ 2100	322 @ 2100	322 @ 2100	350 @ 2100	370 @ 2100	400 @ 2100	400 @ 2100	400 @ 2100	350 @ 2100	385 @ 2100	385 @ 2100	500 @ 2100	455 @ 2100	425 @ 2100	412 @ 2100
nominal values.	226	189	189	173	169	165	158	154	158	173	152	152	158	167	179	179	179	158	173	173	260	205	192	205
Due to product-	160.0	133.4	133.4	121.9	119.5	116.5	111.6	108.9	111.6	121.9	112.4	112.4	111.6	117.8	126.6	126.2	126.2	111.6	121.9	121.9	157.3	144.7	135.5	138.2
ion engine avgs.	1575 @ 1400	1365 @ 1400	1365 @ 1400	1252 @ 1400	1217 @ 1400	1185 @ 1400	1139 @ 1400	1089 @ 1400	1139 @ 1400	1252 @ 1400	1061 @ 1400	1061 @ 1400	1139 @ 1400	1200 @ 1400	1275 @ 1400	1350 @ 1400	1450 @ 1400	1139 @ 1400	1252 @ 1400	1252 @ 1400	1575 @ 1400	1450 @ 1400	1350 @ 1400	1244 @ 1400
these fuel rates	286	248	248	227	221	215	206	196	206	227	200	195	206	218	227	232	232	206	227	227	286	258	240	234
may change.	134.5	117.0	117.0	106.7	103.9	101.1	96.8	92.5	96.8	106.7	94.4	91.7	96.8	102.7	106.8	109.3	109.3	96.8	106.7	106.7	134.5	121.3	113.0	110.2

↑ TC, AC, ECM