

State of California  
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-118  
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: Tractor, Generator 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>	
YCPXL14.6MRJ	14.6	895	Smoke Puff Limiter 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 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	2.7	6.6	0.3	15	5	30

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-1-118

Process Code: **New Submission**

Manufacturer: **CATERPILLAR INC.**

**NA**

EPA Engine Family: **YCPXL14.6MRJ**

Manufacturer Family Name:

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.	TC-CAC, SPL
1 - Cert Engine	3406	599 @ 1800	352	213.4	2045 @ 1350	405	183.9	EM, DI, TC, SPL,
2	3406	328 @ 2100	182	128.6	1215 @ 1200	234	94.3	EM, D <del>CA</del> C, SPL,
3	3406	325 @ 2100	178	126.0	1260 @ 1200	251	101.0	EM, D <del>CA</del> C, SPL,
4	3406	338 @ 2100	184	130.2	1259 @ 1200	245	98.9	EM, D <del>CA</del> C, SPL,
5	3406	341 @ 2100	186	131.6	1240 @ 1200	242	97.6	EM, D <del>CA</del> C, SPL,
6	3406	328 @ 2100	182	128.6	1215 @ 1200	233	94.3	EM, D <del>CA</del> C, SPL,
7	3406	328 @ 2100	182	128.6	1215 @ 1200	233	94.3	EM, D <del>CA</del> C, SPL,
8	3406	289 @ 1850	166	103.3	1029 @ 1200	205	82.7	EM, D <del>CA</del> C, SPL,
9	3406	264 @ 1900	142	91.0	957 @ 1200	188	76.1	EM, D <del>CA</del> C, SPL,
10	3406	355 @ 2000	187	125.5	1201 @ 1200	246	99.5	EM, D <del>CA</del> C, SPL,
11	3406	400 @ 2000	213	143.1	1361 @ 1400	281	132.4	EM, D <del>CA</del> C, SPL,
12	3406	420 @ 2000	227	153.0	1448 @ 1200	301	122.0	EM, D <del>CA</del> C, SPL,
13	3406	460 @ 2100	237	167.1	1461 @ 1400	281	132.4	EM, D <del>CA</del> C, SPL,
14	3406	325 @ 1800	190	114.9	1153 @ 1200	239	96.6	EM, D <del>CA</del> C, SPL,
15	3406	345 @ 1800	201	122.0	1233 @ 1200	260	105.0	EM, D <del>CA</del> C, SPL,
16	3406	325 @ 2000	174	116.8	1099 @ 1400	220	103.7	EM, D <del>CA</del> C, SPL,
17	3406	340 @ 2000	181	121.9	1161 @ 1400	226	109.5	EM, D <del>CA</del> C, SPL,
18	3406	325 @ 1800	190	114.9	1153 @ 1200	243	98.1	EM, D <del>CA</del> C, SPL,
19	3406	345 @ 1800	201	122.0	1233 @ 1200	260	105.0	EM, D <del>CA</del> C, SPL,
20	3406	325 @ 2100	168	118.9	1089 @ 1400	218	102.8	EM, D <del>CA</del> C, SPL,
21	3406	335 @ 2100	174	122.9	1133 @ 1400	227	106.9	EM, D <del>CA</del> C, SPL,
22	3406	335 @ 2100	174	122.9	1133 @ 1400	218	102.6	EM, D <del>CA</del> C, SPL,
23	3406	500 @ 2100	255	180.0	1600 @ 1400	296	139.4	EM, D <del>CA</del> C, SPL,
24	3406	360 @ 1800	208	126.0	1264 @ 1200	262	106.0	EM, D <del>CA</del> C, SPL,
25	3406	360 @ 2000	192	129.0	1213 @ 1400	246	116.0	EM, D <del>CA</del> C, SPL,
26	3406	360 @ 1800	208	126.0	1251 @ 1200	262	106.0	EM, D <del>CA</del> C, SPL,
27	3406	360 @ 2100	188	133.0	1202 @ 1400	240	113.0	EM, D <del>CA</del> C, SPL,
28	3406	380 @ 2100	201	142.0	1287 @ 1400	260	123.0	EM, D <del>CA</del> C, SPL,
29	3406	400 @ 2100	249	150.0	1369 @ 1400	278	131.0	EM, D <del>CA</del> C, SPL,
30	3406	390 @ 2100	201	141.9	1331 @ 1400	258	121.2	EM, D <del>CA</del> C, SPL,
31	3406	435 @ 2100	227	160.4	1505 @ 1400	293	138.1	EM, D <del>CA</del> C, SPL,
32	3406	347 @ 1900	189	120.8	1219 @ 1200	243	98.3	EM, D <del>CA</del> C, SPL,
33	3406	382 @ 1900	208	133.2	1364 @ 1200	273	110.2	EM, D <del>CA</del> C, SPL,

34	3406	440 @ 1800	251	15.0	1495 @ 1350	292	132.4	EM, TC, SPL
35	3406	375 @ 1800	215	13.0	1317 @ 1200	271	109.3	EM, DÇAC, SPL
36	3406	390 @ 2000	207	139.3	1339 @ 1400	259	122.0	EM, DÇAC, SPL
37	3406	400 @ 1800	227	137.6	1430 @ 1200	283	114.2	EM, DÇAC, SPL
38	3406	400 @ 1900	219	140.2	1379 @ 1200	278	112.4	EM, DÇAC, SPL
39	3406	375 @ 2000	198	133.3	1280 @ 1400	247	116.3	EM, DÇAC, SPL
40	3406	400 @ 2000	212	142.7	1379 @ 1400	267	125.7	EM, DÇAC, SPL
41	3406	375 @ 2100	193	136.2	1270 @ 1400	245	115.5	EM, DÇAC, SPL
42	3406	400 @ 2100	206	145.8	1369 @ 1400	265	124.9	EM, DI, TC, SPL
43	3406	435 @ 2100	227	160.5	1505 @ 1400	293	138.1	EM, DÇAC, SPL
44	3406	485 @ 2100	257	181.9	1680 @ 1400	332	156.2	EM, DÇAC, SPL
45	3406	385 @ 1800	218	132.2	1244 @ 1350	249	113.0	EM, DÇAC, SPL
46	3406	440 @ 2000	231	155.4	1398 @ 1400	269	126.9	EM, DÇAC, SPL
47	3406	440 @ 1800	251	151.9	1495 @ 1350	292	132.4	EM, DÇAC, SPL
48	3406	440 @ 1900	242	154.8	1462 @ 1350	285	129.6	EM, DÇAC, SPL
49	3406	440 @ 2000	231	155.4	1398 @ 1400	269	126.9	EM, DÇAC, SPL

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