

 AIR RESOURCES BOARD	CATERPILLAR, INC.	EXECUTIVE ORDER U-R-001-0310 New Off-Road Compression-Ignition Engines

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the December 15, 1998 Settlement Agreement between the Air Resources Board and the manufacturer, and any modifications thereof to the Settlement Agreement;

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engine and emission control system produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2007	7CPXL18.1ESK	18.1	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Direct Diesel Injection, Turbocharger, Charge Air Cooler and Engine Control Module			Loader, Tractor, Dozer and Industrial Equipment	

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kw-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

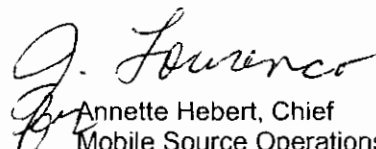
RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
225 ≤ KW ≤ 560	Tier 3	STD	N/A	N/A	4.0	3.5	0.20	20	15	50
		CERT	--	--	3.9	2.8	0.17	8	4	12

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 12th day October 2006.


 Annette Hebert, Chief
 Mobile Source Operations Division

Engine Model Summary Form

ATTACHMENT 1 OF 1

U-R-001-0310

Manufacturer: **CATERPILLAR INC.**
 Engine category: **Nonroad Over 50 Hp**
 EPA Engine Family: **7CPXL18.1ESK**
 Mfr Family Name: **NA**
 Process Code: **New Submission**

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	C18	700@1800	419	254.0	2361@1400	468	220.5	EM,DI,TC,ECM,CAC
2		C18	700@2100	375	264.8	2361@1400	468	220.5	EM,DI,TC,ECM,CAC
3		C18	525@2100	271	191.1	1859@1400	376	177.0	EM, DI, TC, ECM,
4		C18	553@1800	319	193.0	1934@1400	389	183.2	EM, DI, TC, ECM,
5		C18	464@1800	265	160.2	1849@1250	373	157.0	EM, DI, TC, ECM,
6		C18	464@1800	268	162.5	1849@1250	382	160.6	EM, DI, TC, ECM,
7		C18	700@2100	375	264.7	2361@1400	468	220.3	EM, DI, TC, ECM,
8		C18	630@2100	343	242.4	2042@1400	407	191.5	EM, DI, TC, ECM,
9		C18	650@2100	339	210	2051@1500	417	239	EM, DI, TC, ECM,
10		C18	650@2000	358	240.6	2078@1200	410	165.4	EM, DI, TC, ECM,
11		C18	523@1800	302	182.5	2004@1200	404	163.2	EM, DI, TC, ECM,
12		C18	553@1800	320	194.0	2116@1200	432	193.9	EM, DI, TC, ECM,
13		C18	523@1800	302	182.5	2005@1200	405	182.5	EM, DI, TC, ECM,
14		C18	555@1800	320	193.6	2004@1200	403	162.8	EM, DI, TC, ECM,
15		C18	700@1800	419	254.0	2359@1400	468	220.5	EM, DI, TC, ECM,
16		C18	575@1900	327	209.0	2005@1300	402	175.8	EM, DI, TC, ECM,
17		C18	588@2100	308	217.9	2090@1400	418	196.8	EM, DI, TC, ECM,
18		C18	575@2100	299	211.5	1938@1400	388	182.8	EM, DI, TC, ECM,
19		C18	600@2100	315	222.6	2022@1400	407	191.7	EM, DI, TC, ECM,
20		C18	589@2000	310	208.3	2064@1300	407	177.9	EM, DI, TC, ECM,
21		C18	525@1800	297	179.6	1672@1300	336	147.1	EM, DI, TC, ECM,
22		C18	488@1800	276	166.8	1549@1300	309	135.2	EM, DI, TC, ECM,
23		C18	598@1800	354	214	1988@1300	393	172	EM, DI, TC, ECM,
24		C18	556@1800	329	199	1849@1300	365	160	EM, DI, TC, ECM,
25		C18	632@1800	374	227	2107@1300	417	182	EM, DI, TC, ECM,
26		C18	596@1800	348	211	1985@1300	391	171	EM, DI, TC, ECM,
27		C18	632@1800	374	227	2107@1300	417	182	EM, DI, TC, ECM,
28		C18	596@1800	348	211	1985@1300	391	171	EM, DI, TC, ECM,
30		C18	600@2100	309	218	2022@1400	399	188	EM, DI, TC, ECM,
31		C18	575@2100	292	206	1938@1400	376	177	EM, DI, TC, ECM,
32		C18	630@2100	331	234	2042@1400	387	182	EM, DI, TC, ECM,

Engine Model

Manufacturer: CATERPILLAR INC.
Engine category: Nonroad Over 50 Hp
EPA Engine Family: 7CPXL18.1ESK
Mfr Family Name:
Process Code: Running Change - 1

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
2			370	261		461	217	
7			370	261		461	217	
20			312	210		399	175	
23			359	217		405	177	
24			334	202		373	163	
33	C18	632@1800	377	228	2107@1300	409	179	EM, DI, TC, ECM,
34	C18	596@1800	357	216	1985@1300	386	169	EM, DI, TC, ECM,
35	C18	630@2100	338	239	2203@1400	425	200	EM, DI, TC, ECM,
36 Cert Engine	C18	700@1800	414	250	2361@1400	467	220	EM, DI, TC, ECM,
37	C18	700@2100	376	266	2361@1400	467	220	EM, DI, TC, ECM,
38	C18	575@1900	323	206	2005@1300	399	175	EM, DI, TC, ECM,
39	C18	525@2100	277	196	1908@1400	397	187	EM, DI, TC, ECM,

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**
 Engine category: **Nonroad Over 50 Hp**
 EPA Engine Family: **7CPXL18.1ESK**
 Mfr Family Name:
 Process Code: **Running Change - 2**

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
3			372	192	1908@1400	391	184	
8			328	232		391	184	
17			310	219	2048@1400	412	194	
18			296	209		381	179	
19			313	221		411	194	
21			302	183		346	151	
30			313	221		411	194	
40	C-18	650@2100	338	239	2051@1500	410	207	EM, DI, TC, ECM,
41	C-18	488@1800	274	166	1549@1300	308	135	EM, DI, TC, ECM,
42	C-18	588@2100	317	224	2090@1400	429	202	EM, DI, TC, ECM,

Engine Model Summary Form

Manufacturer: CATERPILLAR INC.
Engine category: Nonroad Over 50 Hp
EPA Engine Family: 7CPXL18.1ESK
Mfr Family Name:
Process Code: Running Change - 3

1. Engine Code	2. Engine Model	3. BHP@RPM (SAE Gross)	4. Fuel Rate: mm ³ /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 ³ /stroke@peak torque	8. Fuel Rate: (lbs/hr)@peak torque	9. Emission Control Device Per SAE J1930
29			383	257		384	181	
43	C18	542@1800	321	195	1762@1300	347	152	EM, DI, TC, ECM,

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**
 Engine category: **Nonroad Over 50 Hp**
 EPA Engine Family: **7CPXL18.1ESK**
 Mfr Family Name:
 Process Code: **Running Change - 4**

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
44	C18	500@2100	298	210	1667@1400	354	167	EM, DI, TC, ECM,
45	C18	440@2100	256	181	1466@1400	309	146	EM, DI, TC, ECM,

Engine Model Summary Form

Manufacturer: **CATERPILLAR INC.**
 Engine category: **Nonroad Over 50 Hp**
 EPA Engine Family: **7CPXL18.1ESK**
 Mfr Family Name:
 Process Code: **Running Change - 6**

U-R - 001 - 0310

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
46	C18	700@1800	412	250	2361@1400	461	217	EM, DI, TC, ECM,