



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 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)
2004	4CPXL27.0HRK	27.0	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Direct Diesel Injection, Turbocharger, Charge Air Cooler and Engine Control Module			Loader, Dozer, Front Shovel 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<450	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	20	15	50
450≤KW≤560	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	20	15	50
		CERT	--	--	5.5	1.6	0.14	12	1	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 15TH day of December 2003.

Allen Lyons, Chief
Mobile Source Operations Division

Engine Model Summary Form

ATTACHMENT 1 OF 1

U-R-001-0251

Manufacturer: CATERPILLAR INC.
Engine category: Nonroad Over 50 Hp
EPA Engine Family: 4CPXL27.0HRK
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
2	3412	581 @ 1800	192	233.0	2186 @ 1200	224	181.0	EM, DI, TC, ECM,
3 - Cert Engine	3412	711 @ 2000	189	254.5	2915 @ 1300	295	257.7	EM, DI, TC, ECM,
4	3412	581 @ 1800	192	233.0	2186 @ 1200	224	181.0	EM, DI, TC, ECM,
5	3412	475 @ 1200	203	164.0	2494 @ 900	249	151.0	EM, DI, TC, ECM,
6	3412	614 @ 2000	184	247.0	2104 @ 1300	214	187.0	EM, DI, TC, ECM,
7	3412	672 @ 2000	196	263.2	2180 @ 1300	213	186.4	EM, DI, TC, ECM,
8	3412	672 @ 2000	195	262.7	2533 @ 1300	247	216.3	EM, DI, TC, ECM,
9	3412	672 @ 1800	210	254.3	2411 @ 1200	239	193.3	EM, DI, TC, ECM,
10	3412	628 @ 2000	172	231.0	2228 @ 1200	225	182.0	EM, DI, TC, ECM,
11	3412	650 @ 2100	185	261.9	2197 @ 1400	226	213.0	EM, DI, TC, ECM,
12	3412	700 @ 2100	198	280.3	2364 @ 1400	238	223.9	EM, DI, TC, ECM,
13	3412	645 @ 1500	223	225.4	2711 @ 900	274	166.0	EM, DI, TC, ECM,
14	3412	645 @ 1500	229	231.0	2824 @ 1050	278	196.2	EM, DI, TC, ECM,

Note: Peak HP and Peak Torque fuel rates are nominal values. Due to product-ion engine avgs. these fuel rates may change.

8. Fuel Rate: (lbs/hr) @ peak torque may change.

9. Emission Control Device Per SAE J1930

Engine Model Summary Form

Manufacturer: CATERPILLAR INC.
Engine category: Nonroad Over 50 Hp
EPA Engine Family: 4CPXL27.0HRK
Mfr Family Name:
Process Code: Running Change - 3

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
20	3412	689 @ 2000	184	247.1	2104 @ 1300	214	186.9	EM,DI,TC,ECM,CA
21	3412	557 @ 1900	157	200.0	1950 @ 1200	200	161.7	EM,DI,TC,ECM,CA