

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-2-51
Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

CUMMINS ENGINE COMPANY, 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: Loader and Pump

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>	
YCEXL019.AAB (B193)	19.0	1167	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-hr) 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-hr)</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	0.4	1.5	6.1	0.2	15	7	25

The exhaust emission certification standards and certification values in grams per brake horsepower-hour (g/bhp-hr) 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/bhp-hr)</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	0.4	1.5	6.1	0.2	15	7	25

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 28th day of December 1999.



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

Engine Model Summary Form

u-β-2-51

Manufacturer: Cummins Engine Company

Engine category: Nonroad Over 50 Hp

EPA Engine Family: YCEXL019.AAB

Mfr Family Name: B193

Process Code: New Submission

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
2009:FR 4203	QSK19-C	750@2100	370	262	2275@1300	433	190	TC, EC
2009:FR 4255	QSK19-C	700@2000	363	245	2275@1300	433	190	TC, EC
2009:FR 4191	QSK19-C	700@2100	349	247	2275@1300	433	190	TC, EC
2009:FR 4270	QSK19-C	700@2100	349	247	2185@1200	433	175	TC, EC
2009:FR 4233	QSK19-C	700@1800	406	246	2275@1400	423	200	TC, EC
2009:FR 4238	QSK19-C	675@2100	329	233	2275@1300	433	190	TC, EC
2009:FR 4228	QSK19-C	650@2100	319	226	2275@1300	433	190	TC, EC
2009:FR 4230	QSK19-C	650@2000	337	227	2275@1300	433	190	TC, EC
2009:FR 4281	QSK19-C	650@1800	359	218	2275@1300	433	190	TC, EC
2009:FR 4280	QSK19-C	640@1800	353	214	1950@1400	365	172	TC, EC
2009:FR 4268	QSK19-C	635@2100	306	217	1747@1500	336	170	TC, EC
2009:FR 4253	QSK19-C	630@1800	347	211	2275@1300	433	190	TC, EC
2009:FR 4282	QSK19-C	600@2100	323	229	1950@1400	365	172	TC, EC
2009:FR 4246	QSK19-C	600@1800	334	203	1950@1400	358	169	TC, EC
2009:FR 4262	QSK19-C	550@1800	310	188	1820@1300	354	155	TC, EC
2009:FR 4330	QSK19-C	750@2100	370	262	2202@1300	420	184	TC, EC
2009:FR 4335	QSK19-C	650@1900	340	218	1935@1300	367	161	TC, EC
2009:FR 4308	QSK19-C	660@2100	320	227	2000@1500	370	187	TC, EC
2009:FR 4336	QSK19-C	635@1900	334	214	2275@1300	433	190	TC, EC
2009:FR 4205	QSK19-C	600@2100	298	208	1950@1300	367	162	TC, EC
2009:FR 4331	QSK19-C	800@2100	407	288	2275@1300	433	190	TC, EC
2009:FR 4337	QSK19-C	800@1900	429	275	2275@1300	433	190	TC, EC
2009:FR 4289	QSK19-C	750@1800	432	262	2275@1300	433	190	TC, EC
2009:FR 4333	QSK19-C	675@1800	372	226	2275@1300	433	190	TC, EC

TCAC

