

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-2-52
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 – 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>	
YCEXL019.AAA (A193)	19.0	1167	Turbocharger Charge Air Cooler Engine Control Module

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 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	0.3	1.8	6.1	0.2	15	2	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 20th day of December 1999.



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

Engine Model Summary Form

U-R-2-52

Manufacturer: Cummins Engine Company
Engine category: Nonroad Over 50 Hp
EPA Engine Family: YCEXL019.AAA
Mfr Family Name: A193
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
2008:FR 4205	QSK19-C	600@2100	297	210	1950@1300	363	159	"TC, EC"
2008:FR 4237	QSK19-C	600@1800	336	204	1950@1400	364	172	"TC, EC"
2008:FR 4218	QSK19-C	545@2100	271	192	1650@1500	310	157	"TC, EC"
2008:FR 4235	QSK19-C	525@2100	258	183	1775@1300	328	144	"TC, EC"
2008:FR 4271	QSK19-C	525@2000	283	191	1775@1300	328	144	"TC, EC"
2008:FR 4250	QSK19-C	525@1800	292	177	1775@1300	328	144	"TC, EC"
2008:FR 4254	QSK19-C	525@1800	292	177	1650@1500	310	157	"TC, EC"
2008:FR 4261	QSK19-C	510@1800	280	170	1650@1300	327	143	"TC, EC"
2008:FR 4216	QSK19-C	500@1800	277	168	1775@1300	328	144	"TC, EC"
2008:FR 4236	QSK19-C	500@1800	277	168	1650@1500	310	157	"TC, EC"
2008:FR 4231	QSK19-C	480@1800	273	166	1570@1350	299	136	"TC, EC"
2008:FR 4284	QSK19-C	480@1800	273	166	1650@1300	327	143	"TC, EC"
2008:FR 4206	QSK19-C	450@2100	230	163	1350@1500	258	113	"TC, EC"
2008:FR 4227	QSK19-C	450@2000	237	160	1350@1300	258	113	"TC, EC"
2008:FR 4260	QSK19-C	450@1800	252	153	1650@1300	327	143	"TC, EC"
2008:FR 4257	QSK19-C	450@1800	252	153	1775@1300	328	144	"TC, EC"
2225:FR 4283	QSK19-C	490@2000	261	176	1630@1400	304	143	"TC, EC"
2225:FR 4258	QSK19-C	480@2000	252	170	1540@1400	286	135	"TC, EC"
2558:FR 4296	QSK19-C	525@2100	258	183	1775@1300	333	146	"TC, EC"
2558:FR 4303	QSK19-C	525@1800	293	178	1650@1500	310	157	"TC, EC"
2558:FR 4301	QSK19-C	480@1800	273	166	1570@1350	286	130	"TC, EC"
2558:FR 4304	QSK19-C	450@2000	240	162	1350@1300	267	117	"TC, EC"
2558:FR 4302	QSK19-C	600 @ 2100	297	210	1950@1300	363	159	"TC, EC"
2558:FR 4305	QSK19-C	510 @ 1800	284	172	1650@1300	308	135	"TC, EC"
2558:FR 4306	QSK19-C	450 @ 2100	226	160	1350 @ 1500	256	129	"TC, EC"
2558:FR 4307	QSK19-C	525 @ 1800	294	178	1775 @ 1300	333	146	"TC, EC"