

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-2-57
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 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: Crane, Loader, Tractor, Dozer, Pump, and Compressor

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>	
YCEXL0505ABC (D413)	8.3	505	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	0.1	0.6	3.9	0.1	6	1	10

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 30th day of December 1999.



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

Engine Model Summary Form

Manufacturer: Cummins Engine Company, Inc.
Engine category: Nonroad Over 50 Hp
EPA Engine Family: YCEXL0505ABC
Mfr Family Name: D413
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
2481;FR90570	QSC8.3-C	340@2200	164	121.9	1050@1400	200	94.6	PCM, TC, CAC
2481;FR90261	QSC8.3-C	320@2200	154	114.2	1000@1400	189	89.0	PCM, TC, CAC
2481;FR90654	QSC8.3-C	320@2200	154	114.1	1000@1400	189	89.3	PCM, TC, CAC
2892;FR90262	QSC8.3-C	300@2200	139	103.0	1000@1400	189	89.3	PCM, TC, CAC
2892;FR90569	QSC8.3-C	280@2200	131	97.5	1000@1400	189	89.3	PCM, TC, CAC
2892;FR90690	QSC8.3-C	285@2200	131	97.1	935@1400	178	83.9	PCM, TC, CAC
2299;FR90568	QSC8.3-C	240@2200	113	84.0	870@1400	156	73.5	PCM, TC, CAC
2299;FR90308	QSC8.3-C	260@2200	122	90.4	870@1400	169	79.9	PCM, TC, CAC