

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-2-49
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, Pump, and Generator Set

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>	
YCEXL0359ABA (A403)	5.9	359	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 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	0.6	6.6	0.1	6	2	22

BE IT FURTHER RESOLVED: That the engine models listed on the attachments with engine power ratings less than 175 horsepower are not covered by this Executive Order.

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 24th day of December 1999.



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

Engine Model Summary Form

U-R-2-49

Manufacturer: Cummins Engine Company
Engine category: Nonroad Over 50 Hp
EPA Engine Family: YCEXL0359ABA
Mfr Family Name: A403
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
1889;FR90001	B5.9-C	200@2500	91	77.1	593@1500	112	56.8	TC
1889;FR90548	B5.9-C	200@2500	91	77.1	593@1500	112	56.8	TC
1889;FR9898	B5.9-C	185@2500	85	71.9	550@1500	104	52.5	TC
1889;FR90269	B5.9-C	185@2400	91	73.4	545@1500	109	55.0	TC
2063;FR90340	B5.9-C	185@2400	90	72.6	558@1500	109	55.0	TC
2063;FR90167	B5.9-C	185@2300	92	71.5	580@1500	111	56.3	TC
2063;FR9897	B5.9-C	185@2200	93	69.0	580@1500	111	56.3	TC
2063;FR90539	B5.9-C	185@2200	93	69.0	580@1500	111	56.3	TC
2063;FR90287	B5.9-C	185@2200	93	69.0	580@1500	110	55.6	TC
2063;FR90549	B5.9-C	185@2100	96	67.7	567@1500	110	55.8	TC
2063;FR90081	B5.9-C	174@2200	88	65.1	590@1500	112	56.8	TC
2479;FR90378	B5.9-C	174@2200	87	64.7	590@1500	112	56.8	TC
2479;FR90504	B5.9-C	174@2200	87	64.7	590@1500	112	56.8	TC
2072;FR90080	B5.9-C	174@2500	78	65.8	458@1500	88	43.7	TC
1961;FR90016	B5.9-C	174@2500	78	65.8	458@1500	88	44.3	TC
2417;FR90375	B5.9-C	174@2500	80	67.1	480@1500	91	46.0	TC
1962;FR90017	B5.9-C	170@2300	84	65.0	490@1500	95	48.0	TC
1962;FR90313	B5.9-C	170@2200	85	63.0	476@1500	90	45.7	TC
1962;FR90338	B5.9-C	168@2200	84	62.0	541@1500	101	51.0	TC
1962;FR90019	B5.9-C	166@2100	84	59.4	463@1500	89	45.0	TC
1962;FR90018	B5.9-C	165@2200	81	60.4	512@1500	97	48.9	TC
1962;FR90337	B5.9-C	153@2200	74	55.0	493@1500	96	48.5	TC
1962;FR90020	B5.9-C	150@2200	75	55.8	466@1500	89	45.1	TC
2292;FR90143	B5.9-C	169@2100	89	63.1	476@1500	94	47.4	TC
2292;FR90142	B5.9-C	167@2000	90	60.7	480@1500	94	47.7	TC
2292;FR90321	B5.9-C	160@1900	87	55.8	479@1500	93	47.0	TC

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