State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-2-35

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 by Sections 43000.5, 43013 and 43018 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-45-9;

IT IS ORDERED AND RESOLVED: That the following Cummins Engine Company, Inc. 1999 model-year engines with rated power between 175 and 750 horsepower and exhaust emission control systems are certified as described below in heavy-duty off-road equipment:

Typical Equipment Usage: Crane, Loader, Tractor, Dozer, Pump, Compressor, and Generator Set

Fuel Type: Diesel

Engine Family	Displacement Liters	Displacement Cubic Inches	Exhaust Emission Control Systems and Special Features
XCEXL0505AAA (A412)	8.3	505	Charge Air Cooler Turbocharger

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 total hydrocarbons (THC), carbon monoxide (CO), nitrogen oxides (NOx), and particulate matter (PM) certification exhaust emission standards in grams per brake horsepower-hour (g/hp-h), and the opacity-of-smoke emission standards in percent (%) during acceleration (Accel), lugging (Lug), and peak (Peak) modes for this engine family are as follows (Title 13, California Code of Regulations, Section 2423):

Exhaust Emissions (g/hp-h)				Smoke Opacity (%)		
THC	CO	NOx	PM	Accel	Lug	Peak
1.0	8.5	6.9	0.4	20	15	50

The THC, CO, NOx, and PM exhaust emissions certification values in grams per brake horsepower-hour, and the opacity-of-smoke emissions certification values in percent for this engine family are:

Exhaust Emissions (g/hp-h)				Smoke Opacity (%)		
THC	CO	NOx	PM	Accel	Lug	Peak
0.3	0.5	5.6	0.2	5	2	11

BE IT FURTHER RESOLVED: That the listed engine models comply with the "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 the "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 16th day of November 1998.

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

LARGE ENGINE MOI :L SUMMARY

12/5/96

Manufacturer: **Cummins Engine Company** Process Code: **New Submission**

EPA Engine Family: **XCEXL0505AAA** Manufacturer Family Name: **A412**

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
CPL1943								
FR 9874	C8.3-C	215@2200	111	82.3	642@1500	127	64.0	TC CAC
FR 90181	C8.3-C	215@2200	111	82.3	642@1500	127	64.0	TC CAC
FR 90416	C8.3-C	215@2200	111	82.3	642@1500	127	64.0	TC CAC
FR 9873	C8.3-C	205@2200	106	78.9	636@1500	125	63.4	TC CAC
FR 90178	C8.3-C	205@2200	106	78.9	636@1500	125	63.4	TC CAC
FR 90118	C8.3-C	205@2200	106	78.9	636@1500	125	63.4	TC CAC
FR 9871	C8.3-C	190@2200	98	73.0	590@1500	116	58.5	TC CAC
FR 90042	C8.3-C	185@2200	96	71.0	575@1500	110	55.8	TC CAC
FR 9870	C8.3-C	185@2200	96	71.0	575@1500	110	55.8	TC CAC
FR 90330	C8.3-C	185@2200	96	71.0	575@1500	110	55.8	TC CAC
FR 90417	C8.3-C	185@2200	96	71.0	575@1500	110	55.8	TC CAC
FR 9869	C8.3-C	170@2200	92	68.0	560@1500	111	56.0	TC CAC
FR 90225	C8.3-C	170@2200	92	68.0	520@1500	105	52.9	TC CAC
CPL 2060								
FR 90043	C8.3-C	205@2000	115	77.6	636@1500	126	63.9	TC CAC
FR 90113	C8.3-C	195@1900	112	71.8	563@1600	115	62.2	TC CAC
FR 90044	C8.3-C	180@2000	98	66.2	575@1500	126	63.9	TC CAC
FR 90168	C8.3-C	181@2000	101	67.8	626@1500	124	62.7	TC CAC
FR 90350	C8.3-C	165@2100	89	66.1	550@1400	109	51.6	TC CAC
FR 90117	C8.3-C	150@2200	80	59.1	475@1500	85	43.2	TC CAC
CPL 2061								
FR 90177	C8.3-C	201@2500	99	83.7	574@1500	110	55.8	TC CAC
FR 90041	C8.3-C	177@2500	87	73.7	507@1500	98	49.5	TC CAC
CPL 2185								
FR 90040	C8.3-C	215@2500	106	89.1	610@1500	119	60.0	TC CAC
CPL 2120								
FR 90119	C8.3-C	173@2380	87	68.9	496@1600	98	51.8	TC CAC
FR 90353	C8.3-C	173@2300	89	69.0	496@1500	99	50.0	TC CAC
CPL 2216								
FR 90240	6CT8.3-G2	207@1800	125	75.9				TC CAC
FR 90241	6CT8.3-G2	181@1500	131	66.2				TC CAC

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