State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-2-29

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. 1998 model-year engine, with rated power between 175 and 750 horsepower, and exhaust emission control systems are certified as described below for use in heavy-duty off-road equipment:

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

Fuel Type: Diesel

Engine Family	Liters	(Cubic Inches)	Exhaust Emission Control Systems and Special Features
WCEXL0359AAA (A402)	5.9	(359)	Turbocharger Charge Air Cooler

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 matters (PM) certification exhaust emission standards, in grams per brake horsepower-hour (g/bhp-hr), and the opacity of smoke emission standards, in percent (%), during acceleration (Accel), lugging (Lug), and peak (Peak) modes, for this engine family are (Title 13, California Code of Regulations, Section 2423):

Exhaust Emissions (g/bhp-hr)				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 emission certification values, in g/bhp-hr, and the opacity of smoke emission certification values, in percent (%), for this engine family are:

	Exhaust Emission (g/bhp-hr)				Smoke Opacity (%)		
Engine Family	THC	CO	NOx	PM	Accel	Lug	Peak
WCEXL0359AAA (A402)	0.4	0.8	5.0	0.2	3	2	5

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, Section 2425 et seq.).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

Executed at El Monte, California this 11th day of February 1998.

R. B. Summerfield, Chief
Mobile Source Operations Division

LARGE ENGINE MODEL SUMMARY

12/12/96

Manufacturer: **Cummins Engine Company**

Process Code: **New Submission**

EPA Engine Family: **WCEXLO359AAA**

Manufacturer Family Name: **A402**

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
CPL 1984								
FR 90026	B5.9-C	165@2500	80	67.7	440@1600	89	47.8	TC, CAC
FR 90058	B5.9-C	152@2500	74	62.6	414@1600	83	44.6	TC, CAC
FR 90305	B5.9-C	151@2400	76	61.7	414@1600	84	45.2	TC, CAC
FR 90059	B5.9-C	148@2200	76	56.2	440@1600	89	47.9	TC, CAC
FR 90342	B5.9-C	148@2200	76	56.2	440@1600	89	47.9	TC, CAC
CPL 2071								
FR 90139	B5.9-C	145@2100	75	53.2	440@1600	84	45.5	TC, CAC
FR 90060	B5.9-C	140@2000	76	51.2	416@1600	82	44.2	TC, CAC
FR 90194	B5.9-C	137@2000	74	50.1	440@1600	87	46.9	TC, CAC
FR 90065	B5.9-C	135@2400	64	51.7	364@1600	75	40.2	TC, CAC
FR 90299	B5.9-C	135@2200	70	52.1	419@1600	83	44.7	TC, CAC
FR 90061	B5.9-C	135@2200	70	52.1	419@1600	83	44.7	TC, CAC
FR 90286	B5.9-C	135@2200	69	50.8	419@1500	83	42.0	TC, CAC
FR 90138	B5.9-C	135@2100	70	49.5	419@1500	82	41.6	TC, CAC
FR 90322	B5.9-C	135@2100	69	48.5	419@1500	81	40.8	TC, CAC
FR 90062	B5.9-C	130@2500	64	53.6	368@1600	73	39.4	TC, CAC
FR 90063	B5.9-C	130@2200	67	50.0	388@1600	78	42.2	TC, CAC
FR 90137	B5.9-C	126@2100	66	46.9	388@1600	76	40.9	TC, CAC
FR 90064	B5.9-C	120@2200	61	45.4	372@1600	73	39.1	TC, CAC
FR 90298	B5.9-C	120@2200	61	45.4	372@1600	73	39.1	TC, CAC
FR 90103	B5.9-C	118@2400	58	46.6	312@1600	63	33.2	TC, CAC
FR 90066	B5.9-C	110@2200	57	42.6	341@1600	67	36.2	TC, CAC
FR 90297	B5.9-C	110@2200	57	42.6	341@1600	67	36.2	TC, CAC
FR 90296	B5.9-C	101@2200	53	39.6	313@1500	60	30.6	TC, CAC
CPL 1902								
FR 9005	B5.9-C	110@2400	55	44.6	340@1300	69	30.4	TC, CAC