State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-2-31

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, Tractor, Dozer, and Pump

Fuel Type: Diesel

Engine Family	Liters (Cubic Inches)	Exhaust Emission Control Systems and Special Features
WCEXL0855AAA (A093)	14.0 (855)	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
WCEXL0855AAA (A093)	0.2	1.2	6.9	0.1	17	7	25

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 MC EL SUMMARY

12/5/96

Manufacturer: Cummins Engine Company

Process Code: New Submission

EPA Engine Family: WCEXLO855AAA

Manufacturer Family Name: A093

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 1921	N14-C							
FR 1878	N14-C	480@1800	264	160	1500@1400	282	133	TC, CAC
FR 1872	N14-C	480@1800	253	162	1500@1400	282	133	TC, CAC
–	N14-C*	480@1900	253	162	1500@1400	282	133	TC, CAC
FR 1860	N14-C	475@2100	236	167	1500@1400	282	133	TC, CAC
FR 10008	N14-C	475@2100	236	167	1500@1400	282	133	TC, CAC
FR 1879	N14-C	460@1800	252	153	1500@1400	282	133	TC, CAC
FR 1978	N14-C	460@2100	229	162	1500@1400	282	133	TC, CAC
–	N14-C*	450@2100	225	159	1500@1400	282	133	TC, CAC
FR 1985	N14-C*	450@2100	225	159	1500@1400	282	133	TC, CAC
FR 1865	N14-C	450@2100	225	159	1500@1400	282	133	TC, CAC
FR 10011	N14-C	450@2100	220	156	1470@1500	271	137	TC, CAC
FR 1979	N14-C	440@1800	242	147	1475@1400	277	131	TC, CAC
FR 1980	N14-C	430@2000	221	149	1470@1400	277	131	TC, CAC
FR 1982	N14-C	430@2000	221	149	1500@1400	282	133	TC, CAC
FR 1981	N14-C*	430@2000	221	149	1500@1400	282	133	TC, CAC
FR 1913	N14-C*	425@2100	210	149	1500@1400	282	133	TC, CAC
FR 10007	N14-C	405@1800	224	136	1275@1400	240	113	TC, CAC
FR 10092	N14-C	405@1800	224	136	1275@1400	240	113	TC, CAC
FR 10010	N14-C	400@2100	201	142	1400@1500	259	131	TC, CAC
FR 10082	N14-C*	400@1800	220	134	1300@1400	244	115	TC, CAC
CPL 2033								
FR 1901	N14-C	425@2100	209	148	1400@1400	258	122	TC, CAC
–	N14-C*	425@2100	209	148	1400@1400	258	122	TC, CAC
FR 1911	N14-C	425@2100	209	148	1400@1400	258	122	TC, CAC
FR 10142	N14-C	425@2100	209	148	1400@1400	258	122	TC, CAC
FR 1997	N14-C	420@1800	226	137	1400@1400	258	122	TC, CAC
FR 1900	N14-C	410@2100	202	143	1385@1400	256	121	TC, CAC
FR 1963	N14-C	400@1800	217	132	1400@1400	258	122	TC, CAC
FR 1970	N14-C*	400@2100	202	143	1370@1400	254	120	TC, CAC
FR 1898	N14-C	400@2100	202	143	1370@1400	254	120	TC, CAC
FR 10012	N14-C	400@2100	202	143	1370@1400	254	120	TC, CAC
FR 1899	N14-C*	400@2100	202	143	1370@1400	254	120	TC, CAC

FR 1984	N14-C*	400@2100	202	143	1370@1400	254	120	TC, CAC
FR 100[illegible]	N14-C	400@2100	189	[illegible]	1265@1400	235	111	TC, CAC
FR 19	N14-C	375@2100	181	128	1233@1400	225	106	TC, CAC
FR 10013	N14-C	360@2100	196	119	1206@1400	218	103	TC, CAC
FR 10006	N14-C	360@2100	196	119	1206@1400	218	103	TC, CAC
FR 10091	N14-C	360@2100						
CPL 2038			181	128	1215@1400	222	105	TC, CAC
FR 1904	N14-C	360@2100	181	128	1215@1400	222	105	TC, CAC
FR 10141	N14-C	360@2100	181	128	1215@1400	222	105	TC, CAC
FR 1998	N14-C	360@2100	198	120	1215@1400	222	105	TC, CAC
—	N14-C	360@1800	198	120	1215@1400	222	105	TC, CAC
FR 1905	N14-C	360@1800	198	120	1215@1400	222	105	TC, CAC
FR 10069	N14-C	360@1800	177	125	1180@1400	218	103	TC, CAC
FR 1906	N14-C	350@2100						
	More ratings	on next record						

LARGE ENGINE MODEL SUMMARY

10/20/97

Manufacturer: Cummins Engine Company, Inc.

Process Code: New Sub - continued

EPA Engine Family: WCEXLO855AAA

Manufacturer Family Name: A093

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 2038	(Cont'd)							
FR 1908	N14-C	335@2100	169	120	1130@1400	208	98	TC, CAC
FR 1909	N14-C	320@2000	166	112	1095@1400	203	96	TC, CAC
FR 1910	N14-C	315@2100	161	114	945@1400	178	84	TC, CAC
FR 10005	N14-C	305@1800	168	102	1033@1400	186	89	TC, CAC
FR 20090	N14-C	305@1800	168	102	1033@1400	186	89	TC, CAC
FR 1907	N14-C	345@1800	189	115	1130@1400	208	98	TC, CAC
CPL 2330								
FR 10070	N14-C	335@2100	173	123	1130@1400	204	97	TC, CAC
FR 10071	N14-C	335@2100	173	123	1185@1400	215	101	TC, CAC
CPL 2287								
FR 10020	N14-G	535@1800	288	175				TC, CAC
FR 10027	N14-G	465@1800	254	154	430@1500	279	141	TC, CAC

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