

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-2-7

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. 1996 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: Construction/Mining Trucks, Snow Groomers, Agricultural Tractors, Logging Equipment

Fuel Type: Diesel

<u>Engine Family</u>	<u>Liters (Cubic Inches)</u>	<u>Exhaust Emission Control Systems and Special Features</u>
TCE505R6DTRA (A412)	8.3 (505)	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):

<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>
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:

<u>Engine Family</u>	<u>Exhaust Emission (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>
TCE505R6DTRA (A412)	0.3	0.6	5.5	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, Section 2425 et seq.).

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

Executed at El Monte, California this 28th day of December 1995.


R. B. Summerfield
Assistant Division Chief
Mobile Source Division

1996 AIR RESOURCES BOARD SUPPLEMENTAL DATA SHEET
HEAVY-DUTY OFF-ROAD DIESEL ENGINES

Manufacturer Cummins Engine Company, Inc. Engine Family (A412) TCE505R6DTRA
 Displacement: 505 / 8.3 Liters/Cubic Inches Eng Config: I-6
 All Codes in Eng Fam: CA 49S 50S Cert Test Procedures: ARB EPA
 Valves/Ports per Cylinder 2 Strokes per Combustion Cycle 4
 Maximum Rated Power: 215 HP (160 KW) @ 2200 RPM
 Ignition: Compression Compression with Glow Plug Spark
 Fuel Type(s): Dedicated Flex-Fuel Dual Fuel Diesel M100 M85
 CNG LNG LPG Other (specify) _____
 Diesel Cert Fuel: 40 CFR 89.330-96 X Other (specify) _____
 Primary Service Equipment: Ag Tractors, Constuction/Mining Trucks, Snow Groomers, Logging Equipment Movers
 Exhaust ECS (e.g., MFI, TC, CAC): TC/CAC

(use abbreviations per SAE J1930 JUN93)

Engine Model (Eng Code)	Rated HP @ RPM	Fuel Rate @ Rated HP mm ³ / stroke (lbs/hr)	Fuel Pump & Injector Part No.	ECM/PCM Part No.	EGR Valve Part No.	PTOX / Catalytic Converter Part No.
<u>943</u> 8.3-C	215 @ 2200	112.6(82.3)	FP 3926881 IN 3928228	N/A	N/A	N/A
	215 @ 2200	112.6(82.3)	FP 3926881			
	205 @ 2200	108.1(78.9)	FP 3930123			
	205 @ 2200	108.1(78.9)	FP 3926880			
	205 @ 2200	108.1(78.9)	FP 3926880			
	190 @ 2200	99.9(73.0)	FP 3926878			
	185 @ 2200	97.3(71.0)	FP 3926877			
	185 @ 2200	97.3(71.0)	FP 3929165			
<u>2060</u> C8.3-C	205 @ 2000	116.9(77.6)	FP 3929166 IN 3928228	N/A	N/A	N/A
	195 @ 1900	113.8(71.8)	FP 3930118			
	180 @ 2000	99.7(66.2)	FP 3929167			
	177 @ 2100	96.7(67.4)	FP 3930119			
<u>2061</u> C8.3-C	201 @ 2500	144.8(83.7)	FP 3930412 IN 3928228	N/A	N/A	N/A
	177 @ 2500	88.8(73.7)	FP 3929164			

Date Issued:
Revisions:

SUBMITTED
NOV 23 1995