

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-1-9

Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

CATERPILLAR, 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 Caterpillar, 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: Industrial Equipment, Agricultural Tractor

Fuel Type: Diesel

<u>Engine Family</u>	<u>Liters (Cubic Inches)</u>		<u>Exhaust Emission Control Systems and Special Features</u>
TCP10.RZDBRK	10.3	(629)	Turbocharger Engine Control Module 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>
TCP10.RZDBRK	0.9	2.2	6.4	0.1	8	0	16

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.

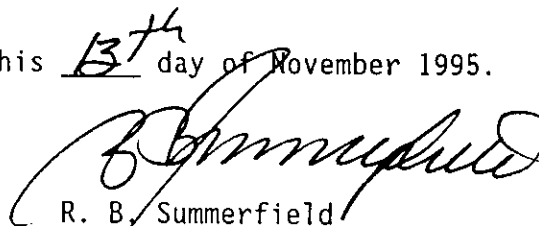
BE IT FURTHER RESOLVED: That the listed engine models also comply with the "Emission Control Labels--1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model year.

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.

The Bureau of Automotive Repair will be notified by copy of this order and attachments.

Executed at El Monte, California this 13th day of November 1995.



R. B. Summerfield
Assistant Division Chief
Mobile Source Division

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

Manufacturer Caterpillar Inc. Engine Family TCP10.RZDBRK
 Displacement 10.3 / 629 Liters/Cubic Inches Engine Configuration: I6
 All Codes in Eng. Family: CA 49S 50S XX Cert Test Procedures: ARB EPA XX
 Valves/Ports per Cylinder 4 valve/cyl Strokes per Combustion Cycle: 4
 Maximum Rated Power: 425 HP (317 KW) @ 2100 RPM
 Ignition: Compression XX Compression with Glow Plug Spark
 Fuel Type (s): Dedicated Flex-Fuel Dual-Fuel Diesel XX M100 M85
 CNG LNG LPG Other (specify)
 Diesel Cert Fuel: 40 CFR 86.1313-94 XX Other (specify)
 Primary Service Equipment: Industrial, Agricultural Tractor
 Exhaust ECS (e.g., MFI, TC, CAC): EM, TC, CAC, DI, ECM

(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.
3176 (1)	425 @ 2100	MAX 210 (148.2)	1168799/1168799	1170554	----	----
3176 (2)	365 @ 2100	176 (124.3)	1168799/1168799	1108830	----	----
3176 (3)	400 @ 2100	192 (135.9)	1168799/1168799	1221726	----	----
3176 (4)	390 @ 2100	186 (132.5)	1168799/1168799	1170551	----	----
3176 (5)	355 @ 2100	176 (124.9)	1168799/1168799	1041921	----	----
3176 (6)	335 @ 2100	161 (113.7)	1168799/1168799	11072221	----	----
3176 (7)	325 @ 2100	159 (112.5)	1168799/1168799	1025872	----	----
3176 (8)	310 @ 2100	147 (104.1)	1168799/1168799	1182143	----	----
3176 (9)	365 @ 1800	205 (123.8)	1168799/1168799	1108830	----	----
3176 (10)	342 @ 1800	182 (110.2)	1168887/1168887	1145549	----	----
3176 (11)	340 @ 2100	160 (113.2)	1165426/1165426	1260590	----	----
3176 (12)	310 @ 2100	MIN 147 (104.1)	1168799/1168799	1182143	----	----

ISSUE DATE	26 SEPT 95						
REVISION NUMBER	1	2					
REVISION DATE	02 NOV 95	15 OCT 96					