



California Environmental Protection Agency

AIR RESOURCES BOARD

DETROIT DIESEL CORPORATION

EXECUTIVE ORDER U-R-007-0087

New Off-Road
Compression-Ignition Engines

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 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-02-003;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2004	4DDXL14.0VLD	14.0	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Direct Diesel Injection, Engine Control Module, Turbocharger, Charge Air Cooler			Crane, Loader, Tractor, Pump, Compressor, Generator Set	

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbons (HC), oxides of nitrogen (NOx), or non-methane hydrocarbons plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kW-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
225 ≤ KW ≤ 560	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	20	15	50
		CERT	--	--	5.9	1.7	0.17	16	4	29

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

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

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 23RD day of December 2003.

Allen Lyons, Chief
Mobile Source Operations Division

Engine Model Summary Form

Manufacturer: Detroit Diesel Corporation
Engine category: Nonroad CI
EPA Engine Family: 4DDXL14.0VLD
Mfr. Family Name: SERIES 60, 14.0L
Process Code: New Submission

EO#U-R-007-0087

ATTACHMENT (PAGE 1 OF 2)

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
5427	S60, 14L (336 kw)	450 @ 2100 450 @ 1800	237.5 258.3	165.3 154.1	1650 @ 1350 1650 @ 1350	307.4 307.4	137.7 137.7	EC TAA
5428		525 @ 2100 525 @ 1800	280.0 308.8	194.6 184.1	1750 @ 1350 1750 @ 1350	330.6 330.6	148.0 148.0	DDI, ECM, TC, DAE
5429		525 @ 2100 525 @ 1800	279.1 308.0	193.9 183.5	1800 @ 1350 1800 @ 1350	343.2 343.2	163.4 163.4	ALL MODELS
5430		533 @ 2000	295.1	195.4	1750 @ 1350	331.9	148.6	
5431		550 @ 2100 550 @ 1800	294.6 325.2	204.7 193.8	1750 @ 1350 1750 @ 1350	328.8 328.8	147.0 147.0	
5470		550 @ 2100 550 @ 1800	294.6 325.2	204.7 193.8	1750 @ 1350 1750 @ 1350	328.8 328.8	147.0 147.0	
5432		550 @ 2300	278.8	212.2	1750 @ 1350	328.0	146.9	
5433		575 @ 2100 575 @ 1800	307.2 342.6	213.6 204.2	1750 @ 1350 1750 @ 1350	330.0 330.0	147.7 147.7	
5440	Constant speed	550 @ 1800	318.8	190.1	NA	NA	NA	
5296	Constant speed	635 @ 1800	363.9	217.8	NA	NA	NA	
5398	Constant speed	685 @ 1800	389.4	233.1	NA	NA	NA	

(511 kw)

Engine Model Summary Form

Manufacturer: Detroit Diesel Corporation
Engine category: Nonroad CI
EPA Engine Family: 4DDXL14.0VLD
Mfr Family Name:
Process Code: New Sub - continued

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ATTACHMENT (PAGE 2 OF 2)

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
5297	S60, 14L	665 @ 2300 665 @ 2100	316.2 341.2	241.9 238.3	1900 @ 1350 1900 @ 1350	364.1 364.1	163.4 163.4	EC, TAA
5298		600 @ 2300 600 @ 2100	294.4 310.0	225.2 216.5	1900 @ 1350 1900 @ 1350	364.1 364.1	163.4 163.4	
5299		630 @ 2100 630 @ 1800	325.1 370.1	227.0 221.5	1900 @ 1350 1900 @ 1350	364.1 364.1	163.4 163.4	
5300		600 @ 2100 600 @ 1800	309.3 349.8	216.0 209.4	1900 @ 1350 1900 @ 1350	364.1 364.1	163.4 163.4	
5263		600 @ 2100 600 @ 1800	323.4 364.8	225.9 218.4	1900 @ 1350 1900 @ 1350	384.6 384.6	172.7 172.7	
5264		550 @ 2100 550 @ 1800	290.6 325.9	203.0 195.1	1750 @ 1350 1750 @ 1350	350.7 350.7	157.5 157.5	