

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-7-21

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

DETROIT DIESEL CORPORATION

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 Detroit Diesel Corporation 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, Tractor, Dozer, Pump, Compressor, and Generator Set

Fuel Type: Diesel

<u>Engine Family</u>	<u>Displacements in Liters</u>	<u>Exhaust Emission Control Systems and Special Features</u>
WDDXL12.7TGD (Series-60)	12.7	Turbocharger Charge Air Cooler Engine Control Module

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>
WDDXL12.7TGD (Series-60)	0.1	0.9	6.6	0.1	10	1	21

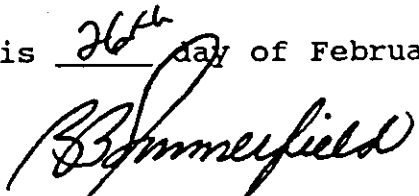
BE IT FURTHER RESOLVED: That the listed engine models comply with the "Exhaust Emission Standards and Test Procedures--Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2423) for the aforementioned model year.

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 26th day of February 1998.


R. B. Summerfield, Chief
Mobile Source Operations Division

LARGE ENGINE MODEL SUMMARY

Manufacturer: **Detroit Diesel Corporation** Process Code: **New Submission**

EPA Engine Family: **WDDXL12.7TGD** Manufacturer Family Name: **SERIES 60, 12.7L**

Engine Code	Engine Model	Fuel Rate: mm/stroke @ peak HP (for diesel only)		Fuel Rate: (lbs/hr) @ peak HP (for diesels only)		Torque @ RPM (SEA Gross)	Fuel Rate: mm/stroke@peak torque		Fuel Rate: (lbs/hr)@peak torque	Emission Control Device Per SAE J1930
		BHP@RPM (SAE Gross)	mm/stroke @ peak HP (for diesel only)	Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	Fuel Rate: mm/stroke@peak torque					
1A21 1A18	S60, 12.7L	500 @ 2100 500 @ 1800	248.5 265.3	173.5 158.5	1550 @ 1200 1550 @ 1200	288.2 288.2	115.0 115.0	EC TAA EC TAA		
2A21 2A18	S60, 12.7L	475 @ 2100 475 @ 1800	236.3 250.8	165.0 150.1	1550 @ 1200 1550 @ 1200	288.2 288.2	115.0 115.0	EC TAA EC TAA		
3A21 3A18 3A-TL	S60, 12.7L	450 @ 2100 450 @ 1800 450 @ 2100	220.5 233.9 220.5	154.0 140.0 154.0	1550 @ 1200 1550 @ 1200 1350 @ 1200	288.2 288.2 251.9	115.0 115.0 100.5	EC TAA EC TAA EC TAA		
1B21 1B18	S60, 12.7L	425 @ 2100 437 @ 1800	216.2 232.9	151.0 139.4	1500 @ 1200 1500 @ 1200	278.9 278.9	111.3 111.3	EC TAA EC TAA ECM, TC, CAC		
1C21 1C18	S60, 12.7L	425 @ 2100 425 @ 1800	207.6 220.8	145.0 132.2	1475 @ 1200 1475 @ 1200	270.7 270.7	108.0 108.0	EC TAA EC TAA		
1D21 1D18	S60, 12.7L	400 @ 2100 400 @ 1800	194.8 207.8	136.0 124.4	1400 @ 1200 1400 @ 1200	261.4 261.4	104.3 104.3	EC TAA EC TAA		
1E21 1E18	S60, 12.7L	375 @ 2100 375 @ 1800	190.5 194.8	133.0 116.6	1300 @ 1200 1300 @ 1200	247.0 247.0	98.5 98.5	EC TAA EC TAA		
1F21 1F18	S60, 12.7L	350 @ 2100 350 @ 1800	167.5 182.4	117.0 109.2	1225 @ 1200 1225 @ 1200	231.7 231.7	92.4 92.4	EC TAA EC TAA		
2F21 2F18	S60, 12.7L	350 @ 2100 361 @ 1800	167.5 189.4	117.0 113.4	1225 @ 1200 1225 @ 1200	231.7 231.7	92.4 92.4	EC TAA EC TAA		

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GS1	S60, 12.7L GEN SET	475 @ 1800	249.9	149.6	NA	NA	NA	EC TAA
GS2	S60, 12.7L GEN SET	550 @ 1800	301.4	180.4	NA	NA	NA	EC TAA
GS3	S60, 12.7L GEN SET	490 @ 1800	256.6	153.6	NA	NA	NA	EC TAA ECM, TC, CAC
GS4	S60, 12.7L GEN SET	455 @ 1800	241.5	144.6	NA	NA	NA	EC TAA
GS5	S60, 12.7L GEN SET	415 @ 1800	219.7	131.5	NA	NA	NA	EC TAA