

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-7-33

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;

Pursuant to the December 15, 1998 Settlement Agreement between the Air Resources Board and Detroit Diesel Corporation and any modifications to the Settlement Agreement;

IT IS ORDERED AND RESOLVED: That the following Detroit Diesel Corporation 1999 model-year engines with rated power between 175 and 750 horsepower and exhaust emission control systems are certified as described below in heavy-duty off-road equipment:

Typical Equipment Usage: Crane, Loaders, Tractor, Dozer, Pump, Compressor, and Generator Set

Fuel Type: Diesel

<u>Engine Family</u>	<u>Displacement</u>		<u>Exhaust Emission Control Systems and Special Features</u>
	<u>Liters</u>	<u>Cubic Inches</u>	
XDDXL12.7TGD (Series 60, 12.7 L)	12.7	775	Charge Air Cooler Turbocharger Electronic 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), oxides of nitrogen (NOx), and particulate matter (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 as follows (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 emissions certification values in grams per brake horsepower-hour, and the opacity-of-smoke emissions certification values in percent for this engine family are:

<u>Exhaust Emissions (g/bhp-hr)</u>				<u>Smoke Opacity (%)</u>		
<u>THC</u>	<u>CO</u>	<u>NOx</u>	<u>PM</u>	<u>Acce1</u>	<u>Lug</u>	<u>Peak</u>
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, Sections 2425 et seq.).

BE IT FURTHER RESOLVED: That the aforementioned engine family has been conditionally certified subject to the following conditions:

1. The Settlement Agreement is in effect.
2. The Settlement Agreement has not become null and void under Settlement Agreement Paragraph 165.
3. Detroit Diesel Corp. is in compliance with all applicable certification requirements of the Settlement Agreement.

Engines certified under this Executive Order must conform to all applicable California emission regulations and to all applicable terms and conditions of the Settlement Agreement.

Executed at El Monte, California this 8th day of January 1999.



R. B. Summerfield, Chief
Mobile Source Operations Division

A15

LARGE ENGINE MODEL SUMMARYManufacturer: **Detroit Diesel Corporation**Process Code: **New Submission**EPA Engine Family: **XDDXL12.7TGD**Manufacturer Family Name: **SERIES 60, 12.7L**

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

EO #
U-R-7-33

A15

LARGE ENGINE MODEL SUBMARIYManufacturer: **Detroit Diesel Corporation**Process Code: **New Submission**EPA Engine Family: **XDDXL12.7TGD**Manufacturer Family Name: **SERIES 60, 12.7L**

Engine Code	Engine Model	BHP@RPM (SAE Gross)	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
GS1	S60, 12.7L GEN SET	475 @ 1800	249.9	149.6	NA	NA	NA	ECM, TC, CAC
GS2	S60, 12.7L GEN SET	550 @ 1800	301.4	180.4	NA	NA	NA	ECM, TC, CAC
GS3	S60, 12.7L GEN SET	490 @ 1800	256.6	153.6	NA	NA	NA	ECM, TC, CAC
GS4	S60, 12.7L GEN SET	455 @ 1800	241.5	144.6	NA	NA	NA	ECM, TC, CAC
GS5	S60, 12.7L GEN SET	415 @ 1800	219.7	131.5	NA	NA	NA	ECU, TC, CAC

ED # 4-R-7-33