

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-7-51
Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

DETROIT DIESEL CORPORATION

Pursuant to the authority vested in the Air Resources Board at Sections 43000.5, 43013, and 43018 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned at Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-45-9; and

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

IT IS ORDERED AND RESOLVED: That the following diesel engines and exhaust emission control systems produced by the manufacturer are certified as described below for use in heavy-duty off-road equipment:

Model Year: 2000

Typical Equipment Usage: Crane, Loader, Tractor, Pump, Compressor, Generator, Dozer

Engine Power Ratings Range: 175 – 750 horsepower, inclusive

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>	
YDDXL12.7TGD (Series 60, 12.7 L)	12.7	775	Engine Control Module Turbocharger Charge Air Cooler

The 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 exhaust emission certification standards and certification values in grams per brake horsepower-hour (g/bhp-h) for total hydrocarbons (THC), carbon monoxide (CO), nitrogen oxides (NOx), and particulate matter (PM), and the opacity-of-smoke certification standards and certification values in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family are as follows (Title 13, California Code of Regulations, Section 2423):

	<u>Exhaust Emissions (g/bhp-h)</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>
Standard	1.0	8.5	6.9	0.4	20	15	50
Certification	0.1	0.9	6.6	0.1	10	1	21

BE IT FURTHER RESOLVED: That the listed engine models comply with "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 "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 manufacturer 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 6th day of January 2000.



R. B. Summerfield, Chief
Mobile Source Operations Division

LARGE ENGINE MODEL SUMMARY

EO:WR-751

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

EPA Engine Family: **YDDXL12.7TGD** Manufacturer Family Name: **SERIES 60, 12.7L**

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

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LARGE ENGINE MODEL SUMMARY

Manufacturer: **Detroit Diesel Corporation**

Process Code: **New Submission**

EO: UR-7-51

EPA Engine Family: **YDDXL12.7TGD** Manufacturer Family Name: **SERIES 60, 12.7L**

Engine Code	Engine Model	BHP@RPM (SAE Gross)	Fuel Rate: mm/stroke @ peak HP <i>(for diesels only)</i>	Fuel Rate: (lbs/hr) @ peak HP <i>(for diesels only)</i>	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	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
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

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TC, ACE, ECM*