

State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-7-42

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: Loader, Generator and Industrial equipment

Engine Power Ratings Range: Over 750 horsepower

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>	
YDDXL31.8VRE (Series 2000)	31.8	1958	Engine Control Module
	23.9	1468	Turbocharger
	15.9	976	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	0.2	0.6	6.7	0.1	10	2	17

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: u-R-7-42

Process Code: **New Submission**

Manufacturer: **Detroit Diesel Corporation**

EPA Engine Family: **YDDXL31.8VRE** Manufacturer Family Name: **SERIES 2000**

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
1M-21	16V-2000 SCCC	1205 @ 2100	227	423	3918 @ 1350	277	332	EC TAW
1M-18	16V-2000 SCCC	1205 @ 1800	254	405	3918 @ 1350	277	332	EC TAW
2M-21	16V-2000 SCCC	1340 @ 2100	252	469	4204 @ 1500	297	395	EC TAW
3M-GS	16V-2000 SCCC	1495 @ 1800	315	503	GEN SET	NA	NA	EC TAW
4M-GS	16V-2000 SCCC	1350 @ 1800	279	445	GENSET	NA	NA	EC TAW
1N-21	12V-2000 SCCC	1110 @ 2100	282	394	3200 @ 1500	303	302	EC TAW
2N-21	12V-2000 SCCC	1005 @ 2100	251	351	3100 @ 1350	297	267	EC TAW
3N-21	12V-2000 SCCC	905 @ 2100	226	316	2890 @ 1350	274	246	EC TAW
3N-18	12V-2000 SCCC	905 @ 1800	250	299	2890 @ 1350	274	246	EC TAW
4N-21	12V-2000 SCCC	850 @ 2100	210	293	2715 @ 1350	260	233	EC TAW
4N-18	12V-2000 SCCC	850 @ 1800	233	279	2715 @ 1350	260	233	EC TAW
5N-GS	12V-2000 SCCC	1120 @ 1800	318	381	GEN SET	NA	NA	EC TAW
1P-GS	8V-2000 SCCC	765 @ 1800	325	259	GEN SET	NA	NA	EC TAW

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Te, AC, ECM

LARGE ENGINE MODEL SUMMARY

EO: U-Q-7-42

Process Code: **New Submission**

Manufacturer: **Detroit Diesel Corporation**

EPA Engine Family: **YDDXL31.8VRE** Manufacturer Family Name: **Series 2000**

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
1A-21	16V-2000 JWCC	1050 @ 2100	196	365	3415 @ 1350	249	298	EC TAW
1A-18	16V-2000 JWCC	1050 @ 1800	219	350	3415 @ 1350	249	298	EC TAW
2A-GS	16V-2000 JWCC	1200 @ 1800	254	405	GEN SET	NA	NA	EC TAW
2A-GS-TL	16V-2000 JWCC	1086 @ 1800	225	359	GEN SET	NA	NA	EC TAW
1B-21	12V-2000 JWCC	760 @ 2100	194	271	2300 @ 1200	227	181	EC TAW
2B-GS	12V-2000 JWCC	910 @ 1800	269	322	GEN SET	NA	NA	EC TAW
2B-GS-TL	12V-2000 JWCC	823 @ 1800	239	286	GEN SET	NA	NA	EC TAW

TejAC, ECM