California Environmental Protection Agency	DETROIT DIESEL CORPORATION	EXECUTIVE ORDER U-R-007-0098
AIR RESOURCES BOARD	AND MTU	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)
2005	5DDXL65.0XTE	32.5, 48.7 and 65.0	Diesel	8000
SPECIAL	FEATURES & EMISSION	I CONTROL SYSTEMS	TYPICAL EQUIPMENT	APPLICATION
Direc	t Diesel Injection, Engin Turbocharger, Charge	e Control Module, Air Cooler	Crane, Pump, Compress	or, 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	EMISSION			6	EXHAUST (g/kw-	hr)		C	PACITY (	%)
POWER CLASS	STANDARD CATEGORY		нс	NOx	NMHC+NOx	со	РМ	ACCEL	LUG	PEAK
kW > 560	Tier 1	STD	1.3	9.2	N/A	11.4	0.54	20	15	50
		CERT	1.0	8.4		1.3	0.19	16	3	21

**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

day of December 2004.

Allen Lypns, Chief Mobile Source Operations Division

Engine Model Summary Form

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E0# 1-R-007-0098

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Manufacturer: Detroit Diesel Corporation and MTU

Engine category: Nonroad Cl EPA Engine Fanity: 5DDXL65.0XTE

EPA Engine Family. 5DDXL65.0XII Mfr Family Name: SERIES 4000 Process Code: New Submission

ontrof : J1930	>	>	~	>	>	>	>	>	>	>
9.Emission Control e Device Per SAE J190	EC TAW	EC TAŴ	EC TAW							
8.Fuel Rate: 9.Emission Control (Ibs/hr)@peak torque Device Per SAE J1930	966	741	069	635	693	678	647	583	Ч	NA
7.Fuel Rate: mm/stroke@peak torque	660	222	519	477	521	510	486	438	ΑN	AN
6.Torque @ RPM (SEA Gross)	9220 @ 1650	8064 @ 1500	7486 @ 1500	6870 @ 1500	7520 @ 1500	7352 @ 1500	7003 @ 1500	6302 @ 1500	Constant speed	Constant speed
5.Fuel Rate: (tbs/hr) @ peak HP (for diesels only)	1060	945	867	793	712	723	690	626	1012	863
4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	629	561	515	471	446	429	410	372	634	541
3.BHP@RPM (SAE Gross)	3000 @ 1900	2700 @ 1900	2500 @ 1900	2300 @ 1900	2146 @ 1800	2100 @ 1900	2000 @ 1900	1800 @ 1900	2935 @ 1800	2550 @ 1800
2.Engine Model	16V-4000	16V-4000								
1.Engine Code	5400	5336	5337	5338	5404	5405	5406	5407	5408	5409

Engine Model Summary Form

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ATTACHMENT 2 OF 2

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Manufacturer: Detroit Diesel Corporation and MTU

Engine category: Nonroad CI

EPA Engine Famy. 5DDXL65.0XTE Mfr Family Name: SERIES 4000 Process Code: New Sub - continued

5412     12V 4000     2250 (a) 1900     629     795     6915 (a) 1650     659       5413     12V 4000     2000 (a) 2100     541     755     6915 (a) 1650     659       5413     12V 4000     2025 (a) 1900     561     709     6047 (a) 1500     557     6       5414     12V 4000     1875 (a) 1900     514     650     561 (a) 1500     518     7       5415     12V 4000     187 (a) 1600 (a) 1900     470     594     515 (a) 1500     518     7       5417     12V 4000     1600 (a) 1900     634     759     5602 (a) 1500     521     7       5417     12V 4000     1850 (a) 1800     634     759     5602 (a) 1500     521     7       5417     12V 4000     1850 (a) 1800     539     621     759     5602 (a) 1500     521     7       5418     12V 4000     1850 (a) 1800     539     645     5602 (a) 1500     521     7       5422     12V 4000     1850 (a) 1800     539     645     560	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: (ibs/hr)@peak torque	8. Fuel Rate: 9. Emission Control (lbs/hr)@peak torque Device Per SAE J1930
12V-4000     2025 @ 1900     561     709     6047 @ 1500     557       12V-4000     1875 @ 1900     514     650     5613 @ 1500     518       12V-4000     1725 @ 1900     470     594     5151 @ 1500     518       12V-4000     1725 @ 1900     470     5602 @ 1500     521       12V-4000     1600 @ 1900     634     759     Constant speed     NA       12V-4000     1950 @ 1800     519     645     Constant speed     NA       12V-4000     1950 @ 1800     539     645     Constant speed     NA       12V-4000     1950 @ 1800     539     645     Constant speed     NA       12V-4000     1950 @ 1800     539     645     Constant speed     NA       12V-4000     1950 @ 1800     562     473     4590 @ 1500     556       8V-4000     1950 @ 1900     629     530     645     556     556       8V-4000     1560 @ 1900     634     506     Constant speed     NA       8V-4000     1468	5412	12V-4000	2250 @ 1900 2000 @ 2100	629 541	795 756	6915 @ 1650 6915 @ 1650	659 659	724 724	EC TAW EC TAW
12V-4000     1875 @ 1900     514     650     5613 @ 1500     518       12V-4000     1725 @ 1900     470     594     5151 @ 1500     477       12V-4000     1600 @ 1900     425     537     5602 @ 1500     521       12V-4000     1850 @ 1800     634     759     Constant speed     NA       12V-4000     1850 @ 1800     519     621     Constant speed     NA       12V-4000     1850 @ 1800     539     645     Constant speed     NA       12V-4000     1850 @ 1800     539     645     Constant speed     NA       12V-4000     1850 @ 1800     539     645     Constant speed     NA       12V-4000     1850 @ 1800     562     473     4590 @ 1500     556       8V-4000     1350 @ 1900     562     473     4590 @ 1500     556       8V-4000     1500 @ 1900     633     530     4610 @ 1650     566       8V-4000     1458 @ 1800     634     506     560     566	5413	12V-4000	2025 @ 1900	561	602	6047 @ 1500	. 557	556	EC TAW
12V-4000   1725 @ 1900   470   594   5151 @ 1500   477     12V-4000   1600 @ 1900   425   537   5602 @ 1500   521     12V-4000   2200 @ 1800   634   759   Constant speed   NA     12V-4000   1850 @ 1800   519   621   Constant speed   NA     12V-4000   1850 @ 1800   539   645   Constant speed   NA     12V-4000   1850 @ 1800   539   645   Constant speed   NA     12V-4000   1850 @ 1800   539   645   Constant speed   NA     8V-4000   1850 @ 1800   539   645   Constant speed   NA     8V-4000   1350 @ 1900   562   473   4590 @ 1500   556     8V-4000   1500 @ 1900   629   530   4610 @ 1650   660     8V-4000   1468 @ 1800   634   506   Constant speed   NA	5414	12V-4000	1875 @ 1900	514	650	5613 @ 1500	518	517	EC TAW
12V-4000   1600 (a) 1900   425   537   5602 (a) 1500   521     12V-4000   2200 (a) 1800   634   759   Constant speed   NA     12V-4000   1850 (a) 1800   519   621   Constant speed   NA     12V-4000   1850 (a) 1800   539   645   Constant speed   NA     12V-4000   1850 (a) 1800   539   645   Constant speed   NA     12V-4000   1850 (a) 1800   539   645   Constant speed   NA     8V-4000   1350 (a) 1900   562   473   4590 (a) 1500   556     8V-4000   1500 (a) 1500   562   473   4590 (a) 1500   556     8V-4000   1500 (a) 1900   563   530   6410 (a) 1650   556     8V-4000   1500 (a) 1900   533   556   556   556     8V-4000   1458 (a) 1800   633   556   556   556	5415	12V-4000	1725 @ 1900	470	594	5151 @ 1500	477	476	EC TAW
12V-4000   2200 @ 1800   634   759   Constant speed   NA     12V-4000   1850 @ 1800   519   621   Constant speed   NA     12V-4000   1850 @ 1800   539   645   Constant speed   NA     12V-4000   1850 @ 1800   539   645   Constant speed   NA     8V-4000   1350 @ 1900   562   473   4590 @ 1500   556   5     8V-4000   1500 @ 1900   629   530   640   740 @ 1650   660   A	5416	12V-4000	1600 @ 1900	425	537	5602 @ 1500	521	520	EC TAW
12V-4000     1850 @ 1800     519     621     Constant speed     NA       12V-4000     1850 @ 1800     539     645     Constant speed     NA       12V-4000     1850 @ 1800     539     645     Constant speed     NA       8V-4000     1350 @ 1900     562     473     4590 @ 1500     556       8V-4000     1500 @ 1900     629     530     4610 @ 1650     556       8V-4000     1560 @ 1900     639     530     4610 @ 1650     556	5417	12V-4000	2200 @ 1800	634	759	Constant speed	NA	NA	EC TAW
12V-4000 1850 @ 1800 539 645 Constant speed NA   8V-4000 1350 @ 1900 562 473 4590 @ 1500 556   8V-4000 1500 @ 1900 629 530 4610 @ 1650 660   8V-4000 1468 @ 1800 634 506 Constant speed NA	5418	12V-4000	1850 @ 1800	519	621	Constant speed	NA	NA	EC TAW
8V-4000   1350 @ 1900   562   473   4590 @ 1500   556     8V-4000   1500 @ 1900   629   530   4610 @ 1650   660     8V-4000   1468 @ 1800   634   506   Constant speed   NA	5422	12V-4000	1850 @ 1800	539	645	Constant speed	NA	NA	EC TAW
8V-4000   1350 @ 1900   562   473   4590 @ 1500   556     8V-4000   1500 @ 1900   629   530   4610 @ 1650   660     8V-4000   1468 @ 1800   634   506   Constant speed   NA									
8V-4000   1350 @ 1900   562   473   4590 @ 1500   556     8V-4000   1500 @ 1900   629   530   4610 @ 1650   660     8V-4000   1468 @ 1800   634   506   Constant speed   NA		<u>,                                    </u>							
8V-4000     1500 @ 1900     629     530     4610 @ 1650     660       8V-4000     1468 @ 1800     634     506     Constant speed     NA	5421	8V-4000	1350 @ 1900	562	473	4590 @ 1500	556	370	EC TAW
8V-4000 1468 @ 1800 634 506 Constant speed NA	5342	8V-4000	1500 @ 1900	629	530	4610 @ 1650	660	483	EC TAW
	5512	8V-4000	1468 @ 1800	634	506	Constant speed	AN	AN	EC TAW