California Environmental Protection Agency AIR RESOURCES BOARD	DETROIT DIESEL CORPORATION	EXECUTIVE ORDER A-290-0126 New On-Road Heavy-Duty Engines Page 1 of 2

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-02-003;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE [1]	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS [2]	ECS & SPECIAL FEATURES [3]	IDLING EMISSIONS CONTROL [5]
2008	8DDXH14.0ELC	14.0	Diesel	Diesel	HHDD	DDI, TC, CAC, ECM, EGR, OC, PTOX	ESS

ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)
14.0	See attachment for engine models and ratings
*	*
*	*
*	*

* =not applicable; **GVWR**=gross vehicle weight rating; **13 CCR xyz**=Title 13, California Code of Regulations, Section xyz; **40 CFR 86.abc**=Title 40, Code of Federal Regulations, Section 86.abc; **L**=liter; **hp**=horsepower; **kw**=kilowatt; **hr**=hour;

[1] **CNG/LNG**=compressed/liquefied natural gas; **LPG**=liquefied petroleum gas; **E85**=85% ethanol fuel; **MF**=multi fuel a.k.a. **BF**=bi fuel; **DF**=dual fuel; **FF**=flexible fuel;

[2] **L/M/H HDD**=light/medium/heavy heavy-duty diesel; **UB**=urban bus; **HDO**=heavy duty Otto;

[3] **ECS**=emission control system; **TWC/OC**=three-way/oxidizing catalyst; **NAC**=NOx adsorption catalyst; **SCR-U / SCR-N**=selective catalytic reduction – urea / – ammonia; **WU (prefix)** =warm-up catalyst; **DPF**=diesel particulate filter; **PTOX**=periodic trap oxidizer; **HO2S/O2S**=heated/oxygen sensor; **HAFS/AFS**=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); **TBI**=throttle body fuel injection; **SFI/MFI**=sequential/multi port fuel injection; **DGI**=direct gasoline injection; **GCARB**=gaseous carburetor; **IDI/DDI**=indirect/direct diesel injection; **TC/SC**=turbo/super charger; **CAC**=charge air cooler; **EGR / EGR-C**=exhaust gas recirculation / cooled EGR; **PAIR/AIR**=pulsed/secondary air injection; **SPL**=smoke puff limiter; **ECM/PCM**=engine/powertrain control module; **EM**=engine modification; **2 (prefix)**=parallel; **(2) (suffix)**=in series;

[5] **ESS**=engine shutdown system (per 13 CCR 1956.8(a)(6)(A)(1); **30g**=30 g/hr NOx (per 13 CCR 1956.8(a)(6)(C); **ALT**=alternative method (per 13 CCR 1956.8(a)(6)(D); **Exempt**=exempted per 13 CCR 1956.8(a)(6)(B) or for CNG/LNG fuel systems; **N/A**=not applicable (e.g., Otto engines and vehicles);
(Rev.: 2007-12-20)

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.8; 2) the EURO and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, for this engine family. "Diesel" CO, EURO and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [ ] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.8 are in parentheses.).[4]

In g/bhp-hr	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO
STD	0.14	0.14	*	*	*	*	15.5	15.5	0.01	0.01	*	*
FEL	*	*	1.16	1.16	1.3	1.3	*	*	*	*	*	*
CERT	0.01	0.02	1.07	0.97	1.1	1.0	0.2	0.2	0.003	0.001	*	*
NTE	0.21		1.74		2.0		19.4		0.02		*	

[4] **g/bhp-hr**=grams per brake horsepower-hour; **FTP**=Federal Test Procedure; **EURO**=Euro III European Steady-State Cycle, including **RMCSET**=ram mode cycle supplemental emissions testing; **NTE**=Not-to-Exceed; **STD**=standard or emission test cap; **FEL**=family emission limit; **CERT**=certification level; **NMHC/HC**=non-methane/hydrocarbon; **NOx**=oxides of nitrogen; **CO**=carbon monoxide; **PM**=particulate matter; **HCHO**=formaldehyde;

BE IT FURTHER RESOLVED: Certification to the FEL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: Except in vehicle applications exempted per 13 CCR 1956.8(a)(6)(B), engines in this engine family, as applicable:

1. certified under 13 CCR 1956.8(a)(6)(C) [30 g/hr NOx] and section 35.B.4 of the incorporated "California Exhaust Emissions Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" (HDDE Test Procedures) adopted Dec. 12, 2002, as last amended Sep. 1, 2006, shall be provided with an approved "Certified Clean Idle" label that shall be affixed to the vehicle into which the engine is installed; or

2. certified under 13 CCR 1956.8(a)(6)(D) [alternatives to main engine idling] shall have an engine shutdown system meeting the requirements in 13 CCR 1956.8(a)(6)(A). The auxiliary power system (APS) equipping each engine in this engine family shall meet the requirements in 13 CCR 2485(c)(3)(A) [internal combustion APS] and shall be provided with an approved "Verified Clean APS" label pursuant to 13 CCR 2485)c)(3)(D) [labeling] and section 35.B.4 of the incorporated HDDE Test Procedures. The "Verified Clean APS" label shall be affixed to the vehicle into which the engine is installed. See the Attachment for a description of the APS.

BE IT FURTHER RESOLVED: The listed engine models have been certified to the split engine family standards under 13 CCR 1956.8(b) [diesel engines] or 13 CCR 1956.8(d) [Otto engines] and the incorporated 40 CFR 86.007-15(m)(9).

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels) and 13 CCR 2035 et seq. (emission control warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed at El Monte, California on this 21 day of December 2007.

Annette Hebert, Chief
Mobile Source Operations Division

Engine Model Summary Template

Engine Family	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
8DDXH14.0ELC	1540	Truck/Coach	445@1800	260.4	155.9	1450@1100	266.0	97.3	ECM, TC, CAC
8DDXH14.0ELC	1541	Truck/Coach	425@1800	249.4	149.3	1450@1100	266.0	97.3	EGR, DOC
8DDXH14.0ELC	1542	Truck/Coach	425/445@1800			1450@1100	266.0	97.3	DPF
8DDXH14.0ELC	1543	Truck/Coach	490@1800	287.0	171.8	1550@1100	284.3	104.0	(all ratings)
8DDXH14.0ELC	1544	Truck/Coach	455@1800	264.9	158.6	1550@1100	284.3	104.0	
8DDXH14.0ELC	1545	Truck/Coach	455/490@1800			1550@1100	284.3	104.0	
8DDXH14.0ELC	1546	Truck/Coach	515@1800	304.7	182.4	1550@1100	284.3	104.0	
8DDXH14.0ELC	1547	Truck/Coach	490/515@1800			1550@1100	284.3	104.0	
8DDXH14.0ELC	1548	Truck/Coach	515@1800	304.7	182.4	1650@1100	305.9	111.9	
8DDXH14.0ELC	1549	Truck/Coach	470@1800	278.1	166.5	1650@1100	305.9	111.9	
8DDXH14.0ELC	1550	Truck/Coach	470/515@1800			1650@1100	305.9	111.9	
8DDXH14.0ELC	1551	Firetruck	445@1800	260.4	155.9	1450@1100	266.0	97.3	
8DDXH14.0ELC	1552	Firetruck	425@1800	249.4	149.3	1450@1100	266.0	97.3	
8DDXH14.0ELC	1553	Firetruck	490@1800	287.0	171.8	1550@1100	284.3	104.0	
8DDXH14.0ELC	1554	Firetruck	455@1800	264.9	158.6	1550@1100	284.3	104.0	
8DDXH14.0ELC	1555	Firetruck	515@1800	304.7	182.4	1550@1100	284.3	104.0	
8DDXH14.0ELC	1556	Firetruck	515@1800	304.7	182.4	1650@1100	305.9	111.9	
8DDXH14.0ELC	1557	Firetruck	470@1800	278.1	166.5	1650@1100	305.9	111.9	

ATTACHMENT

A-290-0126