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]	DIAGNOSTIC [6]
2013	DCEXH0540LAV	8.9	Diesel	Diesel	MHDD	DDI, TC, CAC, ECM, EGR, OC, PTOX, SCR-U	OBD($)

PRIMARY ENGINE'S IDLE EMISSIONS CONTROL [5]	ADDITIONAL IDLE EMISSIONS CONTROL [5]
30g	N/A

ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)
8.9	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); **APS** =internal combustion auxiliary power system; **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);

[6] **EMD**=engine manufacturer diagnostic system (13 CCR 1971); OBD**(F) / (P) / ($)**=full / partial / partial with a fine / on-board diagnostic;);

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	0.20	0.20	*	*	15.5	15.5	0.01	0.01	*	*
FEL	*	*	*	*	*	*	*	*	*	*	*	*
CERT	0.007	0.005	0.19	0.15	*	*	0.05	0.00	0.000	0.000	*	*
NTE	0.21		0.30		*		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; **(Rev.: 2007-02-26)**

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: The listed engine models are conditionally certified in accordance with 13 CCR Section 1971.1(k) (deficiency and fines provisions for certification of malfunction and diagnostic system) because the heavy-duty on-board diagnostic (HD OBD) system of the listed engine models has been determined to have six deficiencies. The listed engine models are approved subject to the manufacturer paying a fine of $125 per engine for the third through sixth deficiencies in the listed engine family that is produced and delivered for sale in California. On a quarterly basis, the manufacturer shall submit to the Air Resources Board reports of the number of engines produced and delivered for sale in California and pay the full fine owed for that quarter pursuant to this conditional certification. Payment shall be made payable to the State Treasurer for deposit in the Air Pollution Control Fund no later than thirty (30) days after the end of each calendar quarter during the 2013 model-year production period. Failure to pay the quarterly fine, in full, in the time provided, may be cause for the Executive Officer to rescind this conditional certification, effective from the start of the quarter in question, in which case all engines covered under this conditional certification for that quarter and all future quarters would be deemed uncertified and subject to a civil penalty of up to $5000 per engine pursuant to HSC Section 43154.

SUPERSEDED

BE IT FURTHER RESOLVED: Except in vehicle applications exempted per 13 CCR 1956.8(a)(6)(B), engines in this engine family 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 Oct. 12, 2011, shall be provided with an approved "Certified Clean Idle" label that shall be affixed to the vehicle into which the engine is installed.

BE IT FURTHER RESOLVED: That the manufacturer has elected to include engine models in this engine family which are identified for "emergency vehicle use only". These "emergency vehicle use only" engines are exempt from requirements imposed pursuant to California law and the regulations adopted pursuant thereto for motor vehicle pollution control devices per California Vehicle Code Section 27156.2. The manufacturer must clearly label these engines for "emergency vehicle use only" on the engines' emission control label.

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), 13 CCR 1971.1 (on-board diagnostic, full or partial compliance) 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 15 day of October 2012.

Annette Hebert, Chief
Mobile Source Operations Division

SUPERSEDED

EO#: A-021-0577

10/08/2012

Attachment:

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
CEXH0540LAV	3663;FR93434	ISL9 450	450@2100	233	165	1250@1400	239	113	SCRC, PTOX, PC
CEXH0540LAV	3663;FR93435	ISL9 400	400@2100	199	141	1250@1400	239	113	SCRC, PTOX, PC
CEXH0540LAV	3663;FR93931	ISL9 380	365@2100	184	130	1250@1400	239	113	SCRC, PTOX, PC
CEXH0540LAV	3663;FR93437	ISL9 370	365@2100	184	130	1250@1400	239	113	SCRC, PTOX, PC
CEXH0540LAV	3663;FR93442	ISL9 380	352@2200	171	127	1150@1400	222	105	SCRC, PTOX, PC
CEXH0540LAV	3664;FR93438	ISL9 345	330@2100	161	114	1150@1400	214	101	SCRC, PTOX, PC
CEXH0540LAV	3664;FR93443	ISL9 350	320@2200	154	114	1000@1400	191	90	SCRC, PTOX, PC
CEXH0540LAV	3664;FR93444	ISL9 330	320@2200	154	114	1000@1400	191	90	SCRC, PTOX, PC
CEXH0540LAV	3664;FR93445	ISL9 300	285@2200	137	102	860@1300	164	72	SCRC, PTOX, PC
CEXH0540LAV	3664;FR93446	ISL9 270	260@2200	125	93	800@1300	155	68	SCRC, PTOX, PC
CEXH0540LAV	3664;FR93577	ISL9 260	260@2200	125	93	720@1300	144	63	SCRC, PTOX, PC
CEXH0540LAV									
CEXH0540LAV	Emergency	Vehicle	Ratings	Below					
CEXH0540LAV	3663;FR93434	ISL9 450 EV	450@2100	233	165	1250@1400	239	113	SCRC, PTOX, PC
CEXH0540LAV	3663;FR93435	ISL9 400 EV	400@2100	199	141	1250@1400	239	113	SCRC, PTOX, PC
CEXH0540LAV	3663;FR93931	ISL9 380 EV	365@2100	184	130	1250@1400	239	113	SCRC, PTOX, PC
CEXH0540LAV	3663;FR93437	ISL9 370 EV	365@2100	184	130	1250@1400	239	113	SCRC, PTOX, PC
CEXH0540LAV	3663;FR93442	ISL9 380	352@2200	171	127	1150@1400	222	105	SCRC, PTOX, PC
CEXH0540LAV	3664;FR93438	ISL9 345 EV	330@2100	161	114	1150@1400	214	101	SCRC, PTOX, PC
CEXH0540LAV	3664;FR93443	ISL9 350 EV	320@2200	154	114	1000@1400	191	90	SCRC, PTOX, PC
CEXH0540LAV	3664;FR93444	ISL9 330 EV	320@2200	154	114	1000@1400	191	90	SCRC, PTOX, PC
CEXH0540LAV	3664;FR93445	ISL9 300 EV	285@2200	137	102	860@1300	164	72	SCRC, PTOX, PC
CEXH0540LAV	3664;FR93446	ISL9 270 EV	260@2200	125	93	800@1300	155	68	SCRC, PTOX, PC

SCR-U, DDI, EGR, OC, ECM, TC, CAC, PTOX

SUPERSEDED