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]
2011	BDDXH12.8FED	12.8	Diesel	Diesel	HHDD	DDI, TC, CAC, ECM, EGR, OC, PTOX, SCR-U, OC	EMD+

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

ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)
12.8	See attachment for engine models and ratings (clean idle engines are labeled as 50-State compliant engines)

* =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; SCR = Selective Catalytic Reduction system

[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**=on-board diagnostic system (13 CCR 1971.1);

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	*	*	*	*
FEL	*	*	*	*	*	*	*	*	0.00	0.00	*	*
CERT	0.00	0.00	0.13	0.08	*	*	0.3	0.2	0.003	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**=ramp 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: 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 22 day of December 2010.

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
BDDXH12.8FED	I	DD13	370@1800	205	122.4	1250@1240	225	92.3	DDI, ECM, TC, CAC
BDDXH12.8FED	II	DD13	350@1800	194	115.9	1350@1240	244	100.1	EGR, DOC,
BDDXH12.8FED	III	DD13	380@1800	211	125.7	1350@1240	244	100.1	PTOX ~~DPF~~, SCR, oC
BDDXH12.8FED	IV	DD13	380@1800	211	125.7	1450@1240	262	107.7	(all ratings)
BDDXH12.8FED	V	DD13	410@1800	227	135.4	1450@1240	262	107.7	
BDDXH12.8FED	VI	DD13	410@1800	227	135.4	1550@1240	281	115.5	
BDDXH12.8FED	VII	DD13	435@1800	241	143.5	1550@1240	281	115.5	
BDDXH12.8FED	VIII	DD13	450@1800	249	148.4	1550@1240	281	115.5	
BDDXH12.8FED	IX	DD13	410@1800	227	135.4	1650@1240	298	122.5	
BDDXH12.8FED	X	DD13	450@1800	249	148.4	1650@1240	298	122.5	
BDDXH12.8FED	XI	DD13	470@1800	260	154.9	1650@1240	298	122.5	
BDDXH12.8FED	XII	DD13	380@1800	211	125.7	1550@1240	281	115.5	
BDDXH12.8FED	XIII	DD13	370@1800	205	122.4	1250@1240	225	92.3	
BDDXH12.8FED	XIV	DD13	350@1800	194	115.9	1350@1240	244	100.1	
BDDXH12.8FED	XV	DD13	380@1800	211	125.7	1350@1240	244	100.1	
BDDXH12.8FED	XVI	DD13	380@1800	211	125.7	1450@1240	262	107.7	
BDDXH12.8FED	XVII	DD13	410@1800	227	135.4	1450@1240	262	107.7	
BDDXH12.8FED	XVIII	DD13	410@1800	227	135.4	1550@1240	281	115.5	
BDDXH12.8FED	XIX	DD13	435@1800	241	143.5	1550@1240	281	115.5	
BDDXH12.8FED	XX	DD13	450@1800	249	148.4	1550@1240	281	115.5	
BDDXH12.8FED	XXI	DD13	410@1800	227	135.4	1650@1240	298	122.5	
BDDXH12.8FED	XXII	DD13	450@1800	249	148.4	1650@1240	298	122.5	
BDDXH12.8FED	XXIII	DD13	380@1800	211	125.7	1550@1240	281	115.5	
BDDXH12.8FED	XXIV	DD13 coach	410@1800	227	135.4	1450@1240	262	107.7	
BDDXH12.8FED	XXV	DD13 coach	450@1800	249	148.4	1550@1240	281	115.5	

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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
BDDXH12.8FED	XXVI	DD13 fire truck	500@1800	277	165.1	1650@1240	298	122.5	DDI, TC, CAC, ECM
BDDXH12.8FED	XXVII	DD13 fire truck	450@1800	249	148.4	1550@1240	281	115.5	EGR, OC, DTOX,
BDDXH12.8FED	XXVIII	DD13 fire truck	435@1800	241	143.5	1550@1240	281	115.5	SCR-U, OC
BDDXH12.8FED	XXIX	DD13 fire truck	380@1800	211	125.7	1450@1240	262	107.7	

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