IMPCO Technologies

EXECUTIVE ORDER A-328-0065 New On-Road Heavy-Duty Engines

⊘ Air Resources Board

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	SERVICE	ECS & SPECIAL FEATURES 3	DIAGNOSTIC ⁶ EMD+			
					PROCEDURE	CLASS 2	ECM, TWC, SFI, HO2S, 2AFS				
2014	EZ9XE06.8	Z9XE06.8DC2 6.8		CNG	Otto	HDO	2011, 1110, 01 1, 11020, 2711 0				
	Y ENGINE'S IDLE ONS CONTROL		ADDITIONAL IDLE EMISSIONS CONTROL 5								
N/A		N/A									
ENGINE ((L)	ENGINE MODELS / CODES (rated power, in hp)									
6.8		E-Series / E6.8DC2 (251)									
*		*									
*		*									
L=liter; hp 1 CNG/L 2 L/M/H I 3 ECS=e	=horsepower; kw=k NG=compressed/liqu HDD=light/medium/h mission control syste	ilowatt; hi uefied natu eavy heav em; TWC/	r=hour; iral gas; LPG=liquef y-duty diesel; UB=u OC=three-way/oxidiz	ied petroleum gas; E85=85% eth irban bus; HDO=heavy duty Otto; zing catalyst; NAC=NOx adsorption	anol fuel; MF=multi on catalyst; SCR-L	ti fuel a.k.a. BF	R 86.abc=Title 40, Code of Federal Regulation =bi fuel; DF=dual fuel; FF=flexible fuel; ctive catalytic reduction – urea / – ammonia; V air-fuel-ratio sensor (a k a., universal or linear (VU (prefix) =warm-			

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=heateddoxygen sensor; HAFS/AFS=heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBl=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;

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);

EMD+= engine manufacturer diagnostic system (13 CCR 1971); EMD+= engine manufacturer diagnostic system with catalyst monitoring (13 CCR 1971.1); 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 SET and NTE limits under the applicable California exhaust emission standards and test procedures for heavyduty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, for this engine family. "Diesel" CO, SET 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.).

in g/bhp-hr	NMHC		NOx		NMHC+NOx		со		PM		нсно	
	FTP	SET	FTP	SET	FTP	SET	FTP	SET	FTP	SET	FTP	SET
STD	0.14	*	0.20	*	*	*	14.4	*	0.01	*	0.01	*
CERT	0.04	*	0.07	*	*	*	6.8	*	0.001	*	0.003	*
NTE	*		*		*		*		*		*	

⁴ g/bhp-hr=grams per brake horsepower-hour; FTP=Federal-Test Procedure; SET=Supplemental Emissions Test; 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: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 2035 et seq. (emission control warranty) and 13 CCR 1971.1 (on-board diagnostic).

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 ______ day of December 2013.

Mobile Source Operations Division