California Environmental Protection Agency AIR RESOURCES BOARD	CUMMINS INC.	EXECUTIVE ORDER A-021-0522 New On-Road Heavy-Duty Engines Page 1 of 2 Pages

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]
2010	ACEXH0912XAQ	14.9	Diesel	Diesel	HHDD	DDI, TC, CAC, ECM, EGR, OC, SCR-U, PTOX	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)
14.9	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% ethenol 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=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	*	*	*	*	15.5	15.5	0.01	0.01	*	*
FEL	*	*	0.30	0.30	*	*	*	*	*	*	*	*
CERT	0.000	0.000	0.21	0.18	*	*	0.02	0.00	0.01	0.004	*	*
NTE	0.21		0.45		*		19.4		0.02		*	

[4] g/bhp-hr=grams per brake horsepower-hour; FTP=Federal Test Procedura; 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: 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 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.

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).

BE IT FURTHER RESOLVED: The listed engine models are conditionally certified pending submission of additional test data to verify compliance with useful-life emission standards. The manufacturer has until July 30, 2010 to provide test data to confirm or correct the certification emissions levels on this conditional certification. Failure to resolve concerns by the specified time, shall be cause for the Executive Officer to rescind this conditional certification, in which case all engines covered under this conditional certification would be deemed uncertified and subject to civil penalties pursuant to Health and Safety Code Section 43154.

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 6th day of January 2010.

J. Lourenco

Annette Hebert, Chief
Mobile Source Operations Division

Date: 12/28/2009

Engine Model Summary Template

Attachment page 1 of 1

EO#: A-021-0522

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
ACEXH0912XAQ	3348;FR10818	ISX15 500ST	452@1977	248	166	1850@1200	354	143	SCRC, PTOX,
ACEXH0912XAQ	3348;FR10817	ISX15 500	452@1977	248	166	1850@1200	354	143	SCRC, PTOX,
ACEXH0912XAQ	3348;FR10816	ISX15 500	452@1977	248	166	1650@1200	312	126	SCRC, PTOX,
ACEXH0912XAQ	3348;FR10815	ISX15 485ST	439@1977	242	162	1850@1200	354	143	SCRC, PTOX,
ACEXH0912XAQ	3348;FR10814	ISX15 485	439@1977	242	162	1850@1200	354	143	SCRC, PTOX,
ACEXH0912XAQ	3348;FR10813	ISX15 485	439@1977	242	162	1650@1200	312	126	SCRC, PTOX,
ACEXH0912XAQ	3348;FR10825	ISX15 500V	452@1977	248	166	1850@1200	354	143	SCRC, PTOX,
ACEXH0912XAQ	3348;FR10822	ISX15 500V	452@1977	248	166	1650@1200	312	126	SCRC, PTOX,
ACEXH0912XAQ	3348;FR10848	ISX15 455MC	411@1977	232	155	1450@1200	272	110	SCRC, PTOX,
ACEXH0912XAQ	3491;FR10880	ISX15 500ST	452@1977	253	169	1850@1200	351	142	SCRC, PTOX,
ACEXH0912XAQ	3491;FR10881	ISX15 500	452@1977	253	169	1850@1200	351	142	SCRC, PTOX,
ACEXH0912XAQ	3491;FR10879	ISX15 500	452@1977	253	169	1650@1200	309	125	SCRC, PTOX,
ACEXH0912XAQ	3491;FR10877	ISX15 485ST	439@1977	242	162	1850@1200	351	142	SCRC, PTOX,
ACEXH0912XAQ	3491;FR10878	ISX15 485	439@1977	242	162	1850@1200	351	142	SCRC, PTOX,
ACEXH0912XAQ	3491;FR10876	ISX15 485	439@1977	242	162	1650@1200	309	125	SCRC, PTOX,
ACEXH0912XAQ	3491;FR10884	ISX15 500V	452@1977	253	169	1850@1200	351	142	SCRC, PTOX,
ACEXH0912XAQ	3491;FR10883	ISX15 500V	452@1977	253	169	1650@1200	309	125	SCRC, PTOX,
ACEXH0912XAQ	3491;FR10875	ISX15 455MC	411@1977	232	155	1450@1200	272	110	SCRC, PTOX,
ACEXH0912XAQ	3491;FR10882	ISX15 500EV	452@1977	253	169	1850@1200	351	142	SCRC, PTOX,
ACEXH0912XAQ	3491;FR10874	ISX15 455EV	411@1977	232	155	1750@1200	329	133	SCRC, PTOX,

DDI, TC, CAC, ECM, EGR, OC
SCR-4, PTOX