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]
2008	8CEXH0912XAK	14.9	Diesel	Diesel	HHDD	DDI, TC, CAC, ECM, EGR, OC, PTOX	EMD

PRIMARY ENGINE'S IDLE EMISSIONS CONTROL [5]	ADDITIONAL IDLE EMISSIONS CONTROL [5]
30g	Engine family 8KBXL.719KCB-based APS exhausting through the after-treatment system of primary engine.

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% 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**=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	*	*	1.33	1.33	1.3	1.3	*	*	*	*	*	*
CERT	0.01	0.000	1.12	0.89	1.1	0.9	0.3	0.00	0.01	0.002	*	*
NTE	0.21		2.00		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;

(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" 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: Engines in this engine family ("primary engines") may include the auxiliary power system (APS) described above for additional idle emissions control subject to the following stipulations. (A) Engine exhaust from the APS is routed directly into the exhaust system of the primary engine upstream of its diesel particulate matter aftertreatment device. And, (B) The manufacturer shall ensure that each primary engine so equipped with the APS is provided with an approved "Verified Clean APS" label to be affixed to the vehicle into which the primary engine is installed. The "Verified Clean APS" label shall conform to 13 CCR 2485(c)(3)(D) 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" adopted Dec. 12, 2002, as last amended Sep. 1, 2006.

SUPERSEDED

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).

BE IT FURTHER RESOLVED: The listed engine models are conditionally certified pending final approval of "Certified Clean Idle" and "Verified Clean APS" vehicle labels. The manufacturer has until June 30, 2008 to resolve concerns on this conditional certification. This Executive Order is effective through June 30, 2008; engines produced after this date are not covered by this Executive Order.

This Executive Order hereby supersedes Executive Order A-021-0472-1 dated March 5, 2008.

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 16 day of June 2008.

Annette Hebert, Chief
Mobile Source Operations Division

SUPERSEDED

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
8CEXH0912XAK	1437;FR10647	ISX 435ST	435@1800	257	156	1750@1200	349	141	DDI PTOX, PCM,
8CEXH0912XAK	1437;FR10667	ISX 435ST	435@1800	257	156	1650@1200	333	135	TC PTOX, PCM,
8CEXH0912XAK	1437;FR10646	ISX 435ST	435@1800	257	156	1750@1200	349	141	CAC PTOX, PCM,
8CEXH0912XAK	1437;FR10664	ISX 435	435@1800	257	156	1650@1200	333	135	ECM PTOX, PCM,
8CEXH0912XAK	1437;FR10665	ISX 435	435@1800	257	156	1550@1200	311	126	EGR PTOX, PCM,
8CEXH0912XAK	1437;FR10649	ISX 425ST	425@1800	252	153	1750@1200	349	141	OC PTOX, PCM,
8CEXH0912XAK	1437;FR10668	ISX 425ST	425@1800	252	153	1650@1200	333	135	PTOX PTOX, PCM,
8CEXH0912XAK	1437;FR10650	ISX 425ST	425@1800	252	153	1750@1200	349	141	PTOX, PCM,
8CEXH0912XAK	1437;FR10651	ISX 425	425@1800	252	153	1650@1200	333	135	PTOX, PCM,
8CEXH0912XAK	1437;FR10653	ISX 400ST	408@1800	245	149	1750@1200	349	141	AOR PTOX, PCM,
8CEXH0912XAK	1437;FR10654	ISX 400ST	408@1800	245	149	1650@1200	333	135	AOL PTOX, PCM,
8CEXH0912XAK	1437;FR10652	ISX 400ST	408@1800	245	149	1750@1200	349	141	Mobile PTOX, PCM,
8CEXH0912XAK	1437;FR10655	ISX 400ST	408@1800	245	149	1650@1200	333	135	PTOX, PCM,
8CEXH0912XAK	1437;FR10656	ISX 400	425@1800	252	153	1450@1200	284	116	PTOX, PCM,
8CEXH0912XAK	1437;FR10658	ISX 385ST	408@1800	245	149	1550@1200	311	126	PTOX, PCM,
8CEXH0912XAK	1437;FR10657	ISX 385ST	408@1800	245	149	1550@1200	311	126	PTOX, PCM,
8CEXH0912XAK	1437;FR10646	ISX 435V	425@1800	252	153	1450@1200	284	116	PTOX, PCM,
8CEXH0912XAK	2732;FR10647	ISX 435ST	435@1800	257	156	1750@1200	349	141	PTOX, PCM,
8CEXH0912XAK	2732;FR10667	ISX 435ST	435@1800	257	156	1650@1200	333	135	PTOX, PCM,
8CEXH0912XAK	2732;FR10664	ISX 435	435@1800	257	156	1650@1200	333	135	PTOX, PCM,
8CEXH0912XAK	2732;FR10665	ISX 435	435@1800	257	156	1550@1200	311	126	PTOX, PCM,
8CEXH0912XAK	2732;FR10649	ISX 425ST	425@1800	252	153	1750@1200	349	141	PTOX, PCM,
8CEXH0912XAK	2732;FR10668	ISX 425ST	425@1800	252	153	1650@1200	333	135	PTOX, PCM,
8CEXH0912XAK	2732;FR10651	ISX 425	425@1800	252	153	1650@1200	333	135	PTOX, PCM,
8CEXH0912XAK	2732;FR10653	ISX 400ST	408@1800	245	149	1750@1200	349	141	PTOX, PCM,
8CEXH0912XAK	2732;FR10654	ISX 400ST	408@1800	245	149	1650@1200	333	135	PTOX, PCM,
8CEXH0912XAK	2732;FR10656	ISX 400	425@1800	252	153	1450@1200	284	116	PTOX, PCM,
8CEXH0912XAK	2732;FR10658	ISX 385ST	408@1800	245	149	1550@1200	311	126	PTOX, PCM,

ATTACHMENT A-021-0472-2

SUPERSEDED

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
8CEXH0912XAK	2732;FR10646	ISX 435V	425@1800	252	153	1450@1200	284	116	~~PTOX, PCM,~~
8CEXH0912XAK	2732;FR10690	ISX 450ST	450@1800	255	155	1750@1200	344	139	~~PTOX, PCM,~~
8CEXH0912XAK	2732;FR10691	ISX 450ST	450@1800	255	155	1650@1200	322	130	~~PTOX, PCM,~~
8CEXH0912XAK	2732;FR10692	ISX 450	450@1800	255	155	1650@1200	322	130	~~PTOX, PCM,~~
8CEXH0912XAK	2732;FR10693	ISX 450	450@1800	255	155	1550@1200	300	121	~~PTOX, PCM,~~
8CEXH0912XAK	2732;FR10694	ISX 450	450@1800	255	155	1450@1200	278	113	~~PTOX, PCM,~~

DDI, PTOX, DC, CAC, TC, EGR, ECM

ATTACHMENT

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SUPERSEDED