California Environmental Protection Agency AIR RESOURCES BOARD	CUMMINS INC.	EXECUTIVE ORDER A-021-0444-1 New On-Road Heavy-Duty Engines

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]
2007	7CEXH0912XAL	14.9	Diesel	Diesel	HHDD	DDI, ECM, TC, CAC, EGR, OC, PTOX

ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)
14.9	SEE ATTACHEMENT
*	*
*	*
*	*

* =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;

[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; **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**=exhaust gas recirculation; **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; **(2007Jan06)**

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.1 (urban bus) or 13 CCR 1956.8 (other than urban bus); 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, in g/bhp-hr, 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 1956.1 or 13 CCR 1956.8 are in parentheses.) [4]

	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	*	*	1.25	1.25	1.2	1.2	*	*	*	*	*	*
CERT	0.00	0.00	1.19	0.90	1.2	0.9	1.0	0.1	0.01	0.001	*	*
NTE	0.21		1.88		1.8		19.4		0.02		*	

[4] **g/bhp-hr**=grams per brake horsepower-hour; **FTP**=Federal Test Procedure; **EURO**=Euro III European Steady-State Cycle; **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: 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).

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.

This Executive Order hereby supersedes Executive Order A-021-0444 dated January 19, 2007.

Executed at El Monte, California on this 26 day of October 2007.

Annette Hebert, Chief
Mobile Source Operations Division

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Engine Model Summary Template Victor

ATTACHMENT

A-021-0449-1

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.I Dev
6CEXH0912XAM	0927;FR10627	ISX 600	615@1800	357	216	1850@1200	368	149	F
6CEXH0912XAM	0927;FR10629	ISX 550	578@1800	339	206	1850@1200	368	149	F
6CEXH0912XAM	0927;FR10106	ISX 525	550@1800	321	195	1850@1200	368	149	F
6CEXH0912XAM	0927;FR10631	ISX 600	600@1800	351	213	1850@1200	368	149	F
6CEXH0912XAM	0927;FR10632	ISX 525	525@1800	321	195	1650@1200	312	126	F
6CEXH0912XAM	0927;FR10633	ISX 525	525@1800	321	195	1650@1200	312	126	
7CEXH0912XAM	0927;FR10627	ISX 600	615@1800	357	216	1850@1200	368	149	
7CEXH0912XAM	0927;FR10629	ISX 550	578@1800	339	206	1850@1200	368	149	
7CEXH0912XAM	0927;FR10106	ISX 525	550@1800	321	195	1850@1200	368	149	
7CEXH0912XAM	0927;FR10631	ISX 600	600@1800	351	213	1850@1200	368	149	
7CEXH0912XAM	0927;FR10632	ISX 525	525@1800	321	195	1650@1200	312	126	F
7CEXH0912XAM	0927;FR10633	ISX 525	525@1800	321	195	1650@1200	312	126	F
6CEXH0912XAL	1434;FR10637	ISX 500	525@1800	318	193	1850@1200	367	149	F
6CEXH0912XAL	1434;FR10636	ISX 500ST	525@1800	318	193	1850@1200	367	149	F
6CEXH0912XAL	1434;FR10638	ISX 500	525@1800	318	193	1650@1200	326	132	F
6CEXH0912XAL	1434;FR10639	ISX 485ST	500@1800	299	181	1850@1200	367	149	F
6CEXH0912XAL	1434;FR10640	ISX 485	500@1800	299	181	1850@1200	367	149	F
6CEXH0912XAL	1434;FR10641	ISX 485	500@1800	299	181	1650@1200	326	132	F
6CEXH0912XAL	1434;FR10642	ISX 450ST	450@1800	267	162	1750@1200	342	139	F
6CEXH0912XAL	1434;FR10644	ISX 450	450@1800	267	162	1650@1200	326	132	F
6CEXH0912XAL	1434;FR10645	ISX 450	450@1800	267	162	1550@1200	298	120	F
6CEXH0912XAL	1434;FR10643	ISX 450ST	450@1800	267	162	1750@1200	342	139	F
6CEXH0912XAL	1434;FR10634	ISX 500V	500@1800	299	181	1850@1200	367	149	F
6CEXH0912XAL	1434;FR10635	ISX 500V	500@1800	299	181	1650@1200	326	132	F
7CEXH0912XAL	1434;FR10637	ISX 500	525@1800	318	193	1850@1200	367	149	F
7CEXH0912XAL	1434;FR10636	ISX 500ST	525@1800	318	193	1850@1200	367	149	F
7CEXH0912XAL	1434;FR10638	ISX 500	525@1800	318	193	1650@1200	326	132	F
7CEXH0912XAL	1434;FR10639	ISX 485ST	500@1800	299	181	1850@1200	367	149	F

ATTACHMENT

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ECM
TC
CAC
EGR
OC
PTOX

Engine Model Summary Template

ATTACHMENT

A-021-0444-1

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 J193
7CEXH0912XAK	2732;FR10647	ISX 435ST	435@1800	257	156	1750@1200	349	141	PTOX, PCM,
7CEXH0912XAK	2732;FR10667	ISX 435ST	435@1800	257	156	1650@1200	333	135	PTOX, PCM,
7CEXH0912XAK	2732;FR10664	ISX 435	435@1800	257	156	1650@1200	333	135	PTOX, PCM,
7CEXH0912XAK	2732;FR10665	ISX 435	435@1800	257	156	1550@1200	311	126	PTOX, PCM,
7CEXH0912XAK	2732;FR10649	ISX 425ST	425@1800	252	153	1750@1200	349	141	PTOX, PCM,
7CEXH0912XAK	2732;FR10668	ISX 425ST	425@1800	252	153	1650@1200	333	135	PTOX, PCM,
7CEXH0912XAK	2732;FR10651	ISX 425	425@1800	252	153	1650@1200	333	135	PTOX, PCM,
7CEXH0912XAK	2732;FR10653	ISX 400ST	408@1800	245	149	1750@1200	349	141	PTOX, PCM,
7CEXH0912XAK	2732;FR10654	ISX 400ST	408@1800	245	149	1650@1200	333	135	PTOX, PCM,
7CEXH0912XAK	2732;FR10656	ISX 400	425@1800	252	153	1450@1200	284	116	PTOX, PCM,
7CEXH0912XAK	2732;FR10658	ISX 385ST	408@1800	245	149	1550@1200	311	126	PTOX, PCM,
7CEXH0912XAK	2732;FR10646	ISX 435V	425@1800	252	153	1450@1200	284	116	PTOX, PCM,
7CEXH0912XAK	2732;FR10690	ISX 450ST	450@1800	255	155	1750@1200	344	139	PTOX, PCM,
7CEXH0912XAK	2732;FR10691	ISX 450ST	450@1800	255	155	1650@1200	322	130	PTOX, PCM,
7CEXH0912XAK	2732;FR10692	ISX 450	450@1800	255	155	1650@1200	322	130	PTOX, PCM,
7CEXH0912XAK	2732;FR10693	ISX 450	450@1800	255	155	1550@1200	300	121	PTOX, PCM,
7CEXH0912XAK	2732;FR10694	ISX 450	450@1800	255	155	1450@1200	278	113	PTOX, PCM,
7CEXH0912XAL	2733;FR10637	ISX 500	525@1800	318	193	1850@1200	367	149	PTOX, PCM,
7CEXH0912XAL	2733;FR10636	ISX 500ST	525@1800	318	193	1850@1200	367	149	PTOX, PCM,
7CEXH0912XAL	2733;FR10638	ISX 500	525@1800	318	193	1650@1200	326	132	PTOX, PCM,
7CEXH0912XAL	2733;FR10639	ISX 485ST	500@1800	299	181	1850@1200	367	149	PTOX, PCM,
7CEXH0912XAL	2733;FR10640	ISX 485	500@1800	299	181	1850@1200	367	149	PTOX, PCM,
7CEXH0912XAL	2733;FR10641	ISX 485	500@1800	299	181	1650@1200	326	132	PTOX, PCM,
7CEXH0912XAL	2733;FR10634	ISX 500V	500@1800	299	181	1850@1200	367	149	PTOX, PCM,
7CEXH0912XAL	2733;FR10635	ISX 500V	500@1800	299	181	1650@1200	326	132	PTOX, PCM,
7CEXH0912XAL	2733;FR10695	ISX 455ST	478@1800	280	170	1750@1200	348	141	PTOX, PCM,
7CEXH0912XAM	2734;FR10627	ISX 600	615@1800	357	216	1850@1200	368	149	PTOX, PCM,

N/A

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PTOX

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Engine Model Summary Template Victor

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A-021-0777-1

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.I Dev
7CEXH0912XAL	1434;FR10640	ISX 485	500@1800	299	181	1850@1200	367	149	DDI F
7CEXH0912XAL	1434;FR10641	ISX 485	500@1800	299	181	1650@1200	326	132	ECM F
7CEXH0912XAL	1434;FR10642	ISX 450ST	450@1800	267	162	1750@1200	342	139	TC F
7CEXH0912XAL	1434;FR10644	ISX 450	450@1800	267	162	1650@1200	326	132	CAC F
7CEXH0912XAL	1434;FR10645	ISX 450	450@1800	267	162	1550@1200	298	120	EGR F
7CEXH0912XAL	1434;FR10643	ISX 450ST	450@1800	267	162	1750@1200	342	139	DC F
7CEXH0912XAL	1434;FR10634	ISX 500V	500@1800	299	181	1850@1200	367	149	PTOX F
7CEXH0912XAL	1434;FR10635	ISX 500V	500@1800	299	181	1650@1200	326	132	F