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California Environmental Protection Agency AIR RESOURCES BOARD	CUMMINS, INC.	EXECUTIVE ORDER A-021-0336-1 New On-Road Heavy-Duty Engines

Pursuant to the authority vested in the Air Resources Board by Health and Safety Code (HSC) Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by HSC Sections 39515 and 39516 and Executive Order G-45-9; and

Pursuant to the December 15, 1998 Settlement Agreement between the Air Resources Board and the manufacturer, and any modifications thereof to the Settlement Agreement;

IT IS ORDERED AND RESOLVED: That 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 gross vehicle weight rating (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 SIZE (liter)	FUEL TYPE (CNG/LNG=compressed/liquefied natural gas; LPG=liquefied petroleum gas)	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS (L/M/H HDD=light/medium/heavy heavy-duty [HD] diesel; UB=urban bus; HDO=HD Otto)
2002	2CEXH0912XAF	14.9	Diesel	Diesel	HHDD

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	ENGINE MODELS / CODES (rated power in horsepower, hp)
DDI, TC, CAC, PCM	SEE ATTACHMENT

TWC/OC=three-way/oxidizing catalyst WU (prefix) =warm-up cat. O2S=oxygen sensor HO2S=heated O2S TBI=throttle body fuel injection MFI=multi port fuel injection SFI=sequentialMFI DDI/IDI=direct /indirect diesel injection TC/SC=turbo/super charger CAC=charge air cooler EGR=exhaust gas recirculation AIR=secondary air injection PAIR=pulsed AIR SPL=smoke puff limiter ECM/PCM=engine /powertrain control module EM=engine modification 2 (prefix)=parallel (2) (suffix)=in series

The following are the exhaust emission standards (STD), or family emission limit(s) (FEL) as applicable, and certification levels (CERT) in grams per brake horsepower-hour (g/bhp-hr) for this engine family for hydrocarbon (HC) or non-methane HC (NMHC), oxides of nitrogen (NOx), or NMHC+NOx, carbon monoxide (CO) [except that "diesel" CO certification compliance may have been demonstrated pursuant to Code of Federal Regulations, Title 40, Part 86, Subpart A, Section 86.091-23(c)(2)(i) in lieu of testing], particulate matter (PM), and formaldehyde (HCHO) under the "Federal Test Procedure" (FTP) (Title 13, California Code of Regulations, (13 CCR) Section 1956.1 (urban bus) or 1956.8 (other than urban bus)), and under the "Euro III Test Procedure" (EURO) in the Settlement Agreement, including a EURO's "Not-to-Exceed" NOx standard: (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 Section 1956.1 or 1956.8 are in parentheses.)

															EURO'S NOT-TO-EXCEED NOx STD	7.0
* = not applicable	HC		NMHC		NOx		NMHC+NOx		CO		PM		HCHO			
	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO	FTP	EURO		
(DIRECT) STD	1.3	1.3	*	*	4.0	6.0	*	*	15.5	15.5	0.10	0.10	*	*		
AVERAGE STD	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
FEL	*	*	*	*	*	*	*	*	*	*	*	*	*	*		
CERT	0.1	0.1	*	*	3.8	5.8	*	*	0.7	0.3	0.08	0.04	*	*		

BE IT FURTHER RESOLVED: That 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: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR Sections 1965 (emission control labels), and 2035 et seq. (emission control warranty).

BE IT FURTHER RESOLVED: That the listed engine models are conditionally certified subject to the following conditions: (1) The Settlement Agreement is in effect; and, (2) The manufacturer is in compliance with all applicable certification requirements of the Settlement Agreement and any modifications thereof.

Engines certified under this Executive Order shall conform to all applicable California emission regulations and all requirements under the Settlement Agreement and any modifications thereof.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.
This Executive Order hereby supersedes Executive Order A-021-0336 dated January 15, 2002.
This Executive Order is not valid for engines produced on or after October 1, 2002.

Executed at El Monte, California on this 28th day of January 2002.

R. B. Summerfield, Chief
Mobile Source Operations Division

Return to Template

Engine Model Summary Template Victor

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.. Dev
2CEXH0912XAF	2834;FR10149	Signature 600	625@1800	363	220	2050@1200	383	155	PCM, TC, CAC, DD
2CEXH0912XAF	2834;FR10314	Signature 600	625@1800	363	220	2050@1200	383	155	P(
2CEXH0912XAF	2834;FR10296	Signature 600	625@1800	363	220	2050@1200	383	155	P(
2CEXH0912XAF	2834;FR10151	Signature 565	590@1800	337	204	1850@1200	349	141	P(
2CEXH0912XAF	2834;FR10315	Signature 565	590@1800	337	204	1850@1200	349	141	P(
2CEXH0912XAF	2834;FR10311	ISX 600	610@1800	355	215	1850@1200	349	141	P(
2CEXH0912XAF	2834;FR10297	ISX 565	590@1800	337	204	1850@1200	349	141	P(
2CEXH0912XAF	2834;FR10409	ISX 530	550@1800	300	182	1850@1200	349	141	P(
2CEXH0912XAF	2834;FR10414	ISX 530	550@1800	300	182	1850@1200	349	141	P(
2CEXH0912XAF	2834;FR10448	ISX 600	610@1800	355	215	1850@1200	349	141	P(
2CEXH0912XAF	2629;FR10192	ISX 500	530@1800	296	180	1850@1200	335	135	P(
2CEXH0912XAF	2629;FR10152	ISX 500	530@1800	296	180	1650@1200	296	120	P(
2CEXH0912XAF	2629;FR10079	ISX 500ST2	525@1800	291	177	1650@1200	296	120	P(
2CEXH0912XAF	2629;FR10325	ISX 475	500@1800	280	170	1650@1200	296	120	P(
2CEXH0912XAF	2629;FR10189	ISX 475ST2	500@1800	280	170	1650@1200	296	120	P(
2CEXH0912XAF	2629;FR10192	ISX 500	530@1800	296	180	1850@1200	335	135	P(
2CEXH0912XAF	2629;FR10152	ISX 500	530@1800	296	180	1650@1200	296	120	P(
2CEXH0912XAF	2629;FR10079	ISX 500ST2	525@1800	291	177	1650@1200	296	120	P(
2CEXH0912XAF	2629;FR10325	ISX 475	500@1800	280	170	1650@1200	296	120	P(
2CEXH0912XAF	2629;FR10189	ISX 475ST2	500@1800	280	170	1650@1200	296	120	P(
2CEXH0912XAF	2629;FR10374	ISX 475	500@1800	280	170	1850@1200	335	135	P(
2CEXH0912XAF	2629;FR10398	ISX 550	550@1800	297	181	1850@1200	335	135	P(
2CEXH0912XAF	2629;FR10397	ISX 550	550@1800	297	181	1650@1200	296	120	P(
2CEXH0912XAF	2629;FR10396	ISX 550ST2	550@1800	297	181	1650@1200	296	120	P(
2CEXH0912XAF	2628;FR10193	ISX 450	458@1700	253	145	1650@1200	289	117	P(
2CEXH0912XAF	2628;FR10230	ISX 450	458@1700	253	145	1550@1200	271	110	P(
2CEXH0912XAF	2628;FR10229	ISX 450ST2	458@1700	253	145	1450@1200	253	102	P(
2CEXH0912XAF	2628;FR10231	ISX 400	425@1700	235	135	1650@1200	289	117	P(

A-021-0336-1
Attachment

Return to Template

Engine Model Summary Template Victor

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. Dev
2CEXH0912XAF	2628;FR10232	ISX 400	425@1700	235	135	1550@1200	271	110	PCM,TC,CAE,DDI
2CEXH0912XAF	2628;FR10191	ISX 400	425@1700	235	135	1450@1200	253	102	P(
2CEXH0912XAF	2628;FR10190	ISX 400ST2	425@1700	235	135	1450@1200	253	102	P(
2CEXH0912XAF	8046;FR10193	ISX 450	458@1700	253	145	1650@1200	289	117	P(
2CEXH0912XAF	8046;FR10230	ISX 450	458@1700	253	145	1550@1200	271	110	P(
2CEXH0912XAF	8046;FR10229	ISX 450ST2	458@1700	253	145	1450@1200	253	102	P(
2CEXH0912XAF	8046;FR10231	ISX 400	425@1700	235	135	1650@1200	289	117	P(
2CEXH0912XAF	8046;FR10232	ISX 400	425@1700	235	135	1550@1200	271	110	P(
2CEXH0912XAF	8046;FR10191	ISX 400	425@1700	235	135	1450@1200	253	102	P(
2CEXH0912XAF	8046;FR10190	ISX 400ST2	425@1700	235	135	1450@1200	253	102	P(
2CEXH0912XAF	8046;FR10404	ISX 500	500@1700	288	165	1650@1200	289	117	P(
2CEXH0912XAF	8046;FR10403	ISX 500ST2	500@1700	288	165	1479@1200	277	112	P(
2CEXH0912XAF	8046;FR10449	ISX 500	500@1700	288	165	1479@1200	277	112	P(
2CEXH0912XAF	8082;FR10393	ISX 400ST2	425@1700	257	147	1450@1200	250	101	P(
2CEXH0912XAF	8083;FR10393	ISX 400ST2	425@1700	253	145	1450@1200	253	102	P(
2CEXH0912XAF	8083;FR10402	ISX 450	458@1700	267	153	1650@1200	289	117	P(
2CEXH0912XAF	8083;FR10394	ISX 450ST2	458@1700	267	153	1450@1200	253	102	P(
2CEXH0912XAF	8083;FR10450	ISX 435ST2	452@1700	267	153	1450@1200	279	113	P
2CEXH0912XAF	8084;FR10450	ISX 435ST2	452@1700	267	153	1450@1200	279	113	P
~~2CEXH0912XAF~~	~~2835;FR10149~~	~~Signature 600~~	~~625@1800~~	~~363~~	~~220~~	~~2050@1200~~	~~383~~	~~155~~	~~P(~~
2CEXH0912XAF	2835;FR10296	Signature 600	625@1800	363	220	2050@1200	383	155	P(
2CEXH0912XAF	2835;FR10151	Signature 565	590@1800	337	204	1850@1200	349	141	P(
2CEXH0912XAF	2835;FR10311	ISX 600	610@1800	355	215	1850@1200	349	141	P(
2CEXH0912XAF	2835;FR10297	ISX 565	590@1800	337	204	1850@1200	349	141	P(
2CEXH0912XAF	2835;FR10409	ISX 530	550@1800	300	182	1850@1200	349	141	P(
2CEXH0912XAF	2835;FR10414	ISX 530	550@1800	300	182	1850@1200	349	141	P(
~~2CEXH0912XAF~~	~~2835;FR10448~~	~~ISX 600~~	~~610@1800~~	~~355~~	~~215~~	~~1850@1200~~	~~349~~	~~141~~	~~P(~~
2CEXH0912XAF	2632;FR10192	ISX 500	530@1800	296	180	1850@1200	335	135	P(

FEDERAL ONLY

A-021-0336-1
Attachment