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-14-012;

IT IS ORDERED AND RESOLVED: The hybrid engine produced by Cummins Inc. (Cummins) and the hybrid system produced by BAE Systems Controls Inc.(BAE) are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. The production hybrid engine and the production hybrid system shall be identical in all material respects as those for which certification is granted.

HYBRID ENGINE DESCRIPTION

HYBRID ENGINE MANUFACTURER	MODEL YEAR	ENGINE FAMILY	EXECUTIVE ORDER NUMBER	FUEL TYPE	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS	ENGINE OBD COMPLIANCE	PRIMARY ENGINE'S IDLE EMISSIONS CONTROL
CUMMINS INC.	2015	FCEXH0540LAT	A-021-0622-1	DIESEL	DIESEL	UB / UB-Hybrid	OBD($)	Exempt

ENGINE (L)	ECS & SPECIAL FEATURES	ENGINE MODELS / CODES (rated power, in hp)
8.9	DDI, TC, CAC, ECM, EGR, OC, PTOX, SCR-U, AMOX	ISL9 330 / SC91903 (310)

HYBRID SYSTEM DESCRIPTION

HYBRID SYSTEM MANUFACTURER	HYBRID SYSTEM MODEL YEAR	HYBRID SYSTEM MODELS	INTENDED SERVICE CLASS	ENERGY STORAGE SYSTEM	HYBRID OBD COMPLIANCE
BAE SYSTEMS CONTROLS INC.	2015	HDS100H, HDS200H, HDS300	UB-Hybrid	Lithium Ion Battery	OBD($)

	HYBRID ENGINE MODELS / CODES
	ISL9 330 / SC91903

* =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 **L/M/H HDD**=light/medium/heavy heavy-duty diesel; **UB**=urban bus; **HDO**=heavy duty Otto;

2 **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;

3 **ECS**=emission control system; **TWC/OC**=three-way/oxidizing 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; **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;

4 **EMD**=engine manufacturer diagnostic system (13 CCR 1971); **EMD+**=engine manufacturer diagnostic system (13 CCR 1971.1); **OBD**= on-board diagnostic system; **OBD(F) / (P) / ($)**= on-board diagnostic full / partial / partial with a fine

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); (Aug 2013)

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 heavy-duty engines and vehicles (Test Procedures); and 3) the corresponding certification levels, in g/bhp-hr, for this Cummins' 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 dual- and flexible-fuel, the CERT values in brackets [ ] are those when tested on conventional test fuel.)

	NMHC		NOx		CO		PM		HCHO	
	FTP	SET	FTP	SET	FTP	SET	FTP	SET	FTP	SET
STD	0.14	0.14	0.20	0.20	15.5	15.5	0.01	0.01	*	*
FEL	*	*	*	*	*	*	*	*	*	*
CERT	0.01	0.003	0.13	0.08	0.1	0.02	0.000	0.000	*	*
NTE	0.21		0.30		19.4		0.02		*	

g/bhp-hr=grams per brake horsepower-hour; **FTP**=Federal Test Procedure; **SET**=Supplemental Emissions test; **NTE**=Not-to-Exceed emission limit; **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 Cummins has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 1971.1 (on-board diagnostic, full or partial compliance) with the exception of monitoring of the hybrid system under 13 CCR 1971.1(g) (Monitoring Requirements For All Engines), and 13 CCR 2035 et seq. (emission control warranty).

BE IT FURTHER RESOLVED: For the listed hybrid system BAE has submitted the materials to demonstrate certification compliance with 13 CCR 1971.1 (on-board diagnostic, full or partial compliance) except 13 CCR 1971.1(e) Monitoring Requirements for Diesel/Compression-Ignition Engines, (f) Monitoring Requirements for Gasoline/Spark-Ignited Engines, and (i) Monitoring System Demonstration Requirements for Certification.

BE IT FURTHER RESOLVED: For the listed hybrid system BAE has submitted the materials to demonstrate certification compliance with 13 CCR 2035 et seq. (emission control warranty).

BE IT FURTHER RESOLVED: The listed Cummins' hybrid engine models and BAE's hybrid system models are conditionally certified in accordance with 13 CCR Section 1971.1(k) (deficiency and fines provisions for certification of the heavy-duty on-board diagnostic (HD OBD) system) because the HD OBD system of the listed hybrid engine and hybrid system models have been determined to have nine deficiencies. The listed hybrid engine models are approved with nine deficiencies and are subject to Cummins paying a fine for the third through ninth deficiencies in the listed engine family that is produced and delivered for sale in California. The listed hybrid system models are approved with eighteen deficiencies and are subject to the BAE paying a fine for the second through eighteenth deficiencies in the hybrid system model listed in this Executive Order that is produced and delivered for sale in California. The listed hybrid engine and hybrid system models are approved subject to Cummins and/or BAE paying a fine of $500 per combined hybrid engine and system that is produced and delivered for sale in California under this Executive Order. On a quarterly basis, Cummins and BAE shall submit to the Air Resources Board reports of the number of engines and hybrid systems produced and delivered for sale in California and pay the full fine owed for that quarter pursuant to this conditional certification. Payment shall be made payable to the State Treasurer for deposit in the Air Pollution Control Fund no later than thirty (30) days after the end of each calendar quarter during the 2015 model-year production period. Failure to pay the quarterly fine, in full, in the time provided, may be cause for the Executive Officer to rescind this conditional certification, effective from the start of the quarter in question, in which case all engines and hybrid systems covered under this conditional certification for that quarter and all future quarters would be deemed uncertified and subject to a civil penalty of up to $5000 per engine pursuant to HSC Section 43154.

BE IT FURTHER RESOLVED: The BAE hybrid system models listed on this Executive Order may only be used with Cummins' hybrid engine models listed on this Executive Order whose on-board diagnostic system have been approved as compatible.

BE IT FURTHER RESOLVED: Sales of the Cummins hybrid engine and BAE hybrid system models using any identification other than that listed, selling the hybrid engine or hybrid system models for an application not listed in this Executive Order, or selling any components of the hybrid engine and hybrid system models as an individual system separately shall be prohibited unless prior approval is obtained by Air Resources Board.

BE IT FURTHER RESOLVED: Hybrid Engines certified under this Executive Order shall conform to all applicable California emission regulations.

Hybrid systems certified under this Executive Order shall conform to applicable provisions of 13 CCR 1971.1 (on-board diagnostic system, full or partial compliance), 13 CCR 2035 et seq. (emission control warranty), and 13 CCR 2141, 2142, 2144-2146 (emissions warranty information report and field information report).

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

This Executive Order hereby supersedes Executive Order A-422-0002 dated February 27, 2015.

Executed at El Monte, California on this 27th day of July 2015.

Annette Hebert, Chief
Emissions Compliance, Automotive Regulations and Science Division