California Environmental Protection Agency Air Resources Board	HINO MOTORS, LTD.	EXECUTIVE ORDER U-R-020-0075 New Off-Road Compression-Ignition Engines

Pursuant to the authority vested in the Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-14-012;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2016	GHMXL07.7JVV	5.123, 7.684	Diesel	8,000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Exhaust Gas Recirculation, Electronic Control Module, Oxidation Catalyst, Periodic Trap Oxidizer, Ammonia Oxidation Catalyst, Selective Catalytic Reduction-Urea	Crane, Excavator

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for non-methane hydrocarbon (NMHC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kW-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kW-hr)					OPACITY (%)		
			NMHC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
75 ≤ kW ≤ 560	Tier 4 Final	OPTIONAL STD	0.19	0.40	N/A	3.5	0.02	N/A	N/A	N/A
		CERT	0.01	0.31	--	0.1	0.01	--	--	--

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has complied with the more stringent set of standards from the various power categories in conformance with Section 1039.230(e) of the "California Exhaust Emission Standards and Test Procedures for 2008 and Later Tier 4 Off-Road Compression-Ignition Engines, Part I-C" adopted October 20, 2005 and last amended October 25, 2012.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed at El Monte, California on this 18 day of September 2015.

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

Engine Model Summary Template

ATTACHMENT 1 OF 2

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9/8/15

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
GHMXL07.7JVV	05UMDA1	AA-J05E-UM	166/2000 (124kW)	132+-3.0	58+-1.3	487/1600 (660Nm)	149+-3.0	52+-1.1	DFI, TC, CAC, ECM, PTOX, OC, EGR, SCR, U AMOX
GHMXL07.7JVV	05UMDA2	AA-J05E-UM	166/2000 (124kW)	132+-3.0	58+-1.4	487/1600 (660Nm)	149+-3.0	52+-1.1	DFI, TC, CAC, ECM, PTOX, OC, EGR, SCR, AMOX
GHMXL07.7JVV	05UMDA3	AB-J05E-UM	134/2000 (100kW)	107+-3.0	47+-1.3	370/1600 (502Nm)	117+-3.0	41+-1.1	DFI, TC, CAC, ECM, PTOX, OC, EGR, SCR, AMOX
GHMXL07.7JVV	05UNDA1	AA-J05E-UN	185/2100 (138kW)	141+-3.0	65+-1.4	487/1600 (660Nm)	149+-3.0	52+-1.1	DFI, TC, CAC, ECM, PTOX, OC, EGR, SCR, AMOX
GHMXL07.7JVV	08VVFA1	AA-J08E-VV	286/2100 (213kW)	146+-3.0	101+-2.1	750/1600 (1017Nm)	146+-3.0	79+-1.6	DFI, TC, CAC, ECM, PTOX, OC, EGR, SCR, AMOX
GHMXL07.7JVV	08VVDA1	AA-J08E-VV	286/2100 (213kW)	146+-3.0	101+-2.1	750/1600 (1017Nm)	149+-3.0	79+-1.6	DFI, TC, CAC, ECM, PTOX, OC, EGR, SCR, AMOX
GHMXL07.7JVV	08VVDA2	AA-J08E-VV	286/2100 (213kW)	146+-3.0	101+-2.1	750/1600 (1017Nm)	149+-3.0	79+-1.6	DFI, TC, CAC, ECM, PTOX, OC, EGR, SCR, AMOX
GHMXL07.7JVV	08VVDA3	AB-J08E-VV	235/2100 (175kW)	122+-3.0	84+-2.1	664/1600 (900Nm)	133+-3.0	70+-1.6	DFI, TC, CAC, ECM, PTOX, OC, EGR, SCR, AMOX

Engine Model Summary Template

U-R-020-0075

ATTACHMENT 2 OF 2

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
GHMXL07.7JVV	08VVDA4	AC-J08E-VV	268/2100 (200kW)	134+-3.0	93+-2.1	750/1600 (1017Nm)	149+-3.0	79+-1.6	DFI, TC, CAC, ECM, PTOX, OC, EGR, SCR, U AMOX