California Environmental Protection Agency California Environmental Protection Agency California Environmental Protection Agency

IHI SHIBAURA MACHINERY CORPORATION

EXECUTIVE ORDER U-R-026-0378-1 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-02-003;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engine and emission control system 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)	FIIFI IVE			
2014	EH3XN2.22NLC	2.216	Diesel	5000		
	FEATURES & EMISSION		TYPICAL EQUIPMENT APPLICATION			
	Indirect Diesel Inje	ection	Marine Engine			

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	EMISSION		EXHAUST (g/kw-hr)				OPACITY (%)			
POWER	STANDARD CATEGORY		HC I	NOx	NMHC+NOx	СО	PM	ACCEL	LUG	PEAK
19 <u>≤</u> kW < 37	Interim Tier 4	STD	N/A	N/A	7.5	5.5	0.30	N/A	N/A	N/A
		CERT	N/A	N/A	5.2	1.1	0.16			

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has voluntarily complied with the more stringent set of standards from 13 CCR, Section 2423 Table1b, and are certified for use in marine engine applications.

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.

This Executive Order hereby cancels and replaces Executive Order U-R-026-0378 dated August 19, 2013.

Executed at El Monte, California on this _____ day of October 2013.

Erik White, Chief

Mobile Source Operations Division

ATTACHMENT 1 OF 1

Engine Model Summary Template

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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		9.Emission Control Device Per SAE J1930
EH3XN2.22NLC	404D-22	GN28/1500C	27.6@1500	34.0	11.2	N/A	N/A	N/A	IDI
EH3XN2.22NLC	404D-22	GN33/1800C	32.6@1800	32.4	12.8	N/A	N/A	N/A	IDI
EH3XN2.22NLC	C2.2	GN28/1500C	27.6@1500	34.0	11.2	N/A	N/A	N/A	IDI
EH3XN2.22NLC	C2.2	GN33/1800C	32.6@1800	32.4	12.8	N/A	N/A	N/A	IDI
EH3XN2.22NLC	N844L-D	32/1800C	31.5@1800	31.3	12.4	N/A	N/A	N/A	IDI