California Environmental Protection Agency Air Resources Board	IHI SHIBAURA MACHINERY CORPORATION	EXECUTIVE ORDER U-R-026-0479 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 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)	FUEL TYPE	USEFUL LIFE (hours)
2017	HH3XL2.22TD3	2.22, 1.662	Diesel	5000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Electronic Direct Injection, Engine Control Module, Oxidation Catalyst, Turbocharger, Exhaust Gas Recirculation	Tractor, Generator, Other Industrial Equipment

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
19 ≤ kW < 37	Tier 4 Final	STD	N/A	N/A	4.7	5.5	0.03	N/A	N/A	N/A
		CERT	--	--	4.7	2.5	0.03	--	--	--

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 22 day of December 2016.

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

ATTACHMENT 1 OF 2 **Engine Model Summary Template** U-R-026-0479
RIC 7/10/2017

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
HH3XL2.22TD3	N4LDI-T	4LT362600	48.8@2600	34.9	21.9	122@1600	41.4	16.7	DDI,ECM,TC,EGR, OC
HH3XL2.22TD3	N4LDI-T	4LT362600	48.8@2600	38.7	23.3	118@1600	39.9	13.9	DDI,ECM,TC,EGR, OC
HH3XL2.22TD3	N4LDI-T	4LT342600	44.9@2600	34.7	20.5	107@1600	35.1	12.5	DDI,ECM,TC,EGR, OC
[illegible]	N4LDI-T	4LT301800C	40.2@1800	37.0	15.0	117@1600	37.0	15.0	DDI,ECM,TC,EGR, OC
[illegible]	N3LDI-T	3LT302600	40.2@2600	35.5	18.4	92@1600	39	10.8	DDI,ECM,TC,EGR, OC
HH3XL2.22TD3	N3LDI-T	3LT272600	36.2@2600	35.5	16.8	89@1600	38.3	9.6	DDI,ECM,TC,EGR, OC
HH3XL2.22TD3	N3LDI-T	3LT242600	32.6@2600	33.4	15.7	83@1600	35.8	9.0	DDI,ECM,TC,EGR, OC
[illegible]	N3LDI-T	3LT201800C	26.8@1800	35.7	10.8	78@1600	36.7	10.8	DDI,ECM,TC,EGR, OC
HH3XL2.22TD3	N3LDI-T	4LT362400	48.3@2400	38.7	20.4	118@1600	38.2	15.1	DDI,ECM,TC,EGR, OC
[illegible]	N4LDI-T	4T362600-4503	48.8@2600	38.7	22.1	118@1600	39.9	14.0	DDI,ECM,TC,EGR, OC
HH3XL2.22TD3	N4LDI-T	4T362600-4504	48.8@2600	38.7	22.1	118@1600	39.9	14.0	DDI,ECM,TC,EGR, OC
HH3XL2.22TD3	N3LDI-T	3T272600-4516*	36.2 @ 2600	36.9	15.8	89 @ 1600	37.9	10.0	DDI,ECM,TC,EGR, OC
HH3XL2.22TD3	N3LDI-T	3T272600-4519*	36.2 @ 2600	36.9	15.8	89 @ 1600	37.9	10.0	DDI,ECM,TC,EGR, OC

* New engine model.

ATTACHMENT 2 of 2 **Engine Model Summary Template** U-R-026-0479
R/C 7/10/2017

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
HH3XL2.22TD3	N3LDI-T	3T302600-4509*	40.0 @ 2600	39.8	17.0	89 @ 1600	39	10.3	DDI,ECM,TC,EGR, OC
HH3XL2.22TD3	N3LDI-T	3T302600-4510*	40.0 @ 2600	39.8	17.0	89 @ 1600	39	10.3	DDI,ECM,TC,EGR, OC
HH3XL2.22TD3	N4LDI-T	4T382600-4507*	48.8 @ 2600	38.7	22.1	118 @ 1600	39.9	14.0	DDI,ECM,TC,EGR, OC
HH3XL2.22TD3	N4LDI-T	4T382600-4508*	48.8 @ 2600	38.7	22.1	118 @ 1600	39.9	14.0	DDI,ECM,TC,EGR, OC

* New engine model.