

LIEBHERR MACHINES BULLE SA

EXECUTIVE ORDER U-R-018-0205

New Off-Road Compression-Ignition Engines Page 1 of 1

Pursuant to the authority vested in California 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-19-095;

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)			
2022	NLHAL13.5SQC	13.5	Diesel	8000			
SPECIAL	FEATURES & EMISSION (CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION				
Modul	rger, Charge Air Coole le, Electronic Direct Inje st Reduction-Urea, Am Catalyst, DEF Quality	ection, Selective monia Oxidation	Crane, Loader, Dozer, Harvester				

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 STANDARD CATEGORY		EXHAUST (g/kw-hr)				OPACITY (%)			
POWER CLASS			NMHC	NOx	NMHC+NOx	СО	PM	ACCEL	LUG	PEAK
130 ≤ kW ≤ 560	Tier 4 Final	STD	0.19	0.40	N/A	3.5	0.02	N/A	N/A	N/A
		CERT	0.007	0.33		1.4	0.02			

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 on this 3rd day of March 2022.

Allen Lyons, Chief

Emissions Certification and Compliance Division

Attachment: Engine Models

EO #: U-R-018-0205

Family: NLHAL13.5SQC Attachment Last Revised: 12/14/2021

Displacement -Peak Power -Peak Power -Peak Power -Peak Power -Peak Torque -Peak Torque -Peak Torque -Peak Torque -GHG Model Code Config Displacement Units Peak Power Units Speed (rpm) Fueling **Fuel Units** Peak Torque Units Speed (rpm) Fuel Fuel Units OBD Special Notes D966 A7- R06PQ7 N/A 16 13.5 Liters 603 2100 2047 lb-ft 1400 170 N/A N/A N/A N/A horsepower 212 lb/hr lb/hr 04 101 D966 A7- R06PQ7 N/A 16 13.5 Liters 574 horsepower 2100 203 lb/hr 2047 lb-ft 1400 170 lb/hr N/A N/A N/A N/A 04 102 D966 A7- R06PQ7 N/A lb-ft 1400 N/A N/A N/A 16 13.5 Liters 514 horsepower 2100 181 lb/hr 1924 160 lb/hr N/A 103 D966 A7- R06PQ7 N/A 16 13.5 Liters 453 horsepower 2100 158 lb/hr 1698 lb-ft 1400 141 lb/hr N/A N/A N/A N/A 04 104 TCD 13.5 R06PQ7 N/A N/A 16 13.5 Liters 603 2100 212 lb/hr 2047 lb-ft 1400 170 lb/hr N/A N/A N/A horsepower L6 101 TCD 13.5 R06PQ7 N/A 16 13.5 Liters 574 horsepower 2100 203 lb/hr 2047 lb-ft 1400 170 lb/hr N/A N/A N/A N/A L6 102 TCD 13.5 R06PQ7 N/A 16 lb-ft 1400 N/A N/A 13.5 Liters 514 horsepower 2100 181 lb/hr 1924 160 lb/hr N/A N/A L6 103 TCD 13.5 R06PQ7 N/A 13.5 Liters 453 horsepower 2100 158 lb/hr 1698 lb-ft 1400 141 lb/hr N/A N/A N/A N/A L6 104