

LIEBHERR MACHINES BULLE SA

EXECUTIVE ORDER U-R-018-0183

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)			
2021	MLHAL10.5SQC	10.5	Diesel	8000			
SPECIAL	FEATURES & EMISSION (ONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION				
Electi Injecti	Turbocharger, Charge Aronic Control Module, Eon, Selective Catalyst Fia Oxidation Catalyst, D	lectronic Direct Reduction-Urea,	Crane, Loader, Dozer, 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	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
POWER CLASS			NMHC	NOx	NMHC+NOx	CO	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	0.01	0.35		0.3	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 **2nd** day of February 2021.

Allen Lyons, Chief

Emissions Certification and Compliance Division

Attachment: Engine Models EO #: U-R-018-0183 Family: MLHAL10.5SQC Attachment Revised: 12/30/2020 Displacement -Peak Power -Peak Power -Peak Power -Peak Power -Peak Torque -Peak Torque -Peak Torque -Peak Torque -Model Code Trim Units Fuel Units Config Displacement Peak Power Units Speed (rpm) Fueling **Fuel Units** Peak Torque Units Speed (rpm) Fuel OBD GHG Special Notes D936 A7- R06LQ7 N/A 1350 123 16 10.5 Liters 429 1900 147 lb/hr 1471 lb-ft lb/hr N/A N/A horsepower N/A N/A 04 101 D936 A7- R06LQ7 N/A 16 10.5 Liters 402 horsepower 1900 139 lb/hr 1471 lb-ft 1350 123 lb/hr N/A N/A N/A N/A 04 102 D936 A7- R06LQ7 N/A Liters lb-ft N/A 10.5 362 horsepower 1900 125 lb/hr 1412 1350 118 lb/hr N/A N/A N/A 04 103 D936 A7- R06LQ7 N/A 10.5 Liters 402 horsepower 1900 139 lb/hr 1471 lb-ft 1350 123 lb/hr N/A N/A N/A N/A 104 D936 A7- R06LQ7 N/A 16 10.5 Liters 362 horsepower 1900 125 lb/hr 1412 lb-ft 1350 118 lb/hr N/A N/A N/A N/A 108