

LIEBHERR MACHINES BULLE SA

EXECUTIVE ORDER: U-R-018-0225 New Off-Road Compression-Ignition Engines Page 1 of 1

Pursuant to the authority vested in the California Air Resources Board by Health and Safety Code Division 26, Part 5, Chapters 1 and 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-19-095;

IT IS ORDERED AND RESOLVED: The engines and emission control systems produced by the manufacturer as described below are certified 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	Engine Family Combustion Cycle		Fuel Type(s)	Engine Operation			
2024	RLHAL13.5SQC	Diesel	Dedicated	Diesel	Variable and Constant Speed			

Emission Control Systems						
[1]: Electronic Direct Injection (DDI), Charged Air Cooler (CAC), Electronic Control Module (ECM), Turbocharger (TC), Selective Catalytic Reduction – Urea (SCR-U), Ammonia Oxidation Catalyst (AMOX), Reductant Quality Sensor (RDQS)	None					

The certified engine models are attached.

The listed engine models comply with the following: 1) emission standard limits (STD) and Not-To-Exceed (NTE) limits, as applicable, for criteria pollutants non-methane hydrocarbons (NMHC), nitrogen oxides (NOx), carbon monoxide (CO), and particulate matter (PM), and for smoke opacity as demonstrated during the Acceleration (ACL) and Lugging (LUG) modes, and the peak value (PEAK) in either mode of the Smoke Opacity cycle, as set forth in 13 CCR 2423 and the applicable California test procedures for off-road compression-ignition engines, and 2) family emission limits (FEL) declared by the manufacturer as allowed by the applicable California test procedures, stated in units of gram per kilowatt-hour (g/kWh-hr) and percent opacity (%opacity), respectively, except as noted, or designated as not applicable (*).

		Crit	eria	Smoke Opacity				
Applicable Standard	NMHC	NOx	СО	PM	ACL	LUG	PEAK	
	STD	0.19	0.40	3.5	0.02	*	*	*
Tier 4 Final 130 ≤ kW < 560	FEL	*	*	*	*	*	*	*
100 = RVV	NTE	0.28	0.60	4.4	0.03	*	*	*

BE IT FURTHER RESOLVED: Any declared FEL is the emission limit to which all engines must comply in lieu of the standard limit for certification purposes, subject to the restrictions of averaging, banking, or trading (ABT) programs allowed by the applicable California test procedures.

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

BE IT FURTHER RESOLVED: The listed engine models may only be installed in or on equipment such that engine operation is consistent with off-road compression-ignition engines as defined in 13 CCR 2421(a)(39).

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

Executed on this 4th day of October 2023.

Robin U. Lang, Chief

Emissions Certification and Compliance Division

ATTACHMENT: ENGINE MODELS

Family: RLHAL13.5SQC EO Number: U-R-018-0225 Date Applicable: 9/13/2023

					Peak Power			Peak Torque					
Model	Code	Trim	Config	Displacement	Power	Speed	Fueling	Torque	Speed	Fueling	ECS Num	GHG	Notes
-	-	-	-	L	hp	rpm	mm3/stroke	lb-ft	rpm	mm3/stroke	-	-	-
D966 A7-04 TCD 13.5 L6	R06PQ7101	N/A	L6	13.484	603	2100	307	2047	1400	371	1	N/A	
D966 A7-04 TCD 13.5 L6	R06PQ7102	N/A	L6	13.484	574	2100	295	2047	1400	371	1	N/A	
D966 A7-04 TCD 13.5 L6	R06PQ7103	N/A	L6	13.484	514	2100	261	1924	1400	345	1	N/A	
D966 A7-04 TCD 13.5 L6	R06PQ7104	N/A	L6	13.484	453	2100	229	1698	1400	306	1	N/A	