

LIEBHERR MACHINES BULLE SA

EXECUTIVE ORDER: U-R-018-0234
New Off-Road Compression-Ignition Engines
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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	Combustion Cycle	Fuel Operation	Fuel Type(s)	Engine Operation
2024	RLHAL10.5SWC	Diesel	Dedicated	Diesel	Variable and Constant Speed

Emission Control Systems	Special Features
[1]: Electronic Direct Injection (DDI), Charged Air Cooler (CAC), Electronic Control Module (ECM), Turbocharger (TC), Diesel Oxidation Catalyst (DOC), Periodic Trap Oxidizer (PTOX), 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/kW-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 26th day of December 2023.

Robin U. Lang, Chief

John Shi for

Emissions Certification and Compliance Division

ATTACHMENT: ENGINE MODELS

Family: RLHAL10.5SWC EO Number: U-R-018-0234 Date Applicable: 12/1/2023

		Trim			Peak Power		Peak Torque						
Model	Code		Config	Displacement	Power	Speed	Speed Fueling	Torque	Speed	Fueling	ECS Num	GHG	Notes
-	-	-	-	L	hp	rpm	mm3/stroke	lb-ft	rpm	mm3/stroke	-	-	-
D936 A7-05	R06LW7101	N/A	L6	10.521	429	1900	234	1471	1350	277	1	N/A	
D936 A7-25	R06LW7106	N/A	L6	10.521	362	1900	200	1412	1350	265	1	N/A	
D934 A7-25	R04LW7101	N/A	L4	7.014	268	1900	223	933	1350	265	1	N/A	
D936 A7-05	R06LW7103	N/A	L6	10.521	362	1900	199	1412	1350	265	1	N/A	
D936 A7-25	R06LW7105	N/A	L6	10.521	402	1900	222	1471	1350	277	1	N/A	