

LIEBHERR MACHINES BULLE SA

EXECUTIVE ORDER U-R-018-0220

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)				
2023	PLHAL09.0SWC	9.0	Diesel	8000				
SPECIAL	FEATURES & EMISSION (CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION					
Module, E Cataly	rger, Charge Air Cooler Electronic Direct Injection Jost, Selective Catalyst For a Oxidation Catalyst, Di Periodic Trap Oxid	on, Diesel Oxidation Reduction-Urea, EF Quality Sensor,	Crane, Loader, Dozer, Exc	avator				

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			ı	EXHAUST (g/kw-l	OPACITY (%)				
POWER CLASS	STANDARD CATEGORY		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	0.005	0.39		0.2	0.003			

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 10th day of July 2023.

Robin U. Lang, Chief

Emissions Certification and Compliance Division

Tolin U. Lang

Attachment: Engine Models EO #: U-R-018-0220 Family: PLHAL09.0SWC Attachment Last Revised: 6/15/2023

Model	Code	Trim	Config	Displacement	Displacement - Units	Peak Power	Peak Power - Units	Peak Power - Speed (rpm)	Peak Power - Fueling	Peak Power - Fuel Units	Peak Torque	Peak Torque - Units	Peak Torque - Speed (rpm)	Peak Torque - Fuel	Peak Torque - Fuel Units	OBD	GHG	Special	Notes
D964 A7-05	R04PW7101	N/A	14	8.989	Liters	402	horsepower	2100	295	mm3/stroke	1283	lb-ft	1400	350	mm3/stroke	N/A	N/A	N/A	N/A
D964 A7-05	R04PW7102	N/A	14	8.989	Liters	382	horsepower	2100	282	mm3/stroke	1283	lb-ft	1400	350	mm3/stroke	N/A	N/A	N/A	N/A
D964 A7-05	R04PW7103	N/A	14	8.989	Liters	342	horsepower	2100	253	mm3/stroke	1280	lb-ft	1400	349	mm3/stroke	N/A	N/A	N/A	N/A
D964 A7-05	R04PW7104	N/A	14	8.989	Liters	302	horsepower	2100	226	mm3/stroke	1132	lb-ft	1400	302	mm3/stroke	N/A	N/A	N/A	N/A