

LIEBHERR MACHINES BULLE SA

EXECUTIVE ORDER U-R-018-0200

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	NLHAL24.2VQT	16.162, 24.243	Diesel	8000				
SPECIAL	FEATURES & EMISSION (CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION					
Modu	rger, Charge Air Coolei le, Electronic Direct Inje st Reduction-Urea, Am Catalyst, DEF Quality	ection, Selective monia Oxidation	Crane, Dozer, Agricultural Ma	achinery				

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				EXHAUST (g/kw-l		OPACITY (%)			
POWER CLASS	STANDARD CATEGORY		NMHC	NOx	NMHC+NOx	со	PM	ACCEL	LUG	PEAK
ELSE>560 kW	Tier 4 Final	STD	0.19	3.5	N/A	3.5	0.04	N/A	N/A	N/A
		CERT	0.01	2.4		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 5th day of January 2022.

Allen Lyons, Chief

Emissions Certification and Compliance Division

Attachment: Engine Models

EO #: U-R-018-0200

Family: NLHAL24.2VQT Attachment Last Revised: 12/14/2021

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
			Connig	Displacement	Ullits	reak rowei	Ullits	Speed (Tpill)	rueillig	ruei Offics	reak forque	Ullits	Speed (i pili)	ruei	ruei Ollits	OBD	ОПО	эресіаі	Notes
D9508 A7-	7201	N/A	V8	16.162	Liters	885	horsepower	2100	325	lb/hr	2768	lb-ft	1600	290	lb/hr	N/A	N/A	N/A	N/A
D9508 A7-	V08MQ 7103	N/A	V8	16.162	Liters	764	horsepower	2100	262	lb/hr	2581	lb-ft	1400	229	lb/hr	N/A	N/A	N/A	N/A
D9512 A7-	V12MQ 7201	N/A	V12	24.243	Liters	1234	horsepower	2100	452	lb/hr	4261	lb-ft	1500	403	lb/hr	N/A	N/A	N/A	N/A
D9512 A7-			V12	24.243	Liters	1006	horsepower	2000	343	lb/hr	4775	lb-ft	1500	322	lb/hr	N/A	N/A	N/A	N/A
D9512 A7-			V12	24.243	Liters	758	horsepower	2000	261	lb/hr	3578	lb-ft	1500	241	lb/hr	N/A	N/A	N/A	N/A
D9512 A7-			V12	24.243	Liters	1140	horsepower	2100	395	lb/hr	5299	lb-ft	1400	328	lb/hr	N/A	N/A	N/A	N/A
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