

## LIEBHERR MACHINES BULLE SA

EXECUTIVE ORDER U-R-018-0068 New Off-Road Compression-Ignition Engines

Pursuant to the authority vested in the 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-02-003;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engine and emission control system 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)							
2006	6LHAL9.96ARA	6.64 and 9.96	Diesel	8000							
	FEATURES & EMISSION		TYPICAL EQUIPMENT APPLICATION								
Direct Dies	sel Injection, Turbocharg Smoke Puff Lim	er, Charge Air Cooler, iter	Crane, Loader, Dozer, C	Compressor							

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbon (HC), 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			E		OPACITY (%)					
POWER CLASS	STANDARD CATEGORY		нс	NOx	NMHC+NOx	co	PM	ACCEL	LUG	PEAK	
75 ≤ kW < 130	Tier 2	STD	N/A	N/A	6.6	5.0	0.30	20	15	50	
		CERT			5.9	0.8	0.14	13	3	44	

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 at El Monte, California on this \_\_\_\_\_\_\_\_ day of March 2006.

Allen Lyons, Chief

Mobile Source Operations Division

## Engine Model

Manufacturer: LIEBHERR MACHINES BULLE SA

Engine category: Nonroad CI

EPA Engine Family: 6LHAL9.96ARA

Mfr Family Name: NA

Process Code: New Submission

ATTACHMENT

U-R-018-0068

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8.Fuel Rate: 9.Emission Control (lbs/hr)@peak torque Device Per SAE J1930	SPL, TC, CAC,																
8.Fuel Rate: (lbs/hr)@peak torque	NA DOL	NA	AN	AN	ΑΝ	¥ Z	NA V										
7.Fuel Rate: mm/stroke@peak torque	167@555	138@472	171@601	138@476	195@664	176@601	156@538										
6.Torque @ RPM (SEA Gross)	555@1200	472@1000	601@1200	476@1150	664@1000	601@1000	538@1000										
5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	AN	NA	NA	NA	NA	NA	AN										
4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	143@173	110@121	136@165	115@137	143@173	129@153	115@136										
3.BHP@RPM (SAE Gross)	173@2000	121@1800	165@2000	137@2000	173@2000	153@2000	136@2000										
2.Engine Model	D924TI-E																
1.Engine Code	NA	NA	NA	AN	NA	NA	AN										