

## LIEBHERR MACHINES BULLE SA

EXECUTIVE ORDER U-R-018-0026-1 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-45-9;

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)		
2001	1LHAL17.2ARA	12.9 and 17.2	Diesel	8000		
SPECIAL	FEATURES & EMISSION	CONTROL SYSTEMS	TYPICAL EQUIPMENT	APPLICATION		
Direct Diese	el Injection, Turbocharge Smoke Puff Limi	er, Charge Air Cooler, ter	Crane, Loader, Dozer, Compressor			
ENGINE MODELS (rated power in kilowatts, kw)	Please see attachme	nt				

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 POWER	EMISSION STANDARD		EXHAUST (g/kw-hr)					OPACITY (%)		
CLASS	CATEGORY		HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
225 ≤ KW < 450	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	20	15	50
<del></del>		CERT			4.3	0.5	0.10	10	8	30

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.

This Executive Order hereby supersedes Executive Order U-R-018-0026 dated June 28, 2001.

Executed at El Monte, California on this \_

\_day of September 2001

R. B. Summerfield, Chief

Mobile Source Operations Division

ATTAC "MENT

## Engine Model S nmary Form

U-R-018-0026-1

Manufacturer:

LIEBHERR MACHINES BULLE SA

Engine category:

Nonroad CI

EPA Engine Family: 1LHAL17.2ARA

Mfr Family Name: NA

Process Code:

New Submission Running Change 4/18/01

1.Engine Code	2.Engine Model	3.BHP@RPM W (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torqu	9.Emission Control e Device Per SAE J1930
NA		ц 542@2100	227@542	25 1 1 1 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	1741@1200-15	254@1741	Maria NA	DESPLATERCACES A
NA TEND			227@342 3 214@408	NA	1668@1575	241@1668	NA NA	SPL, POYCAC
NA	D9408TI-E 362		221@485	NA .	1254@1500	tis 236@1254;	Marin of the NA (in the case)	SPLIFT MOAGER
NA PROBLEM	VV.D9406TI-E-17717	- 100@1000 		NA	1671@1400	238@1671	NA	SPL, POMCAC,
NA NA	D9406TI-E 304	408@1900	学者は <b>222@365</b> 日内 234@408	adder NAS editor	1215@1300 44	239@1215	NA NA	SPL TOMOROUS
NA SA	\ક D9408TI-E- <b>/</b> 4/0			NA	1276@1400	241@1276	NA	SPL, FOMCAC.
NA	D9408TI-E 370		235@540 207@496	MAV 2 PM	1711@1500	252@17.11	a mana	NSPL-FREMCACIO
NA NA	25 D9406TI-E 26	8349@2100		NA	1539@1500	222@1539	NA	SPL, POMCAC,
NA	D9406TI-E 282	378@2100	300@379	i NA	1155@1100:0	M) 228@1155	Yali a NA 74 Pr	SPL/HOYCAC
		_ 010@2100 888888888888888	209@378	NA	1134@1600	225@1134	NA V	SPL, POYCAC,
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