

LIEBHERR MACHINES BULLE SA

EXECUTIVE ORDER U-R-018-0040 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)				
2003	3LHAL17.2ATA	12.9 and 17.2	Diesel	8000				
	FEATURES & EMISSION		TYPICAL EQUIPMENT APPLICATION					
Direct Dies	el Injection, Turbocharge Electronic Control N	er, Charge Air Cooler, ⁄lodule	Crane, Loader, Dozer,	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 POWER	EMISSION STANDARD			E	XHAUST (g/kW-		OPACITY (%)				
CLASS	CATEGORY		HC	NOx	NMHC+NOx	co	РМ	ACCEL	LUG	PEAK	
225 ≤ kW < 450	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	20	15	50	
		CERT			6.0	0.7	0.11	10	3	23	

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 January 2003.

Allen Lyons, Chief

Mobile Source Operations Division

Engine Model St nary Form

famufacturer: LIEBHERR MACHINES BULLE SA

ingine category: Nonroad CI

PA Engine Family: 3LHAL17.2ATA

Mr Family Name: NA

Process Code: New Submission

ATTACHMENT

U-R-018-0040

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	40 - 11 00 0 0 0		77 31 4350 00 (1 3 3 4 5 6 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	0 9408 1	0.00108	D 9406 TI-E 324 434@1900		D 9406 TI-E 37 J 434@2100	∵lli-Di9408∭E Z: H2\1540@1900	D 9406 TLE 3 24 434@1900	ジョン 9406 11 11 12 13 13 13 13 13 13 13 13 13 13 13 13 13	D 9408 THE / S 540 A1000	0010000XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	D 9406 TLE つけ、ARA 2100		D 9406 THE 9	(A) 0.9406 THE タビ/475の4900	- D.9406 TI-E つ	10 0408 THE 45 % 540@1900		참
	405 540@1900) 942@2100	# 10-100 1957	1/ 434@2100	X:::540@1900	<u>//</u> 434@1900	475@1900	<u>1</u> 434@2100	32 540@1900	<u> </u>	O. 0π0@1900 O. 0π0@1900	2 540@1000 2 540@1000	1 101 10 10 10 10 10 10 10 10 10 10 10 1	71- 434@3100		34 1900 434@1900	7. 475@d900	D 9406 FI-E ¬ 7 <u>L</u> 434@2100	5 × 540@1900 3	2 H 31/3@1900	3.BHP@RPM (SAE Gross)
	248@540	234@542	1. 2. (C. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	2/10/2/	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	251@434		241@434	10 P 9 (0 C)	2510434	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	14.494W944	241@434	244(9949)	10 1 (C) 1 (1 - 3780 AZE	241@494	242@540	251@47b	Inm/stroke @ peak HP (for diesel only)
	NA	N	NA	はなど、うだと思い				NA STATE		NA N	NA		NA		NA					NA SIGNA	(lhs/hr) @ peak I-IP (for diesels only)
	1763@1430	1814@1500	1401@1400	1.1.(41,@3,400,84.	1400 (0) 1400	1400 1400		120 1400	1409(() 1400	1400 1400	1763@1430!.	1814@1500	1401@1400	1741@1400	1409@1400	10 (10/5)@[1400]	1001 (W) 104 (C)		1409@1400	1,525@1400	6.Torque @ RPM (SEA Gross)
	265@1763	269@1814	272@1401	267@1741	2/0@1409	10,298@1525	2/2@1401	1.41 (@1/41)	270@1409	Ξ,		269@1814	272@1401	1267@1741	270@1409	298@1525	272@1401	Z9/@1/41	270@1409	298@1525	nını/stroke@peak torque
	NA	NASAN TE	NA			NA NA (III)	NA		NA (NA.	NA.	NA	YNN S	NA.	NA WAR	NA .	NA NA		G. NA. √₽Þ	8.Fuel Rate: 9.Emission Control (lbs/hr)@peak torque Device Per SAE J1930
ECT WAR	TC-GMC-E-EM	INTOMOES/YO	MFCTdM&RC,	TO-EMC-EDM	INTOMO FEAC,	IA-CMO-640	IAHOTOMEKC,	MOB-PAR DIE	"IMICIPELEAC,	al ASTOMORG	TGEMGEEM	JASPIONOPAL	JATO TOMORC	TEEMCEON	IAFOMCESAC,	IIIAFCMGESTO	INHOTOWOKG	TCF@MCFEOM	INTOME EAC	AMI TIC CAC	9.Emission Control Device Per SAE J193