

## LIEBHERR MACHINES BULLE SA

EXECUTIVE ORDER U-R-018-0041 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	3LHAL9.96ATA	6.6 and 10.0	Diesel 8			
SPECIAL F	EATURES & EMISSION	CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION			
Direct Diese	el Injection, Turbocharge Electronic Control N	er, Charge Air Cooler, Module	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-l	hr)	<u></u>	OPACITY (%)		
CLASS	CATEGORY		нс	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
130 ≤ kW < 225	Tier 2	STD	N/A	N/A	6.6	3.5	0.20	20	15	50
		CERT			6.2	0.7	0.12	13	2	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 27th day of January 2003.

Allen Lyons, Chief

Mobile Source Operations Division

## Engine Model St. Chary Form ATTACHMENT 10 F3

LIEBHERR MACHINES BULLE SA

Nonroad CI Engine category:

EPA Engine Family: 3LHAL9.96ATA

Mfr Famlly Name:

**New Submission** Process Code:

1.Engine Code

6.Torque @ RPM (SEA Gross) 5.Fuel Rate: (lbs/hr) @ peak HP (for dlesels only) 4.Fuel Rate: mm/stroke @ peak HP (for diesel only) 3.BHP@RPM 2.Engine Model 1, 1, (SAE Gross)

7.Fuel Rate: mm/stroke@peak torque

Engine Model Surmary Form

LIEBHERR MACHINES BULLE SA

Engine category: Nonroad CI Manufacturer:

EPA Engine Family: 3LHAL9.96ATA

Mfr Family Name:

Running Change Process Code:

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ATTACHMENT 20FZ

Engine Code	Engine Code 2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	Rate: 5.Fuel Rate; @ peak HP (lbs/hr) @ peak HP sel only) (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak forque	8.Fuel Rate: 9.Emission Control (lbs/hr)@peak torque Device Per SAE J1930	9.Emission Control Device Per SAE J1930
ΑN	D 924 TI-E	197@2000 158(	158@197	@197 NA 649@1575 184@649 NA <b>}</b> 0[, AT, TC, CAC <sub>1</sub>	649@1575	184@649	NA 30	[,IAT, TC, CAC,
		riddimmeredad merem des prossipaisserses (cancia, po diod dos cas	special motorelle effectifus de la company de la compa	ament accounts of materieth in a disk property is remained to the commentation and manifolds.	an ska skalit man ski sa na sveza sem svezeve vetepe ovelske evetik efter fjelde for skalit kan aktual skalit	and distributions and management. Commissions and property and the characteristics and the characteris	and the state of any state of the state of t	ECM,

U-R-018-0041

**LIEBHERR MACHINES BULLE SA** 

Manufacturer:

Engine category:

Nonroad CI 3LHAL9.96ATA EPA Engine Family.

Mfr Family Name:

Running Change Process Code:

ATTACHMENT 30F3

	ŗ	77.72
8.Fuel Rate: 9.Emission Control (lbs/hr)@peak torque Davice Per SAE J1930	)	NA (DI)AT, TC, CAC,
7.Fuel Rate: mm/stroke@peak forque		160@557
6.Torque @ RPM	(550 0 0 0 0	557@1530
5.Fuet Rate: (lbs/hr) @ peak HP /for diasals coty)	(full clocks lost)	INA
4.Fuel Rate: mm/stroke @ peak HP	(fund income part)	143@162
3.BHP@RPM	(See Gloss)	165@1800
2 Engine Model	z. Lingino Model	NA D 924 TI-E 165@1800
1 Engine Code 2 Engine Model	i.Eilgiile Code	NA