LIEBHERR MACHINES BULLE SA

EXECUTIVE ORDER U-R-018-0113 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)				
2011	BLHAL6.36SPA	6.36	Diesel	8,000		
	FEATURES & EMISSION		TYPICAL EQUIPMENT APPLICATION			
Charc	ectronic Direct Injection, ge Air Cooler, Electronic e Puff Limiter, Exhaust 0	Control 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	EMISSION STANDARD CATEGORY		EXHAUST (g/kW-hr)				OPACITY (%)			
POWER CLASS			НС	NOx	NMHC+NOx	co	PM	ACCEL	LUG	PEAK
75 ≤ kW < 130 °	Tier 3	STD	N/A	N/A	4.0	5.0	0.30	20	15	50
		CERT			3.8	1.8	0.18	16	4	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 September 2011.

Annette Hebert, Chief

Mobile Source Operations Division

Engine Model Summary Template ATTACHMENT

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1.Engine Code	2.Engine Model	3.BHP@RPM (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 Device Per SAE J1930
NA	D934 R04S61022	173@2000	159@173	NA	606@1500	188@606	NA	TC,CAC,ECM, SPL,EGR,DDI
NA	D934 R04S61021	173@2000	157@173	NA	606@1500	188@606	NA	TC,CAC,ECM, SPL,EGR,DDI
NA	D934 R04S61015	164@2000	145@164	NA	566@1500	180@566	NA	TC,CAC,ECM, SPL,EGR,DDI
NA	D934 R04S61019	164@1800	149@164	NA	556@1500	172@556	NA	TC,CAC,ECM, SPL,EGR,DDI
NA	D934 R04S61013	143@2000	129@143	NA	490@1500	153@490	NA	TC,CAC,ECM, SPL,EGR,DDI
NA	D934 R04S61012	130@1800	117@130	NA	446@1500	140@446	NA	TC,CAC,ECM, SPL,EGR,DDI
	NA NA NA	NA D934 R04S61022 NA D934 R04S61021 NA D934 R04S61015 NA D934 R04S61019 NA D934 R04S61013	1.Engine Code 2.Engine Model (SAE Gross) NA D934 173@2000 R04S61022 NA D934 173@2000 R04S61021 NA D934 164@2000 R04S61015 NA D934 164@1800 R04S61019 NA D934 143@2000 R04S61013 NA D934 143@2000	1.Engine Code 2.Engine Model 3.BHP@RPM (SAE Gross) mm/stroke @ peak HP (for diesel only) NA D934 R04S61022 173@2000 159@173 NA D934 R04S61021 173@2000 157@173 NA D934 R04S61015 164@2000 145@164 NA D934 R04S61019 164@1800 149@164 NA D934 R04S61013 143@2000 129@143 NA D934 R04S61013 130@1800 117@130	1.Engine Code 2.Engine Model 3.BHP@RPM (SAE Gross) mm/stroke @ peak HP (for diesel only) (lbs/hr) @ peak HP (for diesels only) NA D934 R04S61022 173@2000 159@173 NA NA D934 R04S61021 173@2000 157@173 NA NA D934 R04S61021 164@2000 145@164 NA NA D934 R04S61015 164@1800 149@164 NA NA D934 R04S61019 143@2000 129@143 NA NA D934 R04S61013 130@1800 117@130 NA	1.Engine Code 2.Engine Model 3.BHP@RPM (SAE Gross) mm/stroke @ peak HP (for diesel only) (lbs/hr) @ peak HP (for diesels only) 6.Torque @ RPM (SEA Gross) NA D934 R04S61022 173@2000 159@173 NA 606@1500 NA D934 R04S61021 173@2000 157@173 NA 606@1500 NA D934 R04S61015 164@2000 145@164 NA 566@1500 NA D934 R04S61019 164@1800 149@164 NA 556@1500 NA D934 R04S61013 143@2000 129@143 NA 490@1500 NA D934 R04S61013 130@1800 117@130 NA 446@1500	1.Engine Code 2.Engine Model 3.BHP@RPM (SAE Gross) mm/stroke @ peak HP (for diesel only) (lbs/hr) @ peak HP (sEA Gross) 6.Torque @ RPM (SEA Gross) mm/stroke@peak torque NA D934 R04S61022 173@2000 159@173 NA 606@1500 188@606 NA D934 R04S61021 173@2000 157@173 NA 606@1500 188@606 NA D934 R04S61021 164@2000 145@164 NA 566@1500 180@566 NA D934 R04S61015 164@1800 149@164 NA 556@1500 172@556 NA D934 R04S61013 143@2000 129@143 NA 490@1500 153@490 NA D934 R04S61013 130@1800 117@130 NA 446@1500 140@446	1.Engine Code 2.Engine Model 3.BHP@RPM (SAE Gross) mm/stroke @ peak HP (flos/hr) @ peak HP (for diesels only) 6.Torque @ RPM (SEA Gross) mm/stroke@peak (Ibs/hr)@peak torque 8.Fuel Rate: (Ibs/hr)@peak torque NA D934 R04S61022 173@2000 159@173 NA 606@1500 188@606 NA NA D934 R04S61021 173@2000 157@173 NA 606@1500 188@606 NA NA D934 R04S61021 164@2000 145@164 NA 566@1500 180@566 NA NA D934 R04S61019 164@1800 149@164 NA 556@1500 172@556 NA NA D934 R04S61013 143@2000 129@143 NA 490@1500 153@490 NA NA D934 R04S61013 130@1800 117@130 NA 446@1500 140@446 NA