California Environmental Protection Agency AIR RESOURCES BOARD	MOTORENFABRIK HATZ	EXECUTIVE ORDER U-R-034-0199 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 engines and emission control systems 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)
2009	9HZXL.667V83	0.667	Diesel	3000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Direct Diesel Injection	Pump, Compressor, Other Industrial Equipment

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 CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
0 ≤kW < 19	Tier 4	OPTIONAL STD	N/A	N/A	7.5	6.6	0.40	N/A	N/A	N/A
		CERT	--	--	7.0	3.4	0.27	--	--	--

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has complied with the more stringent set of standards from the various power categories in conformance with Section 1039.230 (e) of the "California Exhaust Emission Standards and Test Procedures for 2008 and Later Tier 4 Off-Road Compression-Ignition Engines, Part I-C" adopted October 20, 2005.

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 12th day of December 2008.

Annette Hebert, Chief
Mobile Source Operations Division

Motorenfabrik Hatz

Attachment

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Navead CI

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Engine Model Summary Template

Engine Family	Engine Code	Engine Model	3 Rated Power (SAE Gross)	4 Fuel Rate (at rated speed)	5 Fuel Rate (at idle speed)	6 Torque @ RPM (SAE Gross)	7 Fuel Rate (at intermediate speed)	8 Fuel Rate (at rated speed)	9 Emission Control Device Per SAE J1930
[illegible]	N/A	1D81S/D/TA/	13.3@3600	38.5	5.4	29.1@1800	40	4.0	DDI
[illegible]	N/A	1D81S/D/TA/	13.7@2950	38.5	6.3	29.8@1800	40	4.0	
[illegible]	N/A	1D81S/D/TA/	13.5@2900	38.5	6.2	29.8@1800	40	4.0	
[illegible]	N/A	1D81S/D/TA/	13.5@2950	38.5	6.1	29.8@1800	40	4.0	
[illegible]	N/A	1D81S/D/TA/	13.4@2800	38.5	6.0	29.8@1800	39	3.9	
[illegible]	N/A	1D81S/D/TA/	13.1@2750	38.5	5.9	29.8@1800	39	3.9	
[illegible]	N/A	1D81S/D/TA/	13.0@2700	38.5	5.8	29.8@1800	39	3.9	
[illegible]	N/A	1D81S/D/TA/	12.9@2650	38.5	5.7	29.8@1800	39	3.9	
[illegible]	N/A	1D81S/D/TA/	12.7@2600	38.5	5.6	29.1@1800	38.5	3.9	
[illegible]	N/A	1D81S/D/TA/	12.5@2550	38.5	5.5	29.1@1800	38.5	3.9	
[illegible]	N/A	1D81S/D/TA/	12.3@2500	38.5	5.4	29.1@1800	38.5	3.9	
[illegible]	N/A	1D81S/D/TA/	13.4@3000	37.5	6.3	29.1@1800	38	3.8	
[illegible]	N/A	1D81S/D/TA/	13.3@2950	37.5	6.2	29.1@1800	38	3.8	
[illegible]	N/A	1D81S/D/TA/	13.1@2900	37.5	6.1	29.1@1800	38	3.8	
[illegible]	N/A	1D81S/D/TA/	13.0@2850	37.5	6.0	29.1@1800	38	3.8	
[illegible]	N/A	1D81S/D/TA/	12.8@2800	37.5	5.9	29.1@1800	38	3.8	
[illegible]	N/A	1D81S/D/TA/	12.7@2750	37.5	5.7	29.1@1800	38	3.8	
[illegible]	N/A	1D81S/D/TA/	12.6@2700	37.5	5.6	29.1@1800	38	3.8	
[illegible]	N/A	1D81S/D/TA/	12.5@2650	37.5	5.5	29.1@1800	38	3.8	
[illegible]	N/A	1D81S/D/TA/	12.3@2600	37	5.4	27.4@1800	37	3.7	
[illegible]	N/A	1D81S/D/TA/	12.2@2550	37	5.3	27.4@1800	37	3.7	
[illegible]	N/A	1D81S/D/TA/	11.9@2500	37	5.2	27.4@1800	37	3.7	
[illegible]	N/A	1D81S/D/TA/	11.8@2450	37	5.1	27.4@1800	37	3.7	
[illegible]	N/A	1D81S/D/TA/	11.5@2400	37	5.0	26.6@1800	37	3.7	
[illegible]	N/A	1D81S/D/TA/	11.4@2350	37	4.8	26.6@1800	37	3.7	
[illegible]	N/A	1D81S/D/TA/	11.1@2300	37	4.7	26.6@1800	37	3.7	
[illegible]	N/A	1D81C	12.7@3000	37.5	6.3	27.4@1800	38	3.8	
[illegible]	N/A	1D81C	12.6@2950	37.5	6.2	27.4@1800	38	3.8	
[illegible]	N/A	1D81C	12.5@2900	37.5	6.1	27.4@1800	38	3.8	

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Nonroad CI

Attachment

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Engine Model Summary Template

1 Engine Code	2 Engine Model	3 Rated Power (SAE Gross)	4 Fuel Rate (lb/hr @ peak HP (for reference only)	5 Fuel Rate (lb/hr) @ peak HP (for reference only)	6 Torque @ Rated (SAE Gross)	7 Fuel Rate (lb/hr)@peak torque	8 Fuel Rate (lb/hr)@peak torque	9 Emission Control Device Per CAE 2000
N/A	D81C	12.5@2950	37.5	6.0	27.4@1800	38	3.8	DDI
N/A	D81C	12.2@2800	37.5	5.9	27.4@1800	38	3.9	
N/A	D81C	12.1@2750	37.5	5.7	27.4@1800	38	3.9	
N/A	D81C	11.8@2700	37.5	5.6	27.4@1800	38	3.8	
N/A	D81C	11.7@2650	37.5	5.5	27.4@1800	38	3.8	
N/A	D81C	11.7@2600	36.5	5.3	26.6@1800	37	3.7	
N/A	D81C	11.5@2550	36.5	5.2	26.6@1800	37	3.7	
N/A	D81C	11.4@2500	36.5	5.1	26.6@1800	37	3.7	
N/A	D81C	11.3@2450	36.5	4.8	26.2@1900	35	3.5	
N/A	D81C	11.0@2400	36.5	4.7	25.2@1900	35	3.5	
N/A	D81C	10.9@2350	36.5	4.7	25.2@1900	35	3.5	
N/A	D81C 8kW	10.7@2300	36.5	4.6	25.2@1900	35	3.6	