California Environmental Protection Agency AIR RESOURCES BOARD	MOTORENFABRIK HATZ	EXECUTIVE ORDER U-R-034-0202 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.997V40	0.997	Diesel	3000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Direct Diesel Injection	Pump, Generator Set, 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
8 ≤ kW < 19	Tier 4	STD	N/A	N/A	7.5	6.6	0.40	20	15	50
		CERT	--	--	7.1	3.4	0.23	15	10	28

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
Nonroad CI

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Engine Model Summary Template

Attachment p 1 of 2

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: lm/stroke @ peak HP (for diesels only)	5.Fuel Rate: (lb/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SAE Gross)	7.Fuel Rate: lm/stroke@peak torque	8.Fuel Rate: (lb/hr)@peak torque	9.Emission Control Device Per SAE J 930
1H2XL.997V40	N/A	2640 / 2640H	21,7@3000	26	4,2	43,3@2000	29	3,2	DDI
1H2XL.997V40	N/A	2640 / 2640H	21,4@2950	26	4,3	42,9@2000	28,5	3,2	
1H2XL.997V40	N/A	2640 / 2640H	21,2@2900	26	4,2	42,9@2000	28,5	3,2	
9H2XL.997V40	N/A	2640 / 2640H	20,9@2850	26	4,1	42,6@2000	28	3,1	
9H2XL.997V40	N/A	2640 / 2640H	20,6@2800	26	4,1	42,6@2000	28	3,1	
9H2XL.997V40	N/A	2640 / 2640H	20,4@2750	26	4,0	42,2@2000	27,5	3,1	
9H2XL.997V40	N/A	2640 / 2640H	20,1@2700	26	3,9	42,2@2000	27,5	3,1	
9H2XL.997V40	N/A	2640 / 2640H	19,8@2650	26	3,8	41,4@2000	27	3,0	
1H2XL.997V40	N/A	2640 / 2640H	19,6@2600	26	3,8	41,4@2000	27	3,0	
9H2XL.997V40	N/A	2640 / 2640H	20,8@3000	25	4,2	42,6@2000	28	3,1	
9H2XL.997V40	N/A	2640 / 2640H	20,5@2950	25	4,1	42,2@2000	27,5	3,1	
9H2XL.997V40	N/A	2640 / 2640H	20,2@2900	25	4,0	42,2@2000	27,5	3,1	
9H2XL.997V40	N/A	2640 / 2640H	20,0@2850	25	4,0	41,4@2000	27	3,0	
9H2XL.997V40	N/A	2640 / 2640H	19,7@2800	25	3,9	41,4@2000	27	3,0	
9H2XL.997V40	N/A	2640 / 2640H	19,4@2750	25	3,8	41,1@2000	26,5	3,0	
9H2XL.997V40	N/A	2640 / 2640H	19,2@2700	25	3,8	41,1@2000	26,5	3,0	
9H2XL.997V40	N/A	2640 / 2640H	18,9@2650	25	3,7	40,7@2000	26	2,9	
9H2XL.997V40	N/A	2640 / 2640H	18,6@2600	25	3,6	40,7@2000	26	2,9	
1H2XL.997V40	N/A	2640 / 2640H	19,7@3000	24	4,0	41,1@2000	26,5	3,0	
1H2XL.997V40	N/A	2640 / 2640H	19,5@2950	24	3,9	41,1@2000	26,5	3,0	
9H2XL.997V40	N/A	2640 / 2640H	19,3@2900	24	3,9	40,7@2000	26	2,9	
9H2XL.997V40	N/A	2640 / 2640H	19,0@2850	24	3,9	40,7@2000	26	2,9	
9H2XL.997V40	N/A	2640 / 2640H	18,9@2800	24	3,7	40,7@2000	26	2,9	
9H2XL.997V40	N/A	2640 / 2640H	18,8@2750	24	3,7	40,0@2000	25,5	2,8	
9H2XL.997V40	N/A	2640 / 2640H	18,5@2700	24	3,6	40,0@2000	25,5	2,8	
9H2XL.997V40	N/A	2640 / 2640H	18,2@2650	24	3,6	39,2@2000	26	2,8	
9H2XL.997V40	N/A	2640 / 2640H	18,0@2600	24	3,5	39,2@2000	26	2,8	

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Engine Model Summary Template

Attachment p 2 of 2

Engine Family	1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: lbs/hr/bhp @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SAE Gross)	7.Fuel Rate: lbs/hr/bhp@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
9HZXL997NA0	N/A	2040 / 2040H	17,7@2550	24	3,4	39,2@2000	25	2,8	DDI
9HZXL997NA0	N/A	2040 / 2040H	17,4@2500	24	3,3	38,5@2000	24,5	2,7	
9HZXL997NA0	N/A	2040 / 2040H	17,0@2450	24	3,3	38,5@2000	24,5	2,7	
9HZXL997NA0	N/A	2040 / 2040H	16,8@2400	24	3,2	38,5@2000	24,5	2,7	
9HZXL997NA0	N/A	2040 / 2040H	16,5@2350	24	3,1	37,7@2000	24	2,7	
9HZXL997NA0	N/A	2040 / 2040H	16,1@2300	24	3,1	37,7@2000	24	2,7	
9HZXL997NA0	N/A	2040 / 2040H	15,7@2250	24	3,0	37,0@2000	24	2,7	
9HZXL997NA0	N/A	2040 / 2040H	15,4@2200	24	2,9	37,0@2000	24	2,7	
9HZXL997NA0	N/A	2040 / 2040H	15,1@2150	24	2,9	37,0@2000	24	2,7	
9HZXL997NA0	N/A	2040 / 2040H	14,7@2100	24	2,8	37,0@2000	24	2,7	
9HZXL997NA0	N/A	2040 / 2040H	14,4@2050	24	2,7	37,0@2000	24	2,7	
9HZXL997NA0	N/A	2040 / 2040H	14,1@2000	24	2,7	37,0@2000	24	2,7	
9HZXL997NA0	N/A	2040 / 2040H	18,4@3000	22	3,7	37,7@2000	24	2,7	
9HZXL997NA0	N/A	2040 / 2040H	18,2@2950	22	3,6	37,7@2000	24	2,7	
9HZXL997NA0	N/A	2040 / 2040H	18,1@2900	22	3,6	37,7@2000	24	2,7	
9HZXL997NA0	N/A	2040 / 2040H	17,9@2850	22	3,5	37,7@2000	24	2,7	
9HZXL997NA0	N/A	2040 / 2040H	17,7@2800	22	3,4	37,7@2000	24	2,7	
9HZXL997NA0	N/A	2040 / 2040H	17,6@2750	22	3,4	37,0@2000	23,5	2,6	
9HZXL997NA0	N/A	2040 / 2040H	17,3@2700	22	3,3	37,0@2000	23,5	2,6	
9HZXL997NA0	N/A	2040 / 2040H	17,1@2650	22	3,2	36,3@2000	23	2,5	
9HZXL997NA0	N/A	2040 / 2040H	16,9@2600	22	3,2	36,3@2000	23	2,5	
9HZXL997NA0	N/A	2040 / 2040H	16,7@2550	22	3,1	35,6@2000	22,5	2,5	
9HZXL997NA0	N/A	2040 / 2040H	16,5@2500	22	3,1	35,6@2000	22,5	2,5	