California Environmental Protection Agency AIR RESOURCES BOARD	MOTORENFABRIK HATZ	EXECUTIVE ORDER U-R-034-0193 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.413C41	0.413	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
kW < 8	Tier 4	STD	N/A	N/A	7.5	8.0	0.80	N/A	N/A	N/A
		CERT	--	--	6.5	5.0	0.47	--	--	--

BE IT FURTHER RESOLVED: That certification to the standards in 13 CCR 2423(b)(1)(A) -Table 1b listed above has been permitted pursuant to Endnote 2 of the same table.

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.

J. Lorenco

Annette Hebert, Chief
Mobile Source Operations Division

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[illegible]	1 Engine Code	2 Engine Model	3 Emit @ RPM (SAE Gross)	4 Fuel Rate: mm/stroke @ peak HP (for diesel only)	5 Fuel Rate: (lb/hr) @ peak HP (for diesel only)	6 Torque @ RPM (SAE Gross)	7 Fuel Rate mm/stroke @ peak torque	8 Fuel Rate (lb/hr) @ peak torque	9 Emission Control Device Per SAE J1930
[illegible]	N/A	1041 S/Z	8.0@3000	22.5	3.8	14.1@3000	22.5	3.8	DDI
[illegible]	N/A	1041 S/Z	8.0@2950	22.5	3.7	14.4@2950	22.5	3.7	
[illegible]	N/A	1041 S/Z	7.9@2900	22.5	3.6	14.4@2900	22.5	3.6	
[illegible]	N/A	1041 S/Z	7.9@2850	22.5	3.6	14.6@2850	22.5	3.6	
[illegible]	N/A	1041 S/Z	7.8@2800	22.5	3.5	14.6@2800	22.5	3.5	
[illegible]	N/A	1041 S/Z	7.8@2750	22.5	3.4	14.8@2750	22.5	3.4	
[illegible]	N/A	1041 S/Z	7.6@2700	22.5	3.4	14.9@2700	22.5	3.4	
[illegible]	N/A	1041 S/Z	7.5@2650	22.5	3.3	14.9@2650	22.5	3.3	
	N/A	1041 S/Z	7.4@2600	22.5	3.3	14.9@2600	22.5	3.3	
	N/A	1041 S/Z	7.8@3000	21.5	3.6	13.7@3000	21.5	3.6	
	N/A	1041 S/Z	7.8@2950	21.5	3.5	13.9@2950	21.5	3.5	
	N/A	1041 S/Z	7.6@2900	21.5	3.5	13.9@2900	21.5	3.5	
	N/A	1041 S/Z	7.6@2850	21.5	3.4	14.1@2850	21.5	3.4	
	N/A	1041 S/Z	7.5@2800	21.5	3.4	14.1@2800	21.5	3.4	
	N/A	1041 S/Z	7.5@2750	21.5	3.3	14.4@2750	21.5	3.3	
	N/A	1041 S/Z	7.4@2700	21.5	3.2	14.4@2700	21.5	3.2	
	N/A	1041 S/Z	7.2@2650	21.5	3.2	14.4@2650	21.5	3.2	
	N/A	1041 S/Z	7.1@2600	21.5	3.1	14.4@2600	21.5	3.1	
	N/A	1041 S/Z	7.8@3300	20.5	3.8	12.4@3300	20.5	3.8	
	N/A	1041 S/Z	7.8@3250	20.5	3.7	12.6@3250	20.5	3.7	
	N/A	1041 S/Z	7.8@3200	20.5	3.7	12.8@3200	20.5	3.7	
	N/A	1041 S/Z	7.8@3150	20.5	3.6	13.0@3150	20.5	3.6	
	N/A	1041 S/Z	7.6@3100	20.5	3.5	13.0@3100	20.5	3.5	
	N/A	1041 S/Z	7.6@3050	20.5	3.5	13.2@3050	20.5	3.5	
	N/A	1041 S/Z	7.5@3000	20.5	3.4	13.2@3000	20.5	3.4	
	N/A	1041 S/Z	7.5@2950	20.5	3.4	13.4@2950	20.5	3.4	
	N/A	1041 S/Z	7.5@2900	20.5	3.3	13.6@2900	20.5	3.3	
	N/A	1041 S/Z	7.4@2850	20.5	3.3	13.6@2850	20.5	3.3	
	N/A	1041 S/Z	7.4@2800	20.5	3.2	13.9@2800	20.5	3.2	

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Source Type	1 Engine Code	2 Engine Model	3 Torque @ RPM (SAE Gross)	4 Fuel Rate min/max @ peak HP (for diesel only)	5 Fuel Rate (lb/kW) @ peak HP (for diesel only)	6 Torque @ RPM (SAE Gross)	7 Fuel Rate min/max @ peak torque	8 Fuel Rate (lb/kW) @ peak torque	9 Emission Control Device For SAE PHSD
[illegible]	N/A	1041 S/Z	7.2@2750	20.5	3.1	13.9@2750	20.5	3.1	DDI
[illegible]	N/A	1041 S/Z	7.1@2700	20.5	3.1	13.9@2700	20.5	3.1	
[illegible]	N/A	1041 S/Z	7.0@2650	20.5	3.0	13.9@2650	20.5	3.0	
[illegible]	N/A	1041 S/Z	6.8@2600	20.5	3.0	13.9@2600	20.5	3.0	
[illegible]	N/A	1041 S/Z	6.7@2550	20.5	2.9	13.9@2550	20.5	2.9	
[illegible]	N/A	1041 S/Z	6.7@2500	20.5	2.9	14.1@2500	20.5	2.9	
[illegible]	N/A	1041 S/Z	6.6@2450	20.5	2.8	14.1@2450	20.5	2.8	
[illegible]	N/A	1041 S/Z	6.4@2400	20.5	2.7	14.1@2400	20.5	2.7	
[illegible]	N/A	1041 S/Z	6.3@2350	20.5	2.7	14.1@2350	20.5	2.7	
[illegible]	N/A	1041 S/Z	6.2@2300	20.5	2.6	14.1@2300	20.5	2.6	
[illegible]	N/A	1041 S/Z	6.0@2250	20.5	2.6	14.1@2250	20.5	2.6	
[illegible]	N/A	1041 S/Z	5.9@2200	20.5	2.5	14.1@2200	20.5	2.5	
[illegible]	N/A	1041 S/Z	5.8@2150	20.5	2.5	14.1@2150	20.5	2.5	
[illegible]	N/A	1041 S/Z	5.6@2100	20.5	2.4	14.1@2100	20.5	2.4	
[illegible]	N/A	1041 S/Z	5.5@2050	20.5	2.3	14.1@2050	20.5	2.3	
[illegible]	N/A	1041 S/Z	5.4@2000	20.5	2.3	14.1@2000	20.5	2.3	
[illegible]	N/A	1041C	5.2@3300	19.5	3.6	11.1@3300	19.5	3.6	
[illegible]	N/A	1041C	5.2@3250	19.5	3.5	11.3@3250	19.5	3.5	
	N/A	1041C	5.2@3200	19.5	3.5	11.5@3200	19.5	3.5	
	N/A	1041C	5.2@3150	19.5	3.4	11.7@3150	19.5	3.4	
	N/A	1041C	5.2@3100	19.5	3.4	11.9@3100	19.5	3.4	
	N/A	1041C	5.2@3050	19.5	3.3	12.0@3050	19.5	3.3	
	N/A	1041C	5.2@3000	20.0	3.3	12.2@3000	20.0	3.3	
	N/A	1041C	5.1@2950	20.0	3.3	12.2@2950	20.0	3.3	
	N/A	1041C	5.1@2900	20.0	3.2	12.4@2900	20.0	3.2	
	N/A	1041C	5.0@2850	20.0	3.2	12.4@2850	20.0	3.2	
	N/A	1041C	5.0@2800	20.0	3.1	12.6@2800	20.0	3.1	
	N/A	1041C	4.9@2750	20.0	3.1	12.6@2750	20.0	3.1	
	N/A	1041C	4.8@2700	20.0	3.0	12.6@2700	20.0	3.0	

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[illegible]	1 Engine Fade	2 Engine Model	3.8 HP @ RPM (DAE Gross)	4.7 Fuel Rate mm/stroke @ peak HP (for gaseous only)	5.7 Fuel Rate (Dx/kW) @ peak HP (for diesel only)	6 Torque @ RPM (DAE Gross)	7.7 Fuel Rate mm/stroke @ peak torque	8.7 Fuel Rate (Dx/kW) @ peak torque	9 Emission Control Device for DAE / 1000
[illegible]	N/A	1D41C	4.8@2650	20.0	3.0	12.8@2650	20.0	3.0	DDI
[illegible]	N/A	1D41C	4.7@2600	20.0	2.9	12.8@2600	20.0	2.9	
[illegible]	N/A	1D41C	4.6@2550	20.0	2.9	12.7@2550	20.0	2.8	
[illegible]	N/A	1D41C	4.6@2500	20.0	2.8	13.0@2500	20.0	2.8	
[illegible]	N/A	1D41C	4.5@2450	20.0	2.7	13.0@2450	20.0	2.7	
[illegible]	N/A	1D41C	4.4@2400	20.0	2.7	13.0@2400	20.0	2.7	
[illegible]	N/A	1D41C	4.3@2350	20.0	2.6	12.9@2350	20.0	2.6	
[illegible]	N/A	1D41C	4.2@2300	20.0	2.6	12.9@2300	20.0	2.6	
[illegible]	N/A	1D41C	4.1@2250	20.0	2.5	12.9@2250	20.0	2.5	
[illegible]	N/A	1D41C	4.1@2200	20.0	2.5	13.2@2200	20.0	2.5	
[illegible]	N/A	1D41C	4.0@2150	20.0	2.4	13.1@2150	20.0	2.4	
[illegible]	N/A	1D41C	3.9@2100	20.0	2.3	13.1@2100	20.0	2.3	
[illegible]	[illegible]	1D41C	3.8@2050	20.0	2.3	13.1@2050	20.0	2.3	
[illegible]	[illegible]	1D41C	3.7@2000	20.0	2.2	13.1@2000	20.0	2.2	

7-8 kW