California Environmental Protection Agency AIR RESOURCES BOARD	MOTORENFABRIK HATZ GMBH & CO. KG	EXECUTIVE ORDER U-R-034-0076 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 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)
2005	5HZXL.667C82	0.667	Diesel	3000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Direct Diesel Injection	Pump, Generator Set

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 2	STD	N/A	N/A	7.5	6.6	0.80	N/A	N/A	N/A
		CERT	--	--	6.8	3.2	0.50	--	--	--

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 24TH day of March 2005.

Allen Lyons, Chief
Mobile Source Operations Division

Engine Model Su mary Form

Attachment 1 of 2
UR-034-0076

Manufacturer: **Motorenfabrik Hatz**
Engine category: **Nonroad CI**
EPA Engine Famly: **5HZXL.667C82**
Mfr Family Name: **1D81 S/Z/T/U/C**
Process Code: **New Submission**

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 torque	9.Emission Control Device Per SAE J1930
N/A	1D81S/Z	13,8@3000	38,5	6,4	24,3@3000	38,5	6,4	IDI
N/A	1D81S/Z	13,7@2950	38,5	6,3	24,4@2950	38,5	6,3	
N/A	1D81S/Z	13,5@2900	38,5	6,2	24,6@2900	38,5	6,2	
N/A	1D81S/Z	13,5@2850	38,5	6,1	25,0@2850	38,5	6,1	
N/A	1D81S/Z	13,4@2800	38,5	6,0	25,2@2800	38,5	6,0	
N/A	1D81S/Z	13,1@2750	38,5	5,9	25,2@2750	38,5	5,9	
N/A	1D81S/Z	13,0@2700	38,5	5,8	25,4@2700	38,5	5,8	
N/A	1D81S/Z	12,9@2650	38,5	5,7	25,6@2650	38,5	5,7	
N/A	1D81S/Z	12,7@2600	38,5	5,6	25,8@2600	38,5	5,6	
N/A	1D81S/Z	12,5@2550	38,5	5,5	25,8@2550	38,5	5,5	
N/A	1D81S/Z	12,3@2500	38,5	5,4	26,0@2500	38,5	5,4	
N/A	1D81S/Z	13,4@3000	37,5	6,3	23,6@3000	37,5	6,3	
N/A	1D81S/Z	13,3@2950	37,5	6,2	23,7@2950	37,5	6,2	
N/A	1D81S/Z	13,1@2900	37,5	6,1	23,9@2900	37,5	6,1	
N/A	1D81S/Z	13,0@2850	37,5	6,0	24,1@2850	37,5	6,0	
N/A	1D81S/Z	12,9@2800	37,5	5,9	24,2@2800	37,5	5,9	
N/A	1D81S/Z	12,7@2750	37,5	5,7	24,4@2750	37,5	5,7	
N/A	1D81S/Z	12,6@2700	37,5	5,6	24,6@2700	37,5	5,6	
N/A	1D81S/Z	12,5@2650	37,5	5,5	24,8@2650	37,5	5,5	
N/A	1D81S/Z	12,3@2600	37,0	5,4	25,0@2600	37,0	5,4	
N/A	1D81S/Z	12,2@2550	37,0	5,3	25,2@2550	37,0	5,3	
N/A	1D81S/Z	11,9@2500	37,0	5,2	25,2@2500	37,0	5,2	
N/A	1D81S/Z	11,8@2450	37,0	5,1	25,4@2450	37,0	5,1	
N/A	1D81S/Z	11,5@2400	37,0	5,0	25,3@2400	37,0	5,0	
N/A	1D81S/Z	11,4@2350	37,0	4,8	25,6@2350	37,0	4,8	
N/A	1D81S/Z	11,1@2300	37,0	4,7	25,5@2300	37,0	4,7	
N/A	1D81S/Z	11,1@2250	37,0	4,6	26,1@2250	37,0	4,6	
N/A	1D81S/Z	10,9@2200	37,0	4,5	26,0@2200	37,0	4,5	
N/A	1D81S/Z	10,7@2150	37,0	4,4	26,3@2150	37,0	4,4	
N/A	1D81C	12,7@3000	37,5	6,3	22,4@3000	37,5	6,3	
N/A	1D81C	12,6@2950	37,5	6,2	22,5@2950	37,5	6,2	

N/A	1D81C	12,5@2900	37,5	6	22,7@2900	37,5	6,1
N/A	1D81C	12,5@2850	37,5	6,0	23,1@2850	37,5	6,0
N/A	1D81C	12,2@2800	37,5	5,9	23,0@2800	37,5	5,9
N/A	1D81C	12,1@2750	37,5	5,7	23,1@2750	37,5	5,7
N/A	1D81C	11,8@2700	37,5	5,6	23,0@2700	37,5	5,6
N/A	1D81C	11,7@2650	37,5	5,5	23,2@2650	37,5	5,5
N/A	1D81C	11,7@2600	36,5	5,3	23,6@2600	36,5	5,3
N/A	1D81C	11,5@2550	36,5	5,2	23,8@2550	36,5	5,2
N/A	1D81C	11,4@2500	36,5	5,1	24,0@2500	36,5	5,1
N/A	1D81C	11,3@2450	35,5	4,8	24,2@2450	35,5	4,8
N/A	1D81C	11,0@2400	35,5	4,7	24,1@2400	35,5	4,7
N/A	1D81C	10,9@2350	35,5	4,7	24,4@2350	35,5	4,7
N/A	1D81C	10,7@2300	35,5	4,6	24,6@2300	35,5	4,6

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Attachment 2 of 2