California Environmental Protection Agency AIR RESOURCES BOARD	MOTORENFABRIK HATZ GMBH & CO. KG	EXECUTIVE ORDER U-R-034-0018 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-45-9;

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)
2002	2HZXL.232C20	0.2	Diesel	3000

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

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 1	STD	N/A	N/A	10.5	8.0	1.0	N/A	N/A	N/A
		CERT	--	--	8.1	5.6	0.85	--	--	--

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 10th day of January 2002.

R. B. Summerfield, Chief
Mobile Source Operations Division

Model Year: 2002
Manufacturer: Motorenfabrik Hatz GmbH & Co. KG
Engine Family: 2HZXL.232C20

Issued:
Revised: 10/23/2001
E.O. Number: EO # U-R-034-0018

Small Off-Road Engine Model Summary Form

Units for Table: kW

Worst Case?	47. Model Designation	48. Sales Code	49. Displ (cc)	50. Bore/ Stroke	51. Ignition Timing	52. Max Power	53. Rated Speed (RPM)	54. Rated Torque	55. Torque Speed (RPM)	56. Emiss Control Sys
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.8 (kW) 3.6	3600	7.1	3600	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.8	3550	7.2	3550	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.7 3.5	3500	7.1	3500	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.7	3450	7.2	3450	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.7	3400	7.3	3400	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.6 3.4	3350	7.2	3350	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.6	3300	7.3	3300	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.6	3250	7.4	3250	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.4 3.3	3200	7.3	3200	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.4	3150	7.4	3150	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.4	3100	7.5	3100	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.3 3.2	3050	7.4	3050	DDI
X	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.3	3000	7.5	3000	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	4.2 3.1	2900	7.6	2900	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	4.2	2800	7.8	2800	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	4.0 3.0	2700	7.9	2700	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	3.9 2.9	2600	7.9	2600	DDI

Unit [hp]

FOR MORE MODEL INFO PLEASE LOOK AT RECORD 2!

EPA # HZX-NR1-02-01

ATTACHMENT 1 of 2

Model Year:
Manufacturer:
Engine Family:

Issued:
Revised: 10/23/2001
E.O. Number: EO# U-R-034-0018

Small Off-Road Engine Model Summary Form

Units for Table:

Worst Case?	47. Model Designation	48. Sales Code	49. Displ (cc)	50. Bore/ Stroke	51. Ignition Timing	52. Max Power	(kW)	53. Rated Speed (RPM)	54. Rated Torque	55. Torque Speed (RPM)	56. Emiss Control Sys
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.6	3.4	3600	6.7	3600	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.6		3550	6.8	3550	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.6		3500	6.9	3500	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.6		3450	7.0	3450	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.4	3.3	3400	6.9	3400	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.4		3350	7.0	3350	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.4		3300	7.1	3300	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.4		3250	7.2	3250	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.3	3.2	3200	7.1	3200	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.3		3150	7.2	3150	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.3		3100	7.3	3100	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.3		3050	7.4	3050	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	4.2	3.1	3000	7.3	3000	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	3.9	2.9	2800	7.3	2800	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	3.8	2.8	2600	7.6	2700	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	3.6	2.7	2500	7.6	2600	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	3.4	2.5	2300	7.7	2500	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	2.8	2.1	2000	7.4	2000	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	8+1	2.5	1.9	1800	7.5	1800	DDI
	FOR MORE	MODEL	INFO	PLEASE	LOOK	AT		RECORD	3 !		

ATTACHMENT 2 of 3

Model Year:
Manufacturer:
Engine Family:

Issued:
Revised: 10/23/2001
E.O. Number: EO# U-R-034-0018

Small Off-Road Engine Model Summary Form

Units for Table:

Worst Case?	47. Model Designation	48. Sales Code	49. Displ (cc)	50. Bore/ Stroke	51. Ignition Timing	52. Max Power	(KW)	53. Rated Speed (RPM)	54. Rated Torque	55. Torque Speed (RPM)	56. Emiss Control Sys
	1B20/1B20V	Calif. Only	232	69 / 62	14+1	3.8	2.8	3000	6.6	3000	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	3.8	2.8	2900	6.8	2900	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	3.6	2.7	2800	6.8	2800	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	3.5	2.6	2700	6.8	2700	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	3.4	2.5	2600	6.8	2600	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	3.2	2.4	2500	6.8	2500	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	3.1	2.3	2400	6.8	2400	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	2.9	2.2	2300	6.8	2300	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	2.8	2.1	2200	6.7	2200	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	2.7	2.0	2100	6.7	2100	DDI
	1B20/1B20V	Calif. Only	232	69 / 62	10+1	2.5	1.9	2000	6.7	2000	DDI

ATTACHMENT 3 of 3