 <b>AIR RESOURCES BOARD</b>	MOTORENFABRIK HATZ GMBH & CO. KG	<b>EXECUTIVE ORDER U-R-034-0058</b> 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)
2004	4HZXL1.38SV2	1.38	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):

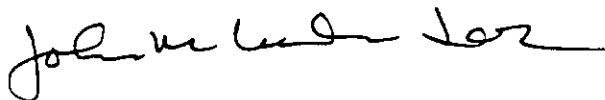
RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kW-hr)					OPACITY (%)		
			HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
8 ≤ kW < 19	Tier 1	STD	N/A	N/A	9.5	6.6	0.80	20	15	50
		CERT	-	-	7.2	5.3	0.38	6	8	11

**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 2<sup>ND</sup> day of September 2004.



Allen Lyons, Chief  
Mobile Source Operations Division

Attachment 1 of 7  
U R 054 0058



### 4HZXL1.38SV2

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ENGINE MODEL	RATED POWER		TORQUE		RATED SPEED		FUEL RATE			TORQUE		TORQUE SPEED		FUEL RATE AT MAX. TORQUE		
	[kW]	[hp]	[Nm]	[Nm]	[rpm]	[rpm]	[mm <sup>3</sup> /H]	[lbs/hr]	[KG/h]	[Nm]	[lbf]	[rpm]	[rpm]	[mm <sup>3</sup> /H]	[lbs/hr]	[KG/h]
2W35	11.0	14.8	35	35	3000	3000	21.0	2.2	3.2	40	30	2800	2800	21.0	2.1	3.0
2W35	10.9	14.6	35	35	2950	2950	21.0	2.2	3.1	40	30	2700	2700	21.0	2.0	2.9
2W35	10.8	14.5	36	36	2900	2900	21.0	2.2	3.1	40	30	2600	2600	21.0	1.9	2.8
2W35	10.7	14.3	36	36	2850	2850	21.0	2.1	3.0	40	30	2500	2500	21.0	1.9	2.7
2W35	10.6	14.2	36	36	2800	2800	21.0	2.1	3.0	40	30	2400	2400	21.0	1.8	2.6
2W35	10.4	13.9	36	36	2750	2750	21.0	2.0	2.9	40	30	2300	2300	21.0	1.7	2.4
2W35	10.3	13.8	36	36	2700	2700	21.0	2.0	2.9	40	30	2200	2200	21.0	1.6	2.3
2W35	10.2	13.7	37	37	2650	2650	21.0	2.0	2.8	40	30	2100	2100	21.0	1.6	2.2
2W35	10.1	13.5	37	37	2600	2600	21.0	1.9	2.8	40	30	2000	2000	21.0	1.5	2.1

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ENGINE MODEL	RATED POWER		TORQUE [Nm]	RATED SPEED [rpm]	FUEL RATE		TORQUE		TORQUE SPEED [rpm]	FUEL RATE AT MAX. TORQUE			
	[kW]	[hp]			[mm <sup>3</sup> /H]	[lbs/hr]	[Nm]	[lbfm]		[mm <sup>3</sup> /H]	[lbs/hr]	[KG/h]	[KG/h]
2W35	11.6	15.6	31	3600	19.0	2.4	3.5	38	28	1800	20.0	1.3	1.8
2W35	11.5	15.4	31	3550	19.0	2.4	3.4	38	28	1800	20.0	1.3	1.8
2W35	11.4	15.3	31	3500	19.0	2.4	3.4	38	28	1800	20.0	1.3	1.8
2W35	11.3	15.2	31	3450	19.0	2.3	3.3	38	28	1800	20.0	1.3	1.8
2W35	11.3	15.1	32	3400	19.0	2.3	3.3	38	28	1800	20.0	1.3	1.8
2W35	11.2	15.0	32	3350	19.0	2.3	3.2	38	28	1800	20.0	1.3	1.8
2W35	11.1	14.9	32	3300	19.0	2.2	3.2	38	28	1800	20.0	1.3	1.8
2W35	11.0	14.8	32	3250	19.0	2.2	3.1	38	28	1800	20.0	1.3	1.8
2W35	10.9	14.6	33	3200	19.0	2.2	3.1	38	28	1800	20.0	1.3	1.8
2W35	10.8	14.5	33	3150	19.0	2.1	3.0	38	28	1800	20.0	1.3	1.8
2W35	10.7	14.3	33	3100	19.0	2.1	3.0	38	28	1800	20.0	1.3	1.8
2W35	10.6	14.2	33	3050	19.0	2.1	2.9	38	28	1800	20.0	1.3	1.8
2W35	10.5	14.1	33	3000	19.0	2.0	2.9	37	27	2400	20.0	1.7	2.4
2W35	10.3	13.8	33	2950	19.0	2.0	2.8	37	27	2300	20.0	1.6	2.3
2W35	10.2	13.7	34	2900	19.0	2.0	2.8	37	27	2200	20.0	1.6	2.2
2W35	10.1	13.5	34	2850	19.0	1.9	2.7	37	27	2100	20.0	1.5	2.1
2W35	10.1	13.5	34	2800	19.0	1.9	2.7	38	28	2000	20.0	1.4	2.0
2W35	10.0	13.4	35	2750	19.0	1.9	2.6	38	28	1900	20.0	1.3	1.9
2W35	9.9	13.3	35	2700	19.0	1.8	2.6	38	28	1800	20.0	1.3	1.8
2W35	9.7	13.0	35	2650	19.0	1.8	2.5	38	28	1800	20.0	1.3	1.8
2W35	9.6	12.9	35	2600	19.0	1.8	2.5	38	28	1800	20.0	1.3	1.8
2W35	9.5	12.7	36	2550	19.0	1.7	2.5	38	28	1800	20.0	1.3	1.8
2W35	9.3	12.5	36	2500	19.0	1.7	2.4	38	28	1800	20.0	1.3	1.8
2W35	9.2	12.3	36	2450	19.0	1.7	2.4	38	28	1800	20.0	1.3	1.8
2W35	9.0	12.1	36	2400	19.0	1.6	2.3	38	28	1800	20.0	1.3	1.8
2W35	8.8	11.8	36	2350	19.0	1.6	2.3	38	28	1800	20.0	1.3	1.8
2W35	8.7	11.7	36	2300	19.0	1.5	2.2	38	28	1800	20.0	1.3	1.8
2W36	8.5	11.4	36	2250	19.0	1.5	2.2	38	28	1800	20.0	1.3	1.8
2W37	8.3	11.1	36	2200	18.0	1.5	2.1	38	28	1800	20.0	1.3	1.8
2W35	8.1	10.9	38	2150	19.0	1.4	2.1	38	28	1800	20.0	1.3	1.8
2W35	8.0	10.7	38	2100	19.0	1.4	2.0	38	28	1800	20.0	1.3	1.8

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2W35

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ENGINE MODEL	RATED POWER		TORQUE [Nm]	RATED SPEED [rpm]	FUEL RATE		TORQUE		TORQUE SPEED		FUEL RATE AT MAX. TORQUE	
	[kW]	[hp]			[mm <sup>3</sup> /h]	[kg/h]	[Nm]	[lbf]	[rpm]	[mm <sup>3</sup> /h]	[lbf/hr]	[kg/h]
2W35	9.5	12.7	30	3000	17.0	1.8	2.6	34	25	2400	18.0	1.5
2W35	9.4	12.6	30	2950	17.0	1.8	2.5	34	25	2300	18.0	1.5
2W35	9.3	12.5	31	2900	17.0	1.7	2.5	34	25	2200	18.0	1.4
2W35	9.2	12.3	31	2850	17.0	1.7	2.5	34	25	2100	18.0	1.3
2W35	9.1	12.2	31	2800	17.0	1.7	2.4	35	26	2000	18.0	1.3
2W35	9.0	12.1	31	2750	17.0	1.7	2.4	35	26	1900	18.0	1.2
2W35	8.9	11.9	31	2700	17.0	1.6	2.3	35	26	1800	18.0	1.1
2W35	8.8	11.8	32	2650	17.0	1.6	2.3	35	26	1800	18.0	1.1
2W35	8.7	11.7	32	2600	17.0	1.5	2.2	35	26	1800	18.0	1.1
2W35	8.6	11.5	32	2550	17.0	1.5	2.2	35	26	1800	18.0	1.1
2W35	8.5	11.4	32	2500	17.0	1.5	2.2	35	26	1800	18.0	1.1

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ENGINE MODEL	RATED POWER		TORQUE [Nm]	RATED SPEED [rpm]	FUEL RATE			TORQUE		TORQUE SPEED [rpm]	FUEL RATE AT MAX. TORQUE		
	[kW]	[hp]			[mm <sup>3</sup> /H]	[lbs/hr]	[KG/h]	[Nm]	[lbft]		[mm <sup>3</sup> /H]	[lbs/hr]	[KG/h]
3W35	17.4	23.3	55	3000	21.0	3.3	4.8	61	45	2800	21.0	3.1	4.5
3W35	17.3	23.1	56	2950	21.0	3.3	4.7	61	45	2700	21.0	3.0	4.3
3W35	17.0	22.8	56	2900	21.0	3.2	4.6	61	45	2600	21.0	2.9	4.1
3W35	16.9	22.7	57	2850	21.0	3.2	4.5	61	45	2500	21.0	2.8	4.0
3W35	16.7	22.4	57	2800	21.0	3.1	4.5	61	45	2400	21.0	2.7	3.8
3W35	16.5	22.1	57	2750	21.0	3.1	4.4	61	45	2300	21.0	2.6	3.7
3W35	16.4	22.0	58	2700	21.0	3.0	4.3	61	45	2200	21.0	2.5	3.5
3W35	16.2	21.7	58	2650	21.0	3.0	4.2	61	45	2100	21.0	2.3	3.3
3W35	16.0	21.5	59	2600	21.0	2.9	4.1	61	45	2000	21.0	2.2	3.2

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ENGINE MODEL	RATED POWER		TORQUE [Nm]	RATED SPEED [rpm]	FUEL RATE			TORQUE		TORQUE SPEED [rpm]	FUEL RATE AT MAX. TORQUE		
	[kW]	[hp]			[mm <sup>3</sup> /H]	[lbs/hr]	[KG/h]	[Nm]	[lbft]		[mm <sup>3</sup> /H]	[lbs/hr]	[KG/h]
3W35	17.0	22.8	54	3000	20.0	3.2	4.6	60	44	2800	20.5	3.1	4.4
3W35	16.8	22.5	54	2950	20.0	3.1	4.5	60	44	2700	20.5	2.9	4.2
3W35	16.6	22.3	55	2900	20.0	3.1	4.4	60	44	2600	20.5	2.8	4.0
3W35	16.5	22.1	55	2850	20.0	3.0	4.3	60	44	2500	20.5	2.7	3.9
3W35	16.3	21.9	56	2800	20.0	3.0	4.3	60	44	2400	20.5	2.6	3.7
3W35	16.2	21.7	56	2750	20.0	2.9	4.2	60	44	2300	20.5	2.5	3.6
3W35	16.0	21.5	57	2700	20.0	2.9	4.1	60	44	2200	20.5	2.4	3.4
3W35	15.8	21.2	57	2650	20.0	2.8	4.0	60	44	2100	20.5	2.3	3.3
3W35	15.6	20.9	57	2600	20.0	2.8	3.9	60	44	2000	20.5	2.2	3.1

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ENGINE MODEL	RATED POWER		TORQUE [Nm]	RATED SPEED [rpm]	FUEL RATE		TORQUE		TORQUE SPEED [rpm]	FUEL RATE AT MAX. TORQUE			
	[kW]	[hp]			[mm <sup>3</sup> /h]	[lbs/hr]	[Nm]	[lbf/ft]		[mm <sup>3</sup> /h]	[lbs/hr]	[KG/h]	[KG/h]
3W35	18.4	24.7	49	3600	19.0	3.6	5.2	59	44	1800	20.0	1.9	2.7
3W35	18.2	24.4	49	3550	19.0	3.6	5.1	59	44	1800	20.0	1.9	2.7
3W35	18.1	24.3	49	3500	19.0	3.5	5.1	59	44	1800	20.0	1.9	2.7
3W35	17.9	24.0	50	3450	19.0	3.5	5.0	59	44	1800	20.0	1.9	2.7
3W35	17.8	23.9	50	3400	19.0	3.4	4.9	59	44	1800	20.0	1.9	2.7
3W35	17.7	23.7	50	3350	19.0	3.4	4.8	59	44	1800	20.0	1.9	2.7
3W35	17.5	23.5	51	3300	19.0	3.3	4.8	59	44	1800	20.0	1.9	2.7
3W35	17.4	23.3	51	3250	19.0	3.3	4.7	59	44	1800	20.0	1.9	2.7
3W35	17.2	23.1	51	3200	19.0	3.2	4.6	59	44	1800	20.0	1.9	2.7
3W35	17.1	22.9	52	3150	19.0	3.2	4.5	59	44	1800	20.0	1.9	2.7
3W35	16.9	22.7	52	3100	19.0	3.1	4.5	59	44	1800	20.0	1.9	2.7
3W35	16.7	22.4	52	3050	19.0	3.1	4.4	59	44	1800	20.0	1.9	2.7
3W35	16.6	22.3	53	3000	19.0	3.0	4.3	58	43	2400	20.0	2.6	3.6
3W35	16.4	22.0	53	2950	19.0	3.0	4.3	58	43	2300	20.0	2.4	3.5
3W35	16.3	21.9	54	2900	19.0	2.9	4.2	58	43	2200	20.0	2.3	3.3
3W35	16.2	21.7	54	2850	19.0	2.9	4.1	58	43	2100	20.0	2.2	3.2
3W35	16.0	21.5	55	2800	19.0	2.8	4.0	59	44	2000	20.0	2.1	3.0
3W35	15.8	21.2	55	2750	19.0	2.8	4.0	59	44	1900	20.0	2.0	2.9
3W35	15.7	21.1	56	2700	19.0	2.7	3.9	59	44	1800	20.0	1.9	2.7
3W35	15.5	20.8	56	2650	19.0	2.7	3.8	59	44	1800	20.0	1.9	2.7
3W35	15.3	20.5	56	2600	19.0	2.6	3.8	59	44	1800	20.0	1.9	2.7
3W35	15.1	20.2	57	2550	19.0	2.6	3.7	59	44	1800	20.0	1.9	2.7
3W35	14.8	19.8	57	2500	19.0	2.5	3.6	59	44	1800	20.0	1.9	2.7
3W35	14.6	19.6	57	2450	19.0	2.5	3.5	59	44	1800	20.0	1.9	2.7
3W35	14.3	19.2	57	2400	19.0	2.4	3.5	59	44	1800	20.0	1.9	2.7
3W35	14.1	18.9	57	2350	19.0	2.4	3.4	59	44	1800	20.0	1.9	2.7
3W35	13.8	18.5	57	2300	19.0	2.3	3.3	59	44	1800	20.0	1.9	2.7
3W35	13.5	18.1	57	2250	19.0	2.3	3.2	59	44	1800	20.0	1.9	2.7
3W35	13.2	17.7	57	2200	19.0	2.2	3.2	59	44	1800	20.0	1.9	2.7
3W35	13.0	17.4	58	2150	19.0	2.2	3.1	59	44	1800	20.0	1.9	2.7
3W35	12.7	17.0	58	2100	19.0	2.1	3.0	59	44	1800	20.0	1.9	2.7
3W35	12.3	16.5	57	2050	19.0	2.1	3.0	59	44	1800	20.0	1.9	2.7
3W35	12.1	16.2	58	2000	19.0	2.0	2.9	59	44	1800	20.0	1.9	2.7

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ENGINE MODEL	RATED POWER		TORQUE [Nm]	RATED SPEED [rpm]	FUEL RATE		TORQUE		TORQUE SPEED [rpm]	FUEL RATE AT MAX. TORQUE			
	[kW]	[hp]			[mm <sup>3</sup> /h]	[kg/h]	[Nm]	[lbf]		[mm <sup>3</sup> /h]	[lbs/hr]	[kg/h]	
3W35	15,1	20,2	48	3000	17,0	2,7	3,9	54	40	2400	18,0	2,3	3,3
3W35	14,9	20,0	48	2950	17,0	2,7	3,8	54	40	2300	18,0	2,2	3,1
3W35	14,8	19,8	49	2900	17,0	2,6	3,7	54	40	2200	18,0	2,1	3,0
3W35	14,7	19,7	49	2850	17,0	2,6	3,7	54	40	2100	18,0	2,0	2,9
3W35	14,5	19,4	49	2800	17,0	2,5	3,6	55	41	2000	18,0	1,9	2,7
3W35	14,4	19,3	50	2750	17,0	2,5	3,6	55	41	1900	18,0	1,8	2,6
3W35	14,2	19,0	50	2700	17,0	2,4	3,5	55	41	1800	18,0	1,7	2,5
3W35	14,1	18,9	51	2650	17,0	2,4	3,4	55	41	1800	18,0	1,7	2,5
3W35	13,9	18,6	51	2600	17,0	2,4	3,4	55	41	1800	18,0	1,7	2,5
3W35	13,7	18,4	51	2550	17,0	2,3	3,3	55	41	1800	18,0	1,7	2,5
3W35	13,5	18,1	52	2500	17,0	2,3	3,2	55	41	1800	18,0	1,7	2,5

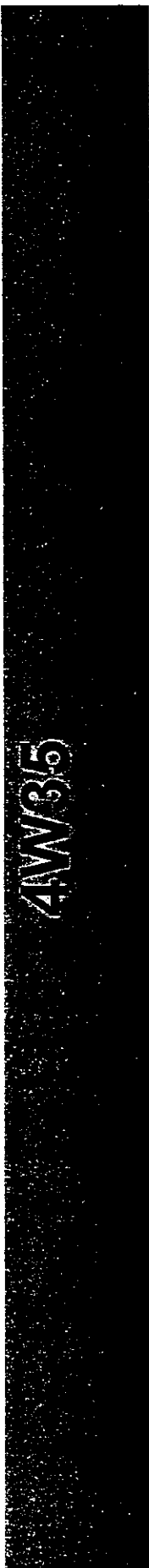
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ENGINE MODEL	RATED POWER		TORQUE [Nm]	RATED SPEED [rpm]	FUEL RATE			TORQUE		TORQUE SPEED [rpm]	FUEL RATE AT MAX. TORQUE		
	[kW]	[hp]			[mm <sup>3</sup> /H]	[lbs/hr]	[KG/h]	[Nm]	[lbf]		[mm <sup>3</sup> /H]	[lbs/hr]	[KG/h]
4W35	18,8	25,2	76	2350	19,0	3,2	4,5	82	61	1800	20,0	2,6	3,6
4W35	18,5	24,8	77	2300	19,0	3,1	4,4	82	61	1800	20,0	2,6	3,6
4W35	18,1	24,3	77	2250	19,0	3,0	4,3	82	61	1800	20,0	2,6	3,6
4W35	17,8	23,9	77	2200	19,0	3,0	4,2	82	61	1800	20,0	2,6	3,6
4W35	17,4	23,3	77	2150	19,0	2,9	4,1	82	61	1800	20,0	2,6	3,6
4W35	17,0	22,8	77	2100	19,0	2,8	4,0	82	61	1800	20,0	2,6	3,6
4W35	16,6	22,3	77	2050	19,0	2,8	3,9	82	61	1800	20,0	2,6	3,6
4W35	16,2	21,7	77	2000	19,0	2,7	3,8	82	61	1800	20,0	2,6	3,6

**4HZXL1.38SV2**

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ENGINE MODEL	RATED POWER		TORQUE [Nm]	RATED SPEED [rpm]	FUEL RATE			TORQUE		TORQUE SPEED [rpm]	FUEL RATE AT MAX. TORQUE		
	[kW]	[hp]			[mm <sup>3</sup> /H]	[lbs/hr]	[KG/h]	[Nm]	[lbf]		[mm <sup>3</sup> /H]	[lbs/hr]	[KG/h]
4W35	18,9	25,3	68	2650	17,0	3,2	4,6	75	56	1800	18,0	2,3	3,3
4W35	18,6	24,9	68	2600	17,0	3,1	4,5	75	56	1800	18,0	2,3	3,3
4W35	18,3	24,5	69	2550	17,0	3,1	4,4	75	56	1800	18,0	2,3	3,3
4W35	18,0	24,1	69	2500	17,0	3,0	4,3	75	56	1800	18,0	2,3	3,3