 <b>AIR RESOURCES BOARD</b>	<b>MOTORENFABRIK HATZ GMBH &amp; CO. KG</b>	<b>EXECUTIVE ORDER U-R-034-0053</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	4HZXL3.43C41	1.72, 2.57	Diesel	5000
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 (NO<sub>x</sub>), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NO<sub>x</sub>), 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	NO <sub>x</sub>	NMHC+NO <sub>x</sub>	CO	PM	ACCEL	LUG	PEAK
19 ≤ kW < 37	Tier 2	STD	N/A	N/A	7.5	5.5	0.60	N/A	N/A	N/A
		CERT	--	--	7.1	3.9	0.15	--	--	--

**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 6<sup>TH</sup> day of May 2004.



Allen Lyons, Chief  
 Mobile Source Operations Division

Model Year: 2004  
 Manufacturer: Motorenfabrik Hatz GmbH & Co. KG  
 Engine Family: 4HZXL3.43C41

Issued:  
 Revised: 3/17/2004  
 E.O. Number: U-R-034-0053

**Small Off-Road Engine Model Summary Form**

Units for Table: hp

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
	For model	information,	1716	look	in the	enclosed	4HZXL343	C41.xls	excel file.	EM
	The worst	case engine	1716	marked in	red bold	capital	letters!!!			DDI

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CONSTANT SPEED  
4HZXL3.43C41

ENGINE MOD	RATED POWER		TORQUE		ENGINE SPEED		FUEL RATE		TORQUE		TORQUE SP		FUEL RATE AT MAX. TORQUE	
	[kW]	[hp]	[Nm]	[rpm]	[mm <sup>3</sup> /h]	[lbs/hr]	[kg/h]	[Nm]	[lbf]	[rpm]	[mm <sup>3</sup> /h]	[lbs/hr]	[kg/h]	
2M41	26.3	35.2	84	3000	44.0	7.4	3.3	90	66	1800	42.0	4.2	1.9	
2M41	26.1	35.0	84	2950	44.0	7.2	3.3	90	66	1800	42.0	4.2	1.9	
2M41	26.0	34.8	86	2900	44.0	7.1	3.2	93	69	1800	43.0	4.3	2.0	
2M41	25.8	34.6	86	2850	44.0	7.0	3.2	93	69	1800	43.0	4.3	2.0	
2M41	25.7	34.4	88	2800	44.0	6.9	3.1	98	72	1800	44.5	4.5	2.0	
2M41	25.5	34.2	89	2750	44.5	6.8	3.1	96	71	1800	44.0	4.4	2.0	
2M41	25.3	33.9	89	2700	44.5	6.7	3.0	91	67	1800	42.5	4.3	1.9	
2M41	25.2	33.8	91	2650	44.5	6.6	3.0	91	67	1800	42.5	4.3	1.9	
2M41	25.0	33.5	92	2600	45.0	6.5	3.0	95	70	1500	43.5	3.6	1.7	
2M41	24.7	33.1	92	2550	45.0	6.4	2.9	95	70	1500	43.5	3.6	1.7	
2M41	24.3	32.6	93	2500	46.0	6.4	2.9	97	72	1500	44.5	3.7	1.7	
2M41	23.9	32.0	93	2450	46.0	6.3	2.9	97	72	1500	44.5	3.7	1.7	
2M41	23.6	31.6	94	2400	46.0	6.2	2.8	96	71	1500	44.0	3.7	1.7	
2M41	23.0	30.8	93	2350	46.0	6.0	2.7	96	71	1500	44.0	3.7	1.7	
2M41	25.4	34.0	105	2300	51.0	6.5	3.0	105	77	2300	51.0	6.5	3.0	
2M41	24.9	33.4	106	2250	51.0	6.4	2.9	106	78	2250	51.0	6.4	2.9	
2M41	24.9	33.4	106	2200	51.0	6.3	2.8	106	78	2200	51.0	6.3	2.8	
2M41	24.4	32.7	106	2150	51.0	6.1	2.8	106	78	2150	51.0	6.1	2.8	
2M41	23.9	32.0	106	2100	51.0	6.0	2.7	106	78	2050	51.0	6.0	2.7	
2M41	23.4	31.4	106	2050	51.0	5.8	2.6	107	79	2000	51.0	5.8	2.6	
2M41	22.9	30.7	107	2000	51.0	5.7	2.6	107	79	1950	49.5	5.7	2.6	
2M41	22.4	30.0	107	1950	49.5	5.4	2.4	107	79	1900	49.5	5.4	2.4	
2M41	21.9	29.3	107	1900	49.5	5.2	2.4	107	79	1850	49.5	5.2	2.4	
2M41	21.3	28.5	107	1850	49.5	5.1	2.3	107	79	1800	49.5	5.1	2.3	
2M41	20.8	27.9	107	1800	49.5	5.0	2.3	107	79	1800	49.5	5.0	2.3	
2M41	20.2	27.1	107	1800	49.5	5.0	2.3	107	79	1800	49.5	5.0	2.3	

CONSTANT SPEED  
4HZXL3.43C41

ENGINE MOD	RATED POWER		TORQUE		ENGINE SPEED [rpm]	FUEL RATE		TORQUE		TORQUE SP		FUEL RATE AT MAX. TORQUE	
	[kW]	[hp]	[Nm]	[Nm]		[mm <sup>3</sup> /h]	[kg/h]	[Nm]	[lbf]	[rpm]	[mm <sup>3</sup> /h]	[lbf/hr]	[kg/h]
2M41	23.7	31.8	75	75	3000	40.0	6.7	89	66	1500	40.5	3.4	1.5
2M41	23.5	31.5	76	76	2950	40.0	6.6	89	66	1500	40.5	3.4	1.5
2M41	23.4	31.4	77	77	2900	40.0	6.5	88	65	1500	40.0	3.3	1.5
2M41	23.2	31.1	78	78	2850	40.0	6.4	88	65	1500	40.0	3.3	1.5
2M41	23.1	31.0	79	79	2800	40.0	6.2	96	71	1800	44.0	4.4	2.0
2M41	23.0	30.8	80	80	2750	40.5	6.2	88	65	1500	40.0	3.3	1.5
2M41	22.8	30.6	81	81	2700	40.5	6.1	88	65	1500	40.0	3.3	1.5
2M41	22.7	30.4	82	82	2650	40.5	6.0	88	65	1500	40.0	3.3	1.5
2M41	22.5	30.2	83	83	2600	40.5	5.9	88	65	1500	40.0	3.3	1.5
2M41	22.2	29.7	83	83	2550	40.5	5.8	88	65	1500	40.0	3.3	1.5
2M41	21.9	29.3	84	84	2500	41.0	5.7	88	65	1500	40.0	3.3	1.5
2M41	21.5	28.8	84	84	2450	41.0	5.6	88	65	1500	40.0	3.3	1.5
2M41	21.2	28.4	84	84	2400	41.0	5.5	88	65	1500	40.0	3.3	1.5
2M41	20.7	27.7	84	84	2350	41.0	5.4	93	69	1500	42.5	3.6	1.6
2M41	22.9	30.7	95	95	2300	47.0	6.0	100	74	1500	46.5	3.9	1.8

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**CONSTANT SPEED**  
**4HZXL3.43C41**

ENGINE MOD	RATED POWER		TORQUE		ENGINE SPEED	FUEL RATE		TORQUE		TORQUE SP	FUEL RATE AT MAX. TORQUE		
	[kW]	[hp]	[Nm]	[lpm]		[mm <sup>3</sup> /h]	[lbs/hr]	[kg/h]	[Nm]		[lbf]	[rpm]	[mm <sup>3</sup> /h]
2M41Z	25.6	34.3	81	3000	44.0	7.4	3.3	88	65	1800	42.0	4.2	1.9
2M41Z	25.4	34.0	82	2950	44.0	7.2	3.3	88	65	1800	42.0	4.2	1.9
2M41Z	25.3	33.9	83	2900	44.0	7.1	3.2	91	67	1800	43.0	4.3	2.0
2M41Z	25.1	33.6	84	2850	44.0	7.0	3.2	91	67	1800	43.0	4.3	2.0
2M41Z	25.0	33.5	85	2800	44.0	6.9	3.1	94	69	1800	44.0	4.4	2.0
2M41Z	24.8	33.2	86	2750	44.5	6.8	3.1	94	69	1800	44.0	4.4	2.0
2M41Z	24.6	33.0	87	2700	44.5	6.7	3.0	89	66	1800	42.5	4.3	1.9
2M41Z	24.5	32.8	88	2650	45.0	6.6	3.0	89	66	1800	42.5	4.3	1.9
2M41Z	24.3	32.6	89	2600	45.0	6.5	3.0	93	69	1500	43.5	3.6	1.7
2M41Z	24.0	32.2	90	2550	45.0	6.4	2.9	93	69	1500	43.5	3.6	1.7
2M41Z	23.7	31.8	91	2500	45.0	6.4	2.9	95	70	1500	44.5	3.7	1.7
2M41Z	23.3	31.2	91	2450	46.0	6.3	2.9	95	70	1500	44.5	3.7	1.7
2M41Z	23.0	30.8	92	2400	46.0	6.2	2.8	94	69	1500	44.0	3.7	1.7
2M41Z	22.4	30.0	91	2350	46.0	6.0	2.7	94	69	1500	44.0	3.7	1.7
2M41Z	<b>24.8</b>	<b>33.2</b>	<b>103</b>	<b>2300</b>	<b>51.0</b>	<b>6.5</b>	<b>3.0</b>	<b>103</b>	<b>76</b>	<b>2300</b>	<b>51.0</b>	<b>6.5</b>	<b>3.0</b>
2M41Z	24.3	32.6	103	2250	51.0	6.4	2.9	103	76	2250	51.0	6.4	2.9
2M41Z	23.8	31.9	103	2200	51.0	6.3	2.8	103	76	2200	51.0	6.3	2.8
2M41Z	23.3	31.2	103	2150	51.0	6.1	2.8	103	76	2150	51.0	6.1	2.8
2M41Z	22.8	30.6	104	2100	51.0	6.0	2.7	104	77	2100	51.0	6.0	2.7
2M41Z	22.3	29.9	104	2050	51.0	5.8	2.6	104	77	2050	51.0	5.8	2.6
2M41Z	21.8	29.2	104	2000	51.0	5.7	2.6	104	77	2000	51.0	5.7	2.6
2M41Z	21.3	28.5	104	1950	49.5	5.4	2.4	104	77	1950	49.5	5.4	2.4
2M41Z	20.8	27.9	105	1900	49.5	5.2	2.4	105	77	1900	49.5	5.2	2.4
2M41Z	20.2	27.1	104	1850	49.5	5.1	2.3	104	77	1850	49.5	5.1	2.3
2M41Z	19.6	26.3	104	1800	49.5	5.0	2.3	104	77	1800	49.5	5.0	2.3

worst case engine:

The 2M41Z engine has more frictional power losses caused by the balancer shafts with the same fuel quantity than the 2M41 at the same rated speed (this engine is without balancer shafts). This is the worst case engine we tested for the EPA engine family because emissions are divided by less power (g/kWh) at the same fuel quantity specifications.

**CONSTANT SPEED  
4HZXL3.43C41**

ENGINE MOD	RATED POWER		TORQUE		ENGINE SPEED [rpm]	FUEL RATE		TORQUE		TORQUE SP [rpm]	FUEL RATE AT MAX. TORQUE			
	[kW]	[hp]	[Nm]	[lbf·ft]		[mm <sup>3</sup> /H]	[lb/hr]	[kg/h]	[Nm]		[lbf·ft]	[mm <sup>3</sup> /H]	[lb/hr]	[kg/h]
2M41Z	23.0	30.8	73		3000	40.0	6.7	3.0	87	64	1500	40.5	3.4	1.5
2M41Z	22.8	30.6	74		2950	40.0	6.6	3.0	87	64	1500	40.5	3.4	1.5
2M41Z	22.7	30.4	75		2900	40.0	6.5	2.9	86	63	1500	40.0	3.3	1.5
2M41Z	22.5	30.2	75		2850	40.0	6.4	2.9	86	63	1500	40.0	3.3	1.5
2M41Z	22.4	30.0	76		2800	40.0	6.2	2.8	86	63	1500	40.0	3.3	1.5
2M41Z	22.3	29.9	77		2750	40.5	6.2	2.8	86	63	1500	40.0	3.3	1.5
2M41Z	22.1	29.6	78		2700	40.5	6.1	2.8	86	63	1500	40.0	3.3	1.5
2M41Z	22.0	29.5	79		2650	40.5	6.0	2.7	86	63	1500	40.0	3.3	1.5
2M41Z	21.8	29.2	80		2600	40.5	5.9	2.7	86	63	1500	40.0	3.3	1.5
2M41Z	21.5	28.8	81		2550	40.5	5.8	2.6	86	63	1500	40.0	3.3	1.5
2M41Z	21.3	28.5	81		2500	41.0	5.7	2.6	86	63	1500	40.0	3.3	1.5
2M41Z	20.9	28.0	81		2450	41.0	5.6	2.5	86	63	1500	40.0	3.3	1.5
2M41Z	20.6	27.6	82		2400	41.0	5.5	2.5	86	63	1500	40.0	3.3	1.5
2M41Z	20.1	26.9	82		2350	41.0	5.4	2.4	91	67	1500	42.5	3.6	1.6
2M41Z	22.3	29.9	93		2300	47.0	6.0	2.7	98	72	1500	46.5	3.9	1.8

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**CONSTANT SPEED  
4HZXL3.43C41**

ENGINE MOD	RATED POWER		TORQUE		ENGINE SPEED		FUEL RATE		TORQUE		TORQUE SP		FUEL RATE AT MAX. TORQUE	
	[kW]	[hp]	[Nm]		[rpm]	[mm <sup>3</sup> /H]	[lbs/hr]	[Kg/h]	[Nm]	[lbf]	[rpm]	[mm <sup>3</sup> /H]	[lbs/hr]	[Kg/h]
2L41C	24.4	32.7	74		3150	42.5	7.5	3.4	88	65	1800	43.0	4.3	2.0
2L41C	24.4	32.7	78		3000	42.5	7.1	3.2	88	65	1800	43.0	4.3	2.0
2L41C	24.3	32.6	79		2950	42.5	7.0	3.2	88	65	1800	43.0	4.3	2.0
2L41C	24.1	32.3	79		2900	42.5	6.9	3.1	88	65	1800	43.0	4.3	2.0
2L41C	24.0	32.2	80		2850	42.5	6.8	3.1	85	63	1800	42.0	4.2	1.9
2L41C	23.8	31.9	81		2800	42.5	6.6	3.0	86	63	1800	42.0	4.2	1.9
2L41C	23.7	31.8	82		2750	43.0	6.6	3.0	87	64	1500	43.0	3.6	1.6
2L41C	23.5	31.5	83		2700	43.0	6.5	2.9	88	65	1800	43.0	4.3	2.0
2L41C	23.4	31.4	84		2650	43.0	6.4	2.9	88	65	1800	43.0	4.3	2.0
2L41C	23.2	31.1	85		2600	43.5	6.3	2.9	88	65	1800	43.0	4.3	2.0
2L41C	22.9	30.7	86		2550	43.5	6.2	2.8	88	65	1500	43.0	3.6	1.6
2L41C	22.5	30.2	86		2500	43.5	6.1	2.8	87	64	1500	43.5	3.6	1.6
2L41C	22.2	29.7	87		2450	43.5	5.9	2.7	88	65	1500	43.5	3.6	1.7
2L41C	21.8	29.2	87		2400	43.5	5.8	2.6	87	64	1500	43.0	3.6	1.6
2L41C	21.3	28.5	87		2350	43.5	5.7	2.6	89	66	1500	44.0	3.7	1.7
2L41C	23.5	31.5	98		2300	49.0	6.3	2.9	98	72	2300	49.0	6.3	2.9
2L41C	23.1	31.0	98		2250	49.0	6.1	2.8	98	72	2250	49.0	6.1	2.8
2L41C	22.6	30.3	98		2200	49.0	6.0	2.7	98	72	2200	49.0	6.0	2.7
2L41C	22.2	29.7	99		2150	49.0	5.9	2.7	99	73	2150	49.0	5.9	2.7
2L41C	21.8	29.2	99		2100	49.0	5.7	2.6	99	73	2100	49.0	5.7	2.6
2L41C	21.3	28.5	99		2050	49.0	5.6	2.5	99	73	2050	49.0	5.6	2.5
2L41C	20.9	28.0	100		2000	49.0	5.5	2.5	100	74	2000	49.0	5.5	2.5
2L41C	20.4	27.3	100		1950	48.0	5.2	2.4	100	74	1950	48.0	5.2	2.4
2L41C	19.8	26.5	100		1900	48.0	5.1	2.3	100	74	1900	48.0	5.1	2.3
2L41C	19.3	25.9	100		1850	48.0	5.0	2.2	100	74	1850	48.0	5.0	2.2
2L41C	18.7	25.1	99		1800	48.0	4.8	2.2	99	73	1800	48.0	4.8	2.2

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**CONSTANT SPEED**  
**4HZZXL3.43C41**

ENGINE MODEL	RATED POWER		TORQUE [Nm]	ENGINE SPEED [rpm]	FUEL RATE		TORQUE		TORQUE SP [rpm]	FUEL RATE AT MAX. TORQUE			
	[kW]	[hp]			[kg/h]	[lbs/hr]	[Nm]	[lbft]		[mm <sup>3</sup> /h]	[lbs/hr]	[kg/h]	
3M41	36.9	49.4	141	2500	46.0	6.4	2.9	148	109	1500	44.5	3.7	1.7
3M41	36.4	48.8	142	2450	46.0	6.3	2.9	148	109	1500	44.5	3.7	1.7
3M41	36.0	48.2	143	2400	46.0	6.2	2.8	147	108	1500	44.0	3.7	1.7
3M41	35.2	47.2	143	2350	46.0	6.0	2.7	147	108	1500	44.0	3.7	1.7
3M41	36.7	49.2	163	2150	51.0	6.1	2.8	163	120	2150	51.0	6.1	2.8
3M41	36.0	48.2	164	2100	51.0	6.0	2.7	164	121	2100	51.0	6.0	2.7
3M41	35.2	47.2	164	2050	51.0	5.8	2.6	164	121	2050	51.0	5.8	2.6
3M41	34.5	46.2	165	2000	51.0	5.7	2.6	165	122	2000	51.0	5.7	2.6
3M41	33.7	45.2	165	1950	49.0	5.3	2.4	165	122	1950	49.0	5.3	2.4
3M41	32.8	44.0	165	1900	49.0	5.2	2.4	165	122	1900	49.0	5.2	2.4
3M41	32.0	42.9	165	1850	49.0	5.1	2.3	165	122	1850	49.0	5.1	2.3
3M41	31.1	41.7	165	1800	49.0	4.9	2.2	165	122	1800	49.0	4.9	2.2

**CONSTANT SPEED**  
**4HZZXL3.43C41**

ENGINE MODEL	RATED POWER		TORQUE [Nm]	ENGINE SPEED [rpm]	FUEL RATE		TORQUE		TORQUE SP [rpm]	FUEL RATE AT MAX. TORQUE			
	[kW]	[hp]			[kg/h]	[lbs/hr]	[Nm]	[lbft]		[mm <sup>3</sup> /h]	[lbs/hr]	[kg/h]	
2L41C	22.0	29.5	70	3000	38.5	6.4	2.9	85	63	1800	41.0	4.1	1.9
2L41C	21.8	29.2	71	2950	38.5	6.3	2.9	85	63	1800	41.0	4.1	1.9
2L41C	21.7	29.1	71	2900	38.5	6.2	2.8	85	63	1800	41.0	4.1	1.9
2L41C	21.6	28.9	72	2850	38.5	6.1	2.8	80	59	1800	38.0	3.8	1.7
2L41C	21.5	28.8	73	2800	38.5	6.0	2.7	80	59	1800	38.0	3.8	1.7
2L41C	21.3	28.5	74	2750	38.5	5.9	2.7	82	60	1800	38.0	3.9	1.8
2L41C	21.2	28.4	75	2700	38.5	5.8	2.6	82	60	1800	38.0	3.9	1.8
2L41C	21.0	28.1	76	2650	38.5	5.7	2.6	83	61	1800	38.0	3.9	1.8
2L41C	20.9	28.0	77	2600	39.0	5.7	2.6	83	61	1800	40.0	4.0	1.8
2L41C	20.6	27.6	77	2550	39.0	5.5	2.5	81	60	1500	40.0	3.3	1.5
2L41C	20.3	27.2	78	2500	39.0	5.4	2.5	81	60	1500	40.0	3.3	1.5
2L41C	19.9	26.7	78	2450	39.0	5.3	2.4	81	60	1500	40.0	3.3	1.5
2L41C	19.6	26.3	78	2400	39.0	5.2	2.4	81	60	1500	40.0	3.3	1.5
2L41C	19.2	25.7	78	2350	39.0	5.1	2.3	81	60	1500	40.0	3.3	1.5
2L41C	21.2	28.4	88	2300	44.0	5.6	2.6	88	65	1500	43.5	3.6	1.7

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ENGINE MOD	RATED POWER		TORQUE		ENGINE SPEED		CONSTANT SPEED		TORQUE		TORQUE SP		FUEL RATE AT MAX TORQUE	
	[kW]	[hp]	[Nm]	[lb-ft]	[rpm]	[mm <sup>3</sup> /H]	[lbs/hr]	[kg/h]	[Nm]	[lb-ft]	[rpm]	[mm <sup>3</sup> /H]	[lbs/hr]	[kg/h]
3M41Z	36.4	48.8	138	101	2550	45.0	6.4	2.9	142	105	1500	43.5	3.6	1.7
3M41Z	36.2	48.5	138	101	2500	46.0	6.4	2.9	146	108	1500	44.5	3.7	1.7
3M41Z	35.7	47.8	139	102	2450	46.0	6.3	2.9	146	108	1500	44.5	3.7	1.7
3M41Z	35.3	47.3	140	103	2400	46.0	6.2	2.8	145	107	1500	44.0	3.7	1.7
3M41Z	34.5	46.2	140	103	2350	46.0	6.0	2.7	145	107	1500	44.0	3.7	1.7
3M41Z	36.7	49.2	159	117	2200	51.0	6.3	2.8	159	117	2200	51.0	6.3	2.8
3M41Z	36.0	48.2	160	118	2150	51.0	6.1	2.8	160	118	2150	51.0	6.1	2.8
3M41Z	35.3	47.3	161	119	2100	51.0	6.0	2.7	161	119	2100	51.0	6.0	2.7
3M41Z	34.5	46.2	161	119	2050	51.0	5.8	2.6	161	119	2050	51.0	5.8	2.6
3M41Z	33.8	45.3	161	119	2000	51.0	5.7	2.6	161	119	2000	51.0	5.7	2.6
3M41Z	33.0	44.2	162	119	1950	49.0	5.3	2.4	162	119	1950	49.0	5.3	2.4
3M41Z	32.1	43.0	161	119	1900	49.0	5.2	2.4	161	119	1900	49.0	5.2	2.4
3M41Z	31.7	42.5	164	121	1850	49.0	5.1	2.3	164	121	1850	49.0	5.1	2.3
3M41Z	30.7	41.1	163	120	1800	49.0	4.9	2.2	163	120	1800	49.0	4.9	2.2

ENGINE MOD	RATED POWER		TORQUE		ENGINE SPEED		CONSTANT SPEED		TORQUE		TORQUE SP		FUEL RATE AT MAX TORQUE	
	[kW]	[hp]	[Nm]	[lb-ft]	[rpm]	[mm <sup>3</sup> /H]	[lbs/hr]	[kg/h]	[Nm]	[lb-ft]	[rpm]	[mm <sup>3</sup> /H]	[lbs/hr]	[kg/h]
3M41	35.8	48.0	114	84	3000	40.0	6.7	3.0	133	98	1500	40.5	3.4	1.5
3M41	35.6	47.7	115	85	2950	40.0	6.6	3.0	133	98	1500	40.5	3.4	1.5
3M41	35.4	47.4	117	86	2900	40.0	6.5	2.9	132	97	1500	40.0	3.3	1.5
3M41	35.2	47.2	118	87	2850	40.0	6.4	2.9	132	97	1500	40.0	3.3	1.5
3M41	35.0	46.9	119	88	2800	40.0	6.2	2.8	132	97	1500	40.0	3.3	1.5
3M41	34.7	46.5	120	89	2750	40.5	6.2	2.8	132	97	1500	40.0	3.3	1.5
3M41	34.5	46.2	122	90	2700	40.5	6.1	2.8	132	97	1500	40.0	3.3	1.5
3M41	34.3	46.0	124	91	2650	40.5	6.0	2.7	132	97	1500	40.0	3.3	1.5
3M41	34.0	45.6	125	92	2600	40.5	5.9	2.7	132	97	1500	40.0	3.3	1.5
3M41	33.6	45.0	126	93	2550	40.5	5.8	2.6	132	97	1500	40.0	3.3	1.5
3M41	33.2	44.5	127	94	2500	41.0	5.7	2.6	132	97	1500	40.0	3.3	1.5
3M41	32.8	44.0	128	95	2450	41.0	5.6	2.5	132	97	1500	40.0	3.3	1.5
3M41	32.4	43.4	129	96	2400	41.0	5.5	2.5	132	97	1500	40.0	3.3	1.5
3M41	31.7	42.5	129	95	2350	41.0	5.4	2.4	132	97	1500	40.0	3.3	1.5
3M41	35.0	46.9	145	107	2300	47.0	6.0	2.7	153	113	1500	46.5	3.9	1.8

(CONSTANT SPEED)  
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**CONSTANT SPEED**  
**4HZXL3.43C41**

ENGINE MOD	RATED POWER		TORQUE [Nm]	ENGINE SPEED [rpm]	[mm**3/H]	FUEL RATE		TORQUE		TORQUE SP		FUEL RATE AT MAX TORQUE	
	[kW]	[hp]				[l/hr]	[kg/h]	[Nm]	[lbf]	[rpm]	[mm**3/H]	[l/hr]	[kg/h]
3M41Z	35.0	46.9	111	3000	40.0	6.7	3.0	131	97	1500	40.5	3.4	1.5
3M41Z	34.8	46.6	113	2950	40.0	6.6	3.0	131	97	1500	40.5	3.4	1.5
3M41Z	34.6	46.4	114	2900	40.0	6.5	2.9	130	96	1500	40.0	3.3	1.5
3M41Z	34.4	46.1	115	2850	40.0	6.4	2.9	130	96	1500	40.0	3.3	1.5
3M41Z	34.2	45.8	117	2800	40.0	6.2	2.8	130	96	1500	40.0	3.3	1.5
3M41Z	33.9	45.4	118	2750	40.5	6.2	2.8	130	96	1500	40.0	3.3	1.5
3M41Z	33.7	45.2	119	2700	40.5	6.1	2.8	130	96	1500	40.0	3.3	1.5
3M41Z	33.5	44.9	121	2650	40.5	6.0	2.7	130	96	1500	40.0	3.3	1.5
3M41Z	33.2	44.5	122	2600	40.5	5.9	2.7	130	96	1500	40.0	3.3	1.5
3M41Z	32.8	44.0	123	2550	40.5	5.8	2.6	130	96	1500	40.0	3.3	1.5
3M41Z	32.5	43.6	124	2500	41.0	5.7	2.6	130	96	1500	40.0	3.3	1.5
3M41Z	32.1	43.0	125	2450	41.0	5.6	2.5	130	96	1500	40.0	3.3	1.5
3M41Z	31.7	42.5	126	2400	41.0	5.5	2.5	130	96	1500	40.0	3.3	1.5
3M41Z	31.0	41.5	126	2350	41.0	5.4	2.4	137	101	1500	42.5	3.6	1.6
3M41Z	34.3	46.0	142	2300	47.0	6.0	2.7	151	111	1500	46.5	3.9	1.8

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CONSTANT SPEED  
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ENGINE MOD	RATED POWER		TORQUE		ENGINE SPEED		FUEL RATE		TORQUE		TORQUE SP		FUEL RATE AT MAX. TORQUE	
	[kW]	[hp]	[Nm]	[lbf]	[rpm]	[mm <sup>3</sup> /H]	[lbs/hr]	[kg/h]	[Nm]	[lbf]	[rpm]	[mm <sup>3</sup> /H]	[lbs/hr]	[kg/h]
3L41C	36.7	49.2	111		3150	42.5	7.5	3.4	132	97	1800	43.0	4.3	2.0
3L41C	36.7	49.2	117		3000	42.5	7.1	3.2	132	97	1800	43.0	4.3	2.0
3L41C	36.5	48.9	118		2950	42.5	7.0	3.2	132	97	1800	43.0	4.3	2.0
3L41C	36.3	48.6	120		2900	42.5	6.9	3.1	132	97	1800	43.0	4.3	2.0
3L41C	36.2	48.5	121		2850	42.5	6.8	3.1	129	95	1800	42.0	4.2	1.9
3L41C	36.0	48.2	123		2800	42.5	6.6	3.0	129	95	1800	42.0	4.2	1.9
3L41C	35.8	48.0	124		2750	43.0	6.6	3.0	133	98	1500	43.0	3.6	1.6
3L41C	35.6	47.7	126		2700	43.0	6.5	2.9	132	97	1800	43.0	4.3	2.0
3L41C	35.4	47.4	128		2650	43.0	6.4	2.9	132	97	1800	43.0	4.3	2.0
3L41C	35.2	47.2	129		2600	43.5	6.3	2.9	132	97	1800	43.0	4.3	2.0
3L41C	34.7	46.5	130		2550	43.5	6.2	2.8	133	98	1500	43.0	3.6	1.6
3L41C	34.2	45.8	131		2500	43.5	6.1	2.8	133	98	1500	43.0	3.6	1.6
3L41C	33.7	45.2	131		2450	43.5	5.9	2.7	133	98	1500	43.0	3.6	1.6
3L41C	33.3	44.6	132		2400	43.5	5.8	2.6	135	100	1500	43.5	3.6	1.7
3L41C	32.5	43.6	132		2350	43.5	5.7	2.6	150	111	1500	47.0	3.9	1.8
3L41C	35.9	48.1	149		2300	49.0	6.3	2.9	149	110	2300	49.0	6.3	2.9
3L41C	35.1	47.0	149		2250	49.0	6.1	2.8	149	110	2250	49.0	6.1	2.8
3L41C	34.3	46.0	149		2200	49.0	6.0	2.7	149	110	2200	49.0	6.0	2.7
3L41C	33.6	45.0	149		2150	49.0	5.9	2.7	149	110	2150	49.0	5.9	2.7
3L41C	32.8	44.0	149		2100	49.0	5.7	2.6	149	110	2100	49.0	5.7	2.6
3L41C	32.0	42.9	149		2050	49.0	5.6	2.5	149	110	2050	49.0	5.6	2.5
3L41C	31.2	41.8	149		2000	49.0	5.5	2.5	149	110	2000	49.0	5.5	2.5
3L41C	30.4	40.7	149		1950	48.0	5.2	2.4	149	110	1950	48.0	5.2	2.4
3L41C	29.6	39.7	149		1900	48.0	5.1	2.3	149	110	1900	48.0	5.1	2.3
3L41C	28.8	38.6	149		1850	48.0	5.0	2.2	149	110	1850	48.0	5.0	2.2
3L41C	28.0	37.5	149		1800	48.0	4.8	2.2	149	110	1800	48.0	4.8	2.2

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CONSTANT SPEED  
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ENGINE MOD	RATED POWER		TORQUE [Nm]	ENGINE SPEED [rpm]	[mm <sup>3</sup> /H]	FUEL RATE		TORQUE [Nm]	TORQUE [lbf]	TORQUE SP [rpm]	FUEL RATE AT MAX. TORQUE		
	[kW]	[hp]				[lbs/hr]	[kg/h]				[mm <sup>3</sup> /H]	[lbs/hr]	[kg/h]
3L41C	33.0	44.2	105	3000	38.5	6.4	2.9	127	94	1800	41.0	4.1	1.9
3L41C	32.9	44.1	106	2950	38.5	6.3	2.9	127	94	1800	41.0	4.1	1.9
3L41C	32.7	43.8	108	2900	38.5	6.2	2.8	127	94	1900	41.0	4.1	1.9
3L41C	32.5	43.6	109	2850	38.5	6.1	2.8	119	88	1800	38.0	3.8	1.7
3L41C	32.4	43.4	110	2800	38.5	6.0	2.7	119	88	1800	38.0	3.8	1.7
3L41C	32.2	43.1	112	2750	38.5	5.9	2.7	122	90	1800	39.0	3.9	1.8
3L41C	32.0	42.9	113	2700	38.5	5.8	2.6	122	90	1800	39.0	3.9	1.8
3L41C	31.9	42.7	115	2650	38.5	5.7	2.6	122	90	1800	39.0	3.9	1.8
3L41C	31.7	42.5	116	2600	39.0	5.7	2.6	124	91	1800	40.0	4.0	1.8
3L41C	31.2	41.8	117	2550	39.0	5.5	2.5	124	91	1500	40.0	3.3	1.5
3L41C	30.8	41.3	118	2500	39.0	5.4	2.5	124	91	1500	40.0	3.3	1.5
3L41C	30.4	40.7	118	2450	39.0	5.3	2.4	124	91	1500	40.0	3.3	1.5
3L41C	29.9	40.1	119	2400	39.0	5.2	2.4	124	91	1500	40.0	3.3	1.5
3L41C	29.3	39.3	119	2350	39.0	5.1	2.3	120	88	1500	37.5	3.1	1.4
3L41C	32.3	43.3	134	2300	44.0	5.6	2.6	134	99	2300	44.0	5.6	2.6