State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-13-19

Relating to Certification of New Heavy-Duty Off-Road Equipment Engines

DEUTZ AG

Pursuant to the authority vested in the Air Resources Board by Sections 43000.5, 43013 and 43018 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 Deutz AG 1999 model-year engine, with rated power between 175 and 750 horsepower, and exhaust emission control systems are certified as described below for use in heavy-duty off-road equipment:

Typical Equipment Usage: Genset and Other Industrial Equipment

Fuel Type: Diesel

Engine Family	Liters (Cubic Inches)	Exhaust Emission Control Systems and Special Features
XDZXL07.1005	7.15/4.76 (438/292)	Turbocharger Smoke Puff Limiter

Engine models and codes are listed on attachments. Production engines shall be in all material respects the same as those for which certification is granted.

The total hydrocarbons (THC), carbon monoxide (CO), nitrogen oxides (NOx), and particulate matter (PM) certification exhaust emission standards, in grams per brake horsepower-hour (g/bhp-hr), and the opacity of smoke emission standards, in percent (%), during acceleration (Accel), lugging (Lug), and peak (Peak) modes, for this engine family are (Title 13, California Code of Regulations, Section 2423):

Exhaust Emissions (g/bhp-hr)				Smoke Opacity (%)		
THC	CO	NOx	PM	Accel	Lug	Peak
1.0	8.5	6.9	0.4	20	15	50

The THC, CO, NOx and PM exhaust emission certification values, in g/bhp-hr, and the opacity of smoke emission certification values, in percent (%), for this engine family are:

Exhaust Emissions (g/bhp-hr)				Smoke Opacity (%)		
THC	CO	NOx	PM	Accel	Lug	Peak
0.3	0.8	6.3	0.1	6	4	10

BE IT FURTHER RESOLVED: That the listed engine models comply with the "Exhaust Emission Standards and Test Procedures--Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2423) for the aforementioned model year.

BE IT FURTHER RESOLVED: That the listed engine models also comply with the "Emission Control Labels--1996 and Later Heavy-Duty Off-Road Diesel Cycle Engines" (Title 13, California Code of Regulations, Section 2424) for the aforementioned model year.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the materials to demonstrate certification compliance with the Board's emission control system warranty provisions (Title 13, California Code of Regulations, Section 2425 et seq.).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

Executed at El Monte, California this 3rd day of March 1999.

R. B. Summerfield, Chief
Mobile Source Operations Division

List of emission related components

Engine type	Displacement	Engine code	Nominal Power ± 5%	Nominal Power ± 5%	Nominal speed ± 50 rpm	Mean effective presuure	Injection rate at nom. speed, ±4mm³	Peak torque ± 5%	Mean effective pressure at peak torque	Injection rate at peak torque ±6mm³	Speed at peak torque ± 100 rpm	Low idle (+ 400rpm, dep. on engine applic.)	High idle (+300 rpm, dep. on engine applic.)	Fuel injection pump	Fuel injection nozzle	Camshaft	Injection timing (±1°)	Speed governor	Speed governor, optionally	Smoke limiter, part of speed governor, -5mm³	Turbocharger
	cm³		HP	kW	rpm	bar	mm³/ stroke	Nm	bar	mm³/ stroke	rpm	rpm	rpm	part numb.	part numb.	draw. numb.	°btdc	draw. numb.		mm³/ stroke - rpm	part numb.
BF6M1013E	7146	C141/1	189	141	2500	9.47	87	632	11.12	93.0	1500	700	2600	02111335KZ	04251111KZ	04201253UA	7	02111252UA		81-800	S2B155L
BF6M1013E	7146	C138	185	138	2500	9.27	87	632	11.12	93.0	1500	700	2600	02111335KZ	04251111KZ	04201253UA	7	02111252UA		81-800	S2B155L
BF6M1013E	7146	C145/1	194	145	2400	10.15	91	667	11.73	99.0	1500	700	2500	02111335KZ	04251111KZ	04201253UA	7	02111252UA		83-800	S2B155L
BF6M1013E	7146	C145	194	145	2300	10.59	94	702	12.35	104.0	1400	700	2400	02111335KZ	04251110KZ	04201253UA	6	02111252UA		85-800	S2BS102L
BF6M1013E	7146	C137	184	137	2300	10.00	89	667	11.73	97.0	1400	700	2400	02111335KZ	04251110KZ	04201253UA	6	02111252UA		83-800	S2BS102L
BF6M1013E	7146	C130	174	130	2300	9.49	85	632	11.12	92.0	1400	700	2400	02111335KZ	04251110KZ	04201253UA	6	02111252UA		81-800	S2BS102L
BF6M1013E	7146	C123	165	123	2300	8.98	81	598	10.52	87.0	1400	700	2400	02111335KZ	04251110KZ	04201253UA	6	02111252UA		79-800	S2BS102L
BF6M1013E	7146	C139	186	139	2200	10.61	93	702	12.35	104.0	1400	700	2300	02111335KZ	04251110KZ	04201253UA	6	02111252UA		85-800	S2BS102L
BF6M1013E	7146	C132	177	132	2200	10.08	89	667	11.73	97.0	1400	700	2300	02111335KZ	04251110KZ	04201253UA	6	02111252UA		83-800	S2BS102L
BF6M1013E	7146	C129	173	129	2200	9.85	87	667	11.73	97.0	1400	700	2300	02111335KZ	04251110KZ	04201253UA	6	02111252UA		83-800	S2BS102L
BF6M1013E	7146	C125	168	125	2200	9.54	84	632	11.12	92.0	1400	700	2300	02111335KZ	04251110KZ	04201253UA	6	02111252UA		81-800	S2BS102L
BF6M1013E	7146	C119	159	119	2200	9.08	80	598	10.52	87.0	1400	700	2300	02111335KZ	04251110KZ	04201253UA	6	02111252UA		79-800	S2BS102L
BF6M1013E	7146	C134	180	134	2100	10.72	93	702	12.35	104.0	1400	700	2180	02111335KZ	04251110KZ	04201253UA	6	02111252UA		85-800	S2BS102L
BF6M1013E	7146	C128	172	128	2100	10.24	89	667	11.73	97.0	1400	700	2180	02111335KZ	04251110KZ	04201253UA	6	02111252UA		83-800	S2BS102L
BF6M1013E	7146	C121	162	121	2100	9.68	84	632	11.12	92.0	1400	700	2180	02111335KZ	04251110KZ	04201253UA	6	02111252UA		81-800	S2BS102L
BF6M1013E	7146	C115	154	115	2100	9.20	79	598	10.52	87.0	1400	700	2180	02111335KZ	04251110KZ	04201253UA	6	02111252UA		79-800	S2BS102L
BF6M1013E	7146	C129/2	173	129	2000	10.83	92	702	12.35	104.0	1400	700	2080	02111335KZ	04251110KZ	04201253UA	6	02111252UA		83-800	S2BS102L
BF6M1013E	7146	C122	163	122	2000	10.24	87	667	11.73	97.0	1400	700	2080	02111335KZ	04251110KZ	04201253UA	6	02111252UA		83-800	S2BS102L
BF6M1013E	7146	C116	155	116	2000	9.74	83	632	11.12	92.0	1400	700	2080	02111335KZ	04251110KZ	04201253UA	6	02111252UA		81-800	S2BS102L
BF6M1013E	7146	C110	147	110	2000	9.24	79	598	10.52	87.0	1400	700	2080	02111335KZ	04251110KZ	04201253UA	6	02111252UA		79-800	S2BS102L
BF6M1013E	7146	D145	194	145	2400	10.15	91	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251110KZ	04201253UA	7	02111252UA		n.a.	S2B155L
BF6M1013E	7146	D141	189	141	2400	9.87	89	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251110KZ	04201253UA	7	02111252UA		n.a.	S2B155L
BF6M1013E	7146	D128	172	128	2400	8.96	81	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251110KZ	04201253UA	7	02111252UA		n.a.	S2B155L
BF6M1013E	7146	D135	181	135	2000	11.34	97	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251110KZ	04201253UA	6	02111252UA		n.a.	S2BS102L
BF6M1013E	7146	D123	165	123	2000	10.33	89	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251110KZ	04201253UA	6	02111252UA		n.a.	S2BS102L
BF6M1013E	7146	D130	174	130	1846	11.83	101	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251110KZ	04201253UA	6	02111252UA		n.a.	S2B148K
BF6M1013E	7146	D118	158	118	1846	10.73	91	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251110KZ	04201253UA	6	02111252UA		n.a.	S2B148K
BF6M1013E	7146	D134	180	134	1800	12.50	106	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251110KZ	04201253UA	5	02111252UA		n.a.	S2B148K
BF6M1013E	7146	D128/1	172	128	1800	11.94	102	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251110KZ	04201253UA	5	02111252UA		n.a.	S2B148K
BF6M1013E	7146	D122	163	122	1800	11.38	97	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251110KZ	04201253UA	5	02111252UA		n.a.	S2B148K
BF6M1013E	7146	D120	161	120	1800	11.20	95	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251110KZ	04201253UA	5	02111252UA		n.a.	S2B148K
BF6M1013E	7146	D114	153	114	1800	10.64	90	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251110KZ	04201253UA	5	02111252UA		n.a.	S2B148K
BF6M1013E	7146	D109	146	109	1800	10.17	86	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251110KZ	04201253UA	5	02111252UA		n.a.	S2B148K

List of emission related components

Engine type	Displacement	Engine code	Nominal Power ± 5%	Nominal Power ± 5%	Nominal speed ± 50 rpm	Mean effective presuure	Injection rate at nom. speed, ±4mm³	Peak torque ± 5%	Mean effective pressure at peak torque	Injection rate at peak torque ±6mm³	Speed at peak torque ± 100 rpm	Low idle (+ 400rpm, dep. on engine applic.)	High idle (+300 rpm, dep. on engine applic.)	Fuel injection pump	Fuel injection nozzle	Camshaft	Injection timing (±1°)	Speed governor	Speed governor, optionally	Smoke limiter, part of speed governor, - 5mm³	Turbocharger
	cm³		HP	kW	rpm	bar	mm³/ stroke	Nm	bar	mm³/ stroke	rpm	rpm	rpm	part numb.	part numb.	draw numb.	°btdc	draw. numb.		mm³/ stroke - rpm	part numb.
BF4M1013E	4764	C90	121	90	2300	9.86	90	442	11.66	102.0	1400	700	2400	02111335KZ	04251114KZ	04202094UA	6	02111252UA		83-800	S2A157C
BF4M1013E	4764	C86	115	86	2300	9.42	86	422	11.13	97.0	1400	700	2400	02111335KZ	04251114KZ	04202094UA	6	02111252UA		81-800	S2A157C
BF4M1013E	4764	C81	109	81	2300	8.87	81	398	10.50	91.0	1400	700	2400	02111335KZ	04251114KZ	04202094UA	6	02111252UA		79-800	S2A157C
BF4M1013E	4764	C88	118	88	2200	10.08	91	442	11.66	102.0	1400	700	2300	02111335KZ	04251114KZ	04202094UA	6	02111252UA		83-800	S2A157C
BF4M1013E	4764	C83	111	83	2200	9.50	86	422	11.13	97.0	1400	700	2300	02111335KZ	04251114KZ	04202094UA	6	02111252UA		81-800	S2A157C
BF4M1013E	4764	C79	106	79	2200	9.05	82	398	10.50	91.0	1400	700	2300	02111335KZ	04251114KZ	04202094UA	6	02111252UA		79-800	S2A157C
BF4M1013E	4764	C85	114	85	2100	10.20	90	442	11.66	102.0	1400	700	2180	02111335KZ	04251114KZ	04202094UA	6	02111252UA		83-800	S2A157C
BF4M1013E	4764	C81/1	109	81	2100	9.72	87	422	11.13	97.0	1400	700	2180	02111335KZ	04251114KZ	04202094UA	6	02111252UA		81-800	S2A157C
BF4M1013E	4764	C76	102	76	2100	9.12	80	398	10.50	91.0	1400	700	2180	02111335KZ	04251114KZ	04202094UA	6	02111252UA		79-800	S2A157C
BF4M1013E	4764	C82	110	82	2000	10.33	91	442	11.66	102.0	1400	700	2080	02111335KZ	04251114KZ	04202094UA	6	02111252UA		83-800	S2A157C
BF4M1013E	4764	C78	105	78	2000	9.82	86	422	11.13	97.0	1400	700	2080	02111335KZ	04251114KZ	04202094UA	6	02111252UA		81-800	S2A157C
BF4M1013E	4764	C76/2	102	76	2000	9.57	84	398	10.50	91.0	1400	700	2080	02111335KZ	04251114KZ	04202094UA	6	02111252UA		81-800	S2A157C
BF4M1013E	4764	C74	99	74	2000	9.32	82	398	10.50	91.0	1400	700	2080	02111335KZ	04251114KZ	04202094UA	6	02111252UA		79-800	S2A157C
BF4M1013E	4764	D95	127	95	2400	9.97	90	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251114KZ	04202094UA	7	02111252UA		n.a.	S2A153E
BF4M1013E	4764	D86	115	86	2400	9.03	81	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251114KZ	04202094UA	7	02111252UA		n.a.	S2A153E
BF4M1013E	4764	D90	121	90	2000	11.34	97	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251114KZ	04202094UA	6	02111252UA		n.a.	S2A157C
BF4M1013E	4764	D82	110	82	2000	10.33	89	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251114KZ	04202094UA	6	02111252UA		n.a.	S2A157C
BF4M1013E	4764	D86/1	115	86	1846	11.73	100	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251114KZ	04202094UA	6	02111252UA		n.a.	S2A159B
BF4M1013E	4764	D78	105	78	1846	10.64	90	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251114KZ	04202094UA	6	02111252UA		n.a.	S2A159B
BF4M1013E	4764	D89	119	89	1800	12.45	106	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251114KZ	04202094UA	5	02111252UA		n.a.	S2A159B
BF4M1013E	4764	D85	114	85	1800	11.89	101	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251114KZ	04202094UA	5	02111252UA		n.a.	S2A159B
BF4M1013E	4764	D81	109	81	1800	11.34	96	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251114KZ	04202094UA	5	02111252UA		n.a.	S2A159B
BF4M1013E	4764	D79	106	79	1800	11.06	94	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251114KZ	04202094UA	5	02111252UA		n.a.	S2A159B
BF4M1013E	4764	D76	102	76	1800	10.64	90	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251114KZ	04202094UA	5	02111252UA		n.a.	S2A159B
BF4M1013E	4764	D72	96	72	1800	10.08	86	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	04251114KZ	04202094UA	5	02111252UA		n.a.	S2A159B
BF6M1013	7146	C141/2	189	141	2500	9.47	89	697	12.26	105.0	1400	700	2400	02111335KZ	02126998KZ	04251111KZ	7	02111252UA		85-800	S2B155L
BF6M1013	7146	C141	189	141	2300	10.29	94	697	12.26	104.0	1400	700	2400	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		85-800	S2BS102L
BF6M1013	7146	C133	178	133	2300	9.71	89	662	11.64	97.0	1400	700	2400	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		83-800	S2BS102L
BF6M1013	7146	C126	169	126	2300	9.20	85	627	11.03	92.0	1400	700	2400	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		81-800	S2BS102L
BF6M1013	7146	C119/1	159	119	2300	8.69	81	593	10.43	87.0	1400	700	2400	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		79-800	S2BS102L
BF6M1013	7146	C112/1	150	112	2300	8.18	76	560	9.85	81.0	1400	700	2400	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		79-800	S2BS102L
BF6M1013	7146	C100	134	100	2300	7.30	68	530	9.32	75.0	1400	700	2400	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		79-800	S2BS102L
BF6M1013	7146	C136	182	136	2200	10.38	93	697	12.26	104.0	1400	700	2300	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		85-800	S2BS102L

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List of emission related components

Engine type	Displacement	Engine code	Nominal Power ± 5%	Nominal Power ± 5%	Nominal speed ± 50 rpm	Mean effective presuure	Injection rate at nom. speed, ±4mm³	Peak torque ± 5%	Mean effective pressure at peak torque	Injection rate at peak torque ±6mm³	Speed at peak torque ± 100 rpm	Low idle (+ 400rpm, dep. on engine applic.)	High idle (+300 rpm, dep. on engine applic.)	Fuel injection pump	Fuel injection nozzle	Camshaft	Injection timing (±1°)	Speed governor	Speed governor, optionally	Smoke limiter, part of speed governor, -5mm³	Turbocharger
	cm³		HP	kW	rpm	bar	mm³/ stroke	Nm	bar	mm³/ stroke	rpm	rpm	rpm	part numb.	part numb.	draw. numb.	°btdc	draw. numb.		mm³/ stroke - rpm	part numb.
BF6M1013	7146	C129/1	173	129	2200	9.85	89	662	11.64	97.0	1400	700	2300	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		83-800	S2BS102L
BF6M1013	7146	C125/2	168	125	2200	9.54	87	662	11.64	97.0	1400	700	2300	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		83-800	S2BS102L
BF6M1013	7146	C122/1	163	122	2200	9.31	84	627	11.03	92.0	1400	700	2300	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		81-800	S2BS102L
BF6M1013	7146	C116/1	155	116	2200	8.85	80	593	10.43	87.0	1400	700	2300	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		79-800	S2BS102L
BF6M1013	7146	C131	176	131	2100	10.48	100	697	12.26	104.0	1400	700	2180	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		85-800	S2BS102L
BF6M1013	7146	C125/1	168	125	2100	10.00	94	662	11.64	97.0	1400	700	2180	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		83-800	S2BS102L
BF6M1013	7146	C118	158	118	2100	9.44	90	627	11.03	92.0	1400	700	2180	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		81-800	S2BS102L
BF6M1013	7146	C112	150	112	2100	8.96	85	593	10.43	87.0	1400	700	2180	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		79-800	S2BS102L
BF6M1013	7146	C104	139	104	2100	8.32	80	560	9.85	81.0	1400	700	2180	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		n.a.	S2BS102L
BF6M1013	7146	C126/1	169	126	2000	10.58	100	697	12.26	104.0	1400	700	2080	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		83-800	S2BS102L
BF6M1013	7146	C120	161	120	2000	10.08	93	662	11.64	97.0	1400	700	2080	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		83-800	S2BS102L
BF6M1013	7146	C114	153	114	2000	9.57	90	627	11.03	92.0	1400	700	2080	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		81-800	S2BS102L
BF6M1013	7146	C108	145	108	2000	9.07	84	593	10.43	87.0	1400	700	2080	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		79-800	S2BS102L
BF6M1013	7146	C115/1	154	115	1800	10.73	94	662	11.64	97.0	1400	700	2080	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		79-800	S2BS102L
BF6M1013	7146	D137	184	137	2400	9.59	89	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251110KZ	7	02111252UA		n.a.	S2B155L
BF6M1013	7146	D124	166	124	2400	8.68	81	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251110KZ	7	02111252UA		n.a.	S2B155L
BF6M1013	7146	D133	178	133	2000	11.17	97	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		n.a.	S2BS102L
BF6M1013	7146	D121	162	121	2000	10.16	89	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		n.a.	S2BS102L
BF6M1013	7146	D128/2	172	128	1846	11.64	101	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		n.a.	S2B148K
BF6M1013	7146	D117	157	117	1846	10.64	91	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		n.a.	S2B148K
BF6M1013	7146	D118/1	158	118	1800	11.01	95	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		n.a.	S2B148K
BF6M1013	7146	D112	150	112	1800	10.45	90	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		n.a.	S2B148K
BF6M1013	7146	D107	143	107	1800	9.98	86	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251110KZ	6	02111252UA		n.a.	S2B148K
BF4M1013	4764	C93	125	93	2300	10.19	95	464	12.24	108.0	1400	700	2400	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		85-800	S2A157C
BF4M1013	4764	C88/1	118	88	2300	9.64	90	438	11.56	102.0	1400	700	2400	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		83-800	S2A157C
BF4M1013	4764	C84	113	84	2300	9.20	86	418	11.03	97.0	1400	700	2400	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		81-800	S2A157C
BF4M1013	4764	C79/1	106	79	2300	8.65	78	394	10.40	91.0	1400	700	2400	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		79-800	S2A157C
BF4M1013	4764	C90/1	121	90	2200	10.30	95	464	12.24	108.0	1400	700	2300	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		85-800	S2A157C
BF4M1013	4764	C86/1	115	86	2200	9.85	91	438	11.56	102.0	1400	700	2300	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		83-800	S2A157C
BF4M1013	4764	C81/2	109	81	2200	9.27	86	418	11.03	97.0	1400	700	2300	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		81-800	S2A157C
BF4M1013	4764	C77	103	77	2200	8.82	82	394	10.40	91.0	1400	700	2300	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		79-800	S2A157C
BF4M1013	4764	C87	117	87	2100	10.44	94	464	12.24	108.0	1400	700	2180	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		85-800	S2A157C
BF4M1013	4764	C83/1	111	83	2100	9.96	90	438	11.56	102.0	1400	700	2180	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		83-800	S2A157C

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List of emission related components

Engine type	Displacement	Engine code	Nominal Power ± 5%	Nominal Power ± 5%	Nominal speed ± 50 rpm	Mean effective presuure	Injection rate at nom. speed, ±4mm³	Peak torque ± 5%	Mean effective pressure at peak torque	Injection rate at peak torque ±6mm³	Speed at peak torque ± 100 rpm	Low idle (+ 400rpm, dep. on engine applic.)	High idle (+300 rpm, dep. on engine applic.)	Fuel injection pump	Fuel injection nozzle	Camshaft	Injection timing (±1°)	Speed governor	Speed governor, optionally	Smoke limiter, part of speed governor, -5mm³	Turbocharger
	cm³		HP	kW	rpm	bar	mm³/ stroke	Nm	bar	mm³/ stroke	rpm	rpm	rpm	part numb.	part numb.	draw. numb.	°btdc	draw. numb.		mm³/ stroke - rpm	part numb.
BF4M1013	4764	C79/2	106	79	2100	9.48	86	418	11.03	97.0	1400	700	2180	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		81-800	S2A157C
BF4M1013	4764	C74/1	99	74	2100	8.88	80	394	10.40	91.0	1400	700	2180	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		79-800	S2A157C
BF4M1013	4764	C69	92	69	2100	8.28	76	370	9.76	86.0	1400	700	2180	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		79-800	S2A157C
BF4M1013	4764	C80	107	80	2000	10.08	91	438	11.56	102.0	1400	700	2080	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		83-800	S2A157C
BF4M1013	4764	C76/1	102	76	2000	9.57	86	418	11.03	97.0	1400	700	2080	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		81-800	S2A157C
BF4M1013	4764	C72	96	72	2000	9.07	82	394	10.40	91.0	1400	700	2080	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		79-800	S2A157C
BF4M1013	4764	D92	123	92	2400	9.66	90	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251114KZ	7	02111252UA		n.a.	S2A153E
BF4M1013	4764	D84	113	84	2400	8.82	81	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251114KZ	7	02111252UA		n.a.	S2A153E
BF4M1013	4764	D89/1	119	89	2000	11.21	97	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		n.a.	S2A157C
BF4M1013	4764	D80	107	80	2000	10.08	89	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		n.a.	S2A157C
BF4M1013	4764	D85/1	114	85	1846	11.60	100	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		n.a.	S2A159B
BF4M1013	4764	D77	103	77	1846	10.51	90	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251114KZ	6	02111252UA		n.a.	S2A159B
BF4M1013	4764	D78/1	105	78	1800	10.92	90	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251114KZ	5	02111252UA		n.a.	S2A159B
BF4M1013	4764	D75	101	75	1800	10.50	86	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251114KZ	5	02111252UA		n.a.	S2A159B
BF4M1013	4764	D71	95	71	1800	9.94	94	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	02111335KZ	02126998KZ	04251114KZ	5	02111252UA		n.a.	S2A159B

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