State of California
AIR RESOURCES BOARD

EXECUTIVE ORDER U-R-13-21

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, Compressor, Pump and Other Industrial Equipment

Fuel Type: Diesel

Engine Family	Liters (Cubic Inches)	Exhaust Emission Control Systems and Special Features
XDZXL15.9003	11.9/15.87 (730/974)	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	0.7	6.6	0.1	6	2	17

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

XDZXL15.9003

Engine type	Displacement	Engine code	Nominal power ±5%	Nominal power ±5%	Nominal speed ±50rpm	Mean effective pressure at nominal power	Injection rate at nominal power ±6mm³	Peak torque ±5%	Mean effective pressure at peak torque	Injection rate at peak torque ±6mm³	Speed at peak torque ± 100rpm	Low idle (+300 rpm, dep. on engine applic.)	High idle (+300 rpm, dep. on engine applic.)	Fuel injection pump	Fuel injection nozzle	Injection timing ±1°	Speed governor	Speed governor, optionally	Smoke limiter, part of speed governor - 10mm³	Turbocharger
	cm³		HP	kW	rpm	bar	mm³/ stroke	Nm	bar	mm³/ stroke	rpm	rpm	rpm	BOSCH TYPE	BOSCH TYPE	°btdc	BOSCH TYPE		mm³/ stroke - rpm	designation
BF6M1015	11906	C240/3	322	240	2100	11.52	285	1530	16.15	344	1200	550	2180	PE 6P 120A 320 LS 7904	DLLA 168 P 426	14	RQV300-1050PA1325		165-800	S3B138H
BF6M1015	11906	C231/3	310	231	2100	11.09	275	1473	15.55	331	1200	550	2180	PE 6P 120A 320 LS 7904	DLLA 168 P 426	14	RQV300-1050PA1325		165-800	S3B138H
BF6M1015	11906	C223/3	299	223	2100	10.70	265	1422	15.01	320	1200	550	2180	PE 6P 120A 320 LS 7904	DLLA 168 P 426	14	RQV300-1050PA1325		165-800	S3B138H
BF6M1015	11906	C214/3	287	214	2100	10.27	255	1364	14.40	307	1200	550	2180	PE 6P 120A 320 LS 7904	DLLA 168 P 426	14	RQV300-1050PA1325		165-800	S3B138H
BF6M1015	11906	C223/5	299	223	2000	11.24	269	1422	15.01	320	1200	550	2180	PE 6P 120A 320 LS 7904	DLLA 168 P 426	14	RQV300-1050PA1325		165-800	S3B138H
BF6M1015	11906	C240/4	322	240	1900	12.73	288	1530	16.15	344	1200	550	1970	PE 6P 120A 320 LS 7904	DLLA 168 P 426	14	RQV300-1000PAVB420033149		165-800	S3B138H
BF6M1015	11906	C231/4	310	231	1900	12.25	278	1473	15.55	331	1200	550	1970	PE 6P 120A 320 LS 7904	DLLA 168 P 426	14	RQV300-950 PAV		165-800	S3B138G
BF6M1015	11906	C223/4	299	223	1900	11.83	269	1422	15.01	320	1200	550	1970	PE 6P 120A 320 LS 7904	DLLA 168 P 426	14	RQV300-950 PAV		165-800	S3B138G
BF6M1015	11906	C214/4	287	214	1900	11.35	265	1364	14.40	307	1200	550	1970	PE 6P 120A 320 LS 7904	DLLA 168 P 426	14	RQV300-950 PAV		165-800	S3B138G
BF6M1015	11906	C228/1	306	228	1800	12.77	285	1468	15.50	330	1200	550	1870	PE 6P 120A 320 LS 7904	DLLA 168 P 426	14	RQV300-950 PAV		165-800	S3B138G
BF6M1015	11906	C220/1	295	220	1800	12.32	275	1417	14.96	319	1200	550	1870	PE 6P 120A 320 LS 7904	DLLA 168 P 426	14	RQV300-900 PAV		165-800	S3B138G
BF6M1015	11906	C211/1	283	211	1800	11.81	266	1359	14.35	306	1200	550	1870	PE 6P 120A 320 LS 7904	DLLA 168 P 426	14	RQV300-900 PAV		165-800	S3B138G
BF6M1015	11906	C209	280	209	1800	11.70	263	1359	14.35	306	1200	550	1870	PE 6P 120A 320 LS 7904	DLLA 168 P 426	14	RQV300-900 PAV		165-800	S3B138G
BF6M1015	11906	C203/1	272	203	1800	11.37	257	1307	13.80	294	1200	550	1870	PE 6P 120A 320 LS 7904	DLLA 168 P 426	14	RQV300-900 PAV		165-800	S3B138G
BF6M1015	11906	D240/1	322	240	2100	11.52	285	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	PE 6P 120A 320 LS 7904	DLLA 168 P 426	14	RQV300-900 PAV		165-800	S3B138G
BF6M1015	11906	D250/1	335	250	1800	14.00	309	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	PE 6P 120A 320 LS 7904	DLLA 168 P 426	12	RQV300-1050PA1325		n.a.	S3B138H
BF6M1015	11906	D228/1	306	228	1800	12.77	285	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	PE 6P 120A 320 LS 7904	DLLA 168 P 426	12	RQV900PAV		n.a.	S3B138G
BF6M1015	11906	D211/1	283	211	1800	11.81	266	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	PE 6P 120A 320 LS 7904	DLLA 168 P 426	12	RQV900PAV		n.a.	S3B138G
BF8M1015	15874	C290	389	290	2100	10.44	280	2040	16.15	340	1200	550	2180	PE 8P 120A 320 LS 7906	DLLA 168 P 426	12	RQV900PAV		n.a.	S3B138G
BF8M1015	15874	C280	375	280	2100	10.08	270	1964	15.55	327	1200	550	2180	PE 8P 120A 320 LS 7906	DLLA 168 P 426	12	RQV300-1050PA1325		165-800	S2B164M
BF8M1015	15874	C270	362	270	2100	9.72	260	1896	15.01	315	1200	550	2180	PE 8P 120A 320 LS 7906	DLLA 168 P 426	12	RQV300-1050PA1325		165-800	S2B164M
BF8M1015	15874	C260	348	260	2100	9.36	250	1819	14.40	302	1200	550	2180	PE 8P 120A 320 LS 7906	DLLA 168 P 426	12	RQV300-1050PA1325		165-800	S2B164M
BF8M1015	15874	C290/1	389	290	1900	11.54	280	2040	16.15	340	1200	550	1970	PE 8P 120A 320 LS 7906	DLLA 168 P 426	12	RQV300-1050PA1325		165-800	S2B164M
BF8M1015	15874	C280/1	375	280	1900	11.14	270	1964	15.55	327	1200	550	1970	PE 8P 120A 320 LS 7906	DLLA 168 P 426	12	RQV300-950 PAV		165-800	S2B164M
BF8M1015	15874	C270/1	362	270	1900	10.74	260	1896	15.01	315	1200	550	1970	PE 8P 120A 320 LS 7906	DLLA 168 P 426	12	RQV300-950 PAV		165-800	S2B164M
BF8M1015	15874	C260/1	348	260	1900	10.34	250	1819	14.40	302	1200	550	1970	PE 8P 120A 320 LS 7906	DLLA 168 P 426	12	RQV300-950 PAV		165-800	S2B164M
BF8M1015	15874	C276	370	276	1800	11.59	280	1960	15.52	326	1200	550	1870	PE 8P 120A 320 LS 7906	DLLA 168 P 426	12	RQV300-950 PAV		165-800	S2B164M
BF8M1015	15874	C265	355	265	1800	11.13	270	1890	14.97	315	1200	550	1870	PE 8P 120A 320 LS 7906	DLLA 168 P 426	12	RQV300-900 PAV		165-800	S2B164M
BF8M1015	15874	C255	342	255	1800	10.71	260	1812	14.35	301	1200	550	1870	PE 8P 120A 320 LS 7906	DLLA 168 P 426	12	RQV300-900 PAV		165-800	S2B164M
BF8M1015	15874	C246	330	246	1800	10.33	252	1743	13.80	289	1200	550	1870	PE 8P 120A 320 LS 7906	DLLA 168 P 426	12	RQV300-900 PAV		165-800	S2B164M
BF8M1015	15874	D255	342	255	1800	10.71	260	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	PE 8P 120A 320 LS 7906	DLLA 168 P 426	12	RQV900PAV		n.a.	S2B164M

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Engine type	Displacement	Engine code	Nominal power ±5%	Nominal power ±5%	Nominal speed ±50rpm	Mean effective pressure at nominal power	Injection rate at nominal power ±6mm³	Peak torque ±5%	Mean effective pressure at peak torque	Injection rate at peak torque ±6mm³	Speed at peak torque ± 100rpm	Low idle (+300 rpm, dep. on engine applic.)	High idle (+300 rpm, dep. on engine applic.)	Fuel injection pump	Fuel injection nozzle	Injection timing ±1°	Speed governor	Speed governor, optionally	Smoke limiter, part of speed governor - 10mm³	Turbocharger
	cm³		HP	kW	rpm	bar	mm³/ stroke	Nm	bar	mm³/ stroke	rpm	rpm	rpm	BOSCH TYPE	BOSCH TYPE	°btdc	BOSCH TYPE		mm³/ stroke - rpm	designation
BF8M1015	15874	D290	389	290	2100	10.44	280	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	PE 8P 120A 320 LS 7906	DLLA 168 P 426	12	RQV1050PAV		n.a.	S2B164M
BF8M1015	15874	D290/1	389	290	1800	12.18	290	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	PE 8P 120A 320 LS 7906	DLLA 168 P 426	12	RQV900PAV		n.a.	S2B164M

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