California Environmental Protection Agency AIR RESOURCES BOARD	DEUTZ AG	EXECUTIVE ORDER U-R-013-0044 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 engine 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)
2001	1DZXL02.9017	2.19, 2.91	Diesel	5000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Direct Diesel Injection	Loader, Compressor, Generator Set, Other Industrial Equipment

ENGINE MODELS (rated power in kilowatts, kw)	See Attachment (2 pages)

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
19≤KW<37	Tier 1	STD	N/A	N/A	9.5	5.5	0.80	20	15	50
		CERT	--	--	9.4	2.8	0.39	3	3	5

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 18TH day of June 2001.

FOR

R. B. Summerfield, Chief
Mobile Source Operations Division

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List of emission related components

1D. .02.9017

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%	Speed at peak torque ± 200 rpm	Mean effective pressure at peak torque	Injection rate at peak torque ±4mm³	Torque at 1000 rpm	Mean effective pressure at 1000 rpm	Injection rate at 1000 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
	cm³		HP	kW	rpm	bar	mm³/ stroke	Nm	rpm	bar	mm³/ stroke	Nm	bar	mm³/ stroke	rpm	rpm	description	description	draw. number	°btdc	description
F4M1011F	2914	C36,5	49	36.5	2800	5.4	39.5	140	1800	6.0	34.0				900	2920	PFE1A80S3010	DSLA144P547	04171964EA	7	04178095UA
F4M1011F	2914	C36,5/	49	36.5	2300	6.5	39.0	167	1800	7.2	40.5				900	2400	PFE1A90S3001	DSLA144P860	04271599EA	5	04178095UA
F4M1011F	2914	D32,9	44	32.9	1800	7.5	41.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04171964EA	5	04178095UA
F4M1011F	2914	D31,4	42	31.4	1800	7.2	41.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04171964EA	5	04178095UA
F4M1011F	2914	D31,3	42	31.3	1800	7.2	39.5	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04171964EA	5	04178095UA
F4M1011F	2914	D29,9	40	29.9	1800	6.8	39.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04171964EA	5	04178095UA
F4M1011F	2914	D28,5	38	28.5	1800	6.5	39.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04171964EA	5	04178095UA
F4L1011FL	2914	D32,5	44	32.5	1800	7.4	41.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04171964EA	5	04178095UA
F3M1011F	2185	C35,6	48	35.6	3000	6.5	43.0	130	1800	7.5	43.5				900	3120	PFE1A90S3001	DSLA144P860	04271599EA	6	04178095UA
F3M1011F	2185	C33,7	45	33.7	3000	6.2	41.0	124	1800	7.1	40.5				900	3120	PFE1A80S3010	DSLA144P547	04178277UB	7	04178095UA
F3M1011F	2185	C35,4	47	35.4	2900	6.7	44.0	130	1800	7.5	43.5				900	3120	PFE1A90S3001	DSLA144P860	04271599EA	6	04178095UA
F3M1011F	2185	C34,8	47	34.8	2900	6.6	43.0	130	1800	7.5	43.5				900	3120	PFE1A90S3001	DSLA144P860	04271599EA	6	04178095UA
F3M1011F	2185	C34	46	34.0	2800	6.7	41.0	130	1800	7.5	43.5				900	2920	PFE1A90S3001	DSLA144P860	04271599EA	6	04178095UA
F3M1011F	2185	C32,5	44	32.5	2800	6.4	41.0	124	1800	7.1	40.5				900	2920	PFE1A80S3010	DSLA144P547	04178277UB	7	04178095UA
F3M1011F	2185	C33,2	44	33.2	2700	6.8	41.0	130	1800	7.5	43.5				900	2810	PFE1A90S3001	DSLA144P860	04271599EA	6	04178095UA
F3M1011F	2185	C32,6	44	32.6	2650	6.8	42.0	130	1800	7.5	43.5				900	2710	PFE1A90S3001	DSLA144P860	04271599EA	6	04178095UA
F3M1011F	2185	C32,4	43	32.4	2600	6.8	42.0	140	1800	8.1	48.0				900	2710	PFE1A90S3001	DSLA144P860	04271599EA	6	04178095UA
F3M1011F	2185	C30,6	41	30.6	2600	6.5	41.0	124	1800	7.1	40.5				900	2710	PFE1A80S3010	DSLA144P547	04178277UB	7	04178095UA
F3M1011F	2185	C31,2	42	31.2	2500	6.9	42.0	130	1800	7.5	43.5				900	2600	PFE1A90S3001	DSLA144P860	04271599EA	5	04178095UA
F3M1011F	2185	C29,7	40	29.7	2500	6.5	40.0	124	1800	7.1	40.5				900	2600	PFE1A80S3010	DSLA144P547	04178277UB	7	04178095UA
F3M1011F	2185	C30,3	41	30.3	2400	6.9	41.5	130	1800	7.5	40.5				900	2600	PFE1A90S3001	DSLA144P860	04271599EA	5	04178095UA
F3M1011F	2185	C29,9	40	29.9	2400	6.8	41.0	130	1800	7.5	40.5				900	2600	PFE1A90S3001	DSLA144P860	04271599EA	5	04178095UA
F3M1011F	2185	C29,5	40	29.5	2300	7.0	42.0	130	1800	7.5	43.5				900	2400	PFE1A90S3001	DSLA144P860	04271599EA	5	04178095UA
F3M1011F	2185	C28	38	28.0	2300	6.7	40.0	124	1800	7.1	40.5				900	2400	PFE1A90S3001	DSLA144P860	04271599EA	5	04178095UA
F3M1011F	2185	D24,3	33	24.3	1800	7.4	42.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5	04178095UA
F3M1011F	2185	D23,1	31	23.1	1800	7.0	40.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5	04178095UA
F3M1011F	2185	D22,6	30	22.6	1800	6.9	40.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5	04178095UA
F3M1011F	2185	D22	29	22.0	1800	6.7	39.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5	04178095UA
F3M1011F	2185	D21,5	29	21.5	1800	6.6	39.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5	04178095UA

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List of emission related components

U-R-13-44

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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%	Speed at peak torque ± 200 rpm	Mean effective pressure at peak torque	Injection rate at peak torque ±4mm³	Torque at 1000 rpm	Mean effective pressure at 1000 rpm	Injection rate at 1000 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
	cm³		HP	kW	rpm	bar	mm³/ stroke	Nm	rpm	bar	mm³/ stroke	Nm	bar	mm³/ stroke	rpm	rpm	description	description	draw. number	°btdc	description
F3M1011F	2185	D20,9	28	20.9	1800	6.4	38.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5	04178095UA
F3M1011F	2185	D19	25	19.0	1800	5.8	36.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5	04178095UA