



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 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)
2002	2DZX1.02.7018	1.4, 2.0, 2.7	Diesel	3000, 5000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Direct Diesel Injection, Smoke Puff Limiter			Loader, Generator Set, Tractor, Compressor, Pump, 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
19<kw<37	Tier 1	STD	N/A	N/A	9.5	5.5	0.80	20	15	50
		CERT	-	-	9.4	2.7	0.34	1	2	4

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 28TH day of February 2002.

Allen Lyons, Chief
New Vehicle/Engine Programs Branch

Manufacturer: DEUTZ AG
 Engine category: Nonroad CI
 EPA Engine Family: 2DZXL02.7018

Engine Model and Part Number Summary Form

ED# U-E-013-0075
 Attachments 1 of 3

Engine code	Engine Model	BHP	BkW	Rated Power Engine Speed rpm	Injection rate at rated power $\pm 6mm^3$ stroke	Peak torque $\pm 5\%$ Nm	Speed at peak torque ± 200 rpm	Injection rate at peak torque $\pm 4mm^3$ stroke	Fuel injection pump description	Fuel injector description	Injection timing ($\pm 1^\circ$)
C36	F4L1011F	48	36.0	2400	36.5	153	1800	36	PFE1A90S3001	DSL A144P860	4.2
C36.5	F4L1011F	49	36.5	2300	37.5	161	1800	38.5	PFE1A90S3001	DSL A144P860	4.2
C35	F4L1011F	47	35.0	2300	36.0	153	1800	36	PFE1A90S3001	DSL A144P860	4.2
D31	F4L1011F	42	31.0	1900	40.0	n.a.	n.a.	n.a.	PFE1A80S3010	DSL A144P547	5.0
D29/1	F4L1011F	39	29.0	1850	37.0	n.a.	n.a.	n.a.	PFE1A80S3010	DSL A144P547	5.0
D30.5	F4L1011F	41	30.5	1800	40.0	n.a.	n.a.	n.a.	PFE1A80S3010	DSL A144P547	5.0
D29	F4L1011F	39	29.0	1800	38.0	n.a.	n.a.	n.a.	PFE1A80S3010	DSL A144P547	5.0
D27.5	F4L1011F	37	27.5	1800	36.0	n.a.	n.a.	n.a.	PFE1A80S3010	DSL A144P547	5.0
D25	F4L1011F	34	25.0	1800	36.0	n.a.	n.a.	n.a.	PFE1A80S3010	DSL A144P547	5.0
C33.8/2	F3L1011F	45	33.8	3000	40.0	121	1800	40	PFE1A90S3001	DSL A144P860	5.0
C33	F3L1011F	44	33.0	3000	39.5	121	1800	40	PFE1A90S3001	DSL A144P860	5.0
C31	F3L1011F	42	31.0	3000	37.5	116	1800	38	PFE1A80S3010	DSL A144P547	7.0
C32.2	F3L1011F	43	32.2	2900	39.0	121	1800	40	PFE1A90S3001	DSL A144P860	5.0
C30.5	F3L1011F	41	30.5	2900	37.5	116	1800	38	PFE1A80S3010	DSL A144P547	7.0
C31.5	F3L1011F	42	31.5	2800	39.0	121	1800	40	PFE1A90S3001	DSL A144P860	5.0
C30	F3L1011F	40	30.0	2800	37.0	116	1800	38	PFE1A80S3010	DSL A144P547	7.0
C27.5/2	F3L1011F	37	27.5	2800	37.0	116	1800	38	PFE1A80S3010	DSL A144P547	7.0
C30/1	F3L1011F	40	30.0	2600	39.0	121	1800	40	PFE1A90S3001	DSL A144P860	5.0
C29	F3L1011F	39	29.0	2500	38.5	121	1800	40	PFE1A90S3001	DSL A144P860	4.2
C27.5	F3L1011F	37	27.5	2500	36.5	116	1800	38	PFE1A90S3001	DSL A144P860	4.2
C26/1	F3L1011F	35	26.0	2500	35.0	110	1800	36	PFE1A90S3001	DSL A144P860	4.2
C28.3	F3L1011F	38	28.3	2400	39.0	121	1800	40	PFE1A90S3001	DSL A144P860	4.2
C27.5/1	F3L1011F	37	27.5	2300	39.0	121	1800	40	PFE1A90S3001	DSL A144P860	4.2
C26	F3L1011F	35	26.0	2300	36.5	116	1800	38	PFE1A90S3001	DSL A144P860	4.2
C23	F3L1011F	31	23.0	1800	40.0	121	1800	40	PFE1A80S3010	DSL A144P547	5.0
D24	F3L1011F	32	24.0	2000	37.0	n.a.	n.a.	n.a.	PFE1A80S3010	DSL A144P547	5.0
D21	F3L1011F	28	21.0	1800	37.0	n.a.	n.a.	n.a.	PFE1A80S3010	DSL A144P547	5.0
D23	F3L1011F	31	23.0	1800	41.0	n.a.	n.a.	n.a.	PFE1A80S3010	DSL A144P547	5.0
D22	F3L1011F	29	22.0	1800	38.0	n.a.	n.a.	n.a.	PFE1A80S3010	DSL A144P547	5.0

ETA a-R-013-000475
2083

Manufacturer: DEUTZ AG
 Engine category: Nonroad CI
 EPA Engine Family: 2DZXL02.7018

Engine Model and Part Number Summary Form

Engine code	Engine Model	BHP	BKW	Rated Power Engine Speed	Injection rate at rated power ±6mm³	Peak torque ±5%	Speed at peak torque ±200 rpm	Injection rate at peak torque ±4mm³	Fuel injection pump	Fuel injector	Injection timing (±1°)
D20,5	F3L1011F	27	20.5	1800	36.0	n.a.	n.a.	n.a.	description	description	
D21,3	F3L1011F	29	21.3	1700	38.0	n.a.	n.a.	n.a.	PFE1A80S3010	DSL1A144P547	5.0
C22/3	F2L1011F	29	22.0	3000	40.0	80.5	1800	41	PFE1A80S3010	DSL1A144P547	5.0
C21/1	F2L1011F	28	21.0	3000	38.0	76.5	1800	39	PFE1A90S3001	DSL1A144P860	5.0
C21,5/1	F2L1011F	29	21.5	2900	40.0	80.5	1800	41	PFE1A80S3010	DSL1A144P547	7.0
C21/2	F2L1011F	28	21.0	2800	40.0	80.5	1800	41	PFE1A90S3001	DSL1A144P860	5.0
C20	F2L1011F	27	20.0	2800	38.0	76.5	1800	39	PFE1A80S3010	DSL1A144P547	7.0
C19	F2L1011F	25	19.0	2800	37.0	76.5	1800	39	PFE1A80S3010	DSL1A144P547	7.0
C18	F2L1011F	24	18.0	2800	35.0	69.0	1800	35	PFE1A80S3010	DSL1A144P547	7.0
C20,7	F2L1011F	28	20.7	2750	40.0	80.5	1800	41	PFE1A90S3001	DSL1A144P860	5.0
C20/1	F2L1011F	27	20.0	2600	40.0	80.5	1800	41	PFE1A90S3001	DSL1A144P860	5.0
C19/1	F2L1011F	25	19.0	2600	40.0	76.5	1800	39	PFE1A80S3010	DSL1A144P547	7.0
C19,5	F2L1011F	26	19.5	2500	40.0	80.5	1800	41	PFE1A90S3001	DSL1A144P860	4.2
C18,5	F2L1011F	25	18.5	2500	38.0	76.5	1800	39	PFE1A90S3001	DSL1A144P860	4.2
C17,5	F2L1011F	23	17.5	2500	36.0	72.0	1800	37	PFE1A90S3001	DSL1A144P860	4.2
C18,5/1	F2L1011F	25	18.5	2300	40.0	80.5	1800	41	PFE1A90S3001	DSL1A144P860	4.2
C17,5/1	F2L1011F	23	17.5	2300	38.0	76.5	1800	37	PFE1A90S3001	DSL1A144P860	4.2
C16,5	F2L1011F	22	16.5	2300	36.0	72.0	1800	37	PFE1A90S3001	DSL1A144P860	4.2
C16,5/1	F2L1011F	22	16.5	2200	37.0	75.0	1800	39	PFE1A80S3010	DSL1A144P860	4.2
C16	F2L1011F	21	16.0	2100	37.0	76.5	1800	39	PFE1A80S3010	DSL1A144P547	5.0
C16/1	F2L1011F	21	16.0	2000	38.0	78.0	1800	40	PFE1A80S3010	DSL1A144P547	5.0
C15,5	F2L1011F	21	15.5	2000	37.0	76.5	1800	39	PFE1A80S3010	DSL1A144P547	5.0
D15,5	F2L1011F	20	15.0	1800	41.0	n.a.	n.a.	n.a.	PFE1A80S3010	DSL1A144P547	5.0
D14,5	F2L1011F	19	14.5	1800	40.0	n.a.	n.a.	n.a.	PFE1A80S3010	DSL1A144P547	5.0
D13,5	F2L1011F	18	13.5	1800	37.0	n.a.	n.a.	n.a.	PFE1A80S3010	DSL1A144P547	5.0
C22,6	F2M1011	30	22.6	3000	40.0	80.5	1800	41	PFE1A90S3001	DSL1A144P860	5.0
C21,6	F2M1011	29	21.6	3000	38.0	76.5	1800	39	PFE1A80S3010	DSL1A144P547	7.0
C21,5	F2M1011	29	21.5	2800	40.0	80.5	1800	41	PFE1A90S3001	DSL1A144P860	5.0
C20,5	F2M1011	27	20.5	2800	38.0	76.5	1800	39	PFE1A80S3010	DSL1A144P547	7.0

FORA-R-013-00745
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Manufacturer: DEUTZ AG
 Engine category: Nonroad CI
 EPA Engine Family: 2DZXLO2.7018

Engine Model and Part Number Summary Form

Engine code	Engine Model	BHP	BKW	Rated Power Engine Speed	Injection rate at rated power ±6mm³	Peak torque ± 5%	Speed at peak torque ± 200 rpm	Injection rate at peak torque ±4mm³	Fuel injection pump	Fuel injector	Injection timing (±1°)
		HP	KW	rpm	mm³/ stroke	Nm	rpm	mm³/ stroke	description	description	°bdc
C20.4	F2M1011	27	20.4	2600	40.0	80.5	1800	41	PFE1A90S3001	DSL1A144P860	5.0
C19.8	F2M1011	27	19.8	2500	40.0	80.5	1800	41	PFE1A90S3001	DSL1A144P860	4.2
C18.8	F2M1011	25	18.8	2500	38.0	76.5	1800	39	PFE1A90S3001	DSL1A144P860	4.2
C18.8/1	F2M1011	25	18.8	2300	40.0	80.5	1800	41	PFE1A90S3001	DSL1A144P860	4.2
C17.8	F2M1011	24	17.8	2300	38.0	76.5	1800	39	PFE1A90S3001	DSL1A144P860	4.2
C16.2	F2M1011	22	16.2	2000	39.0	78.0	1800	40	PFE1A80S3010	DSL1A144P547	5.0
C15.7	F2M1011	21	15.7	2000	38.0	76.5	1800	39	PFE1A80S3010	DSL1A144P547	5.0
D14.7	F2M1011	20	14.7	1800	40.0	n.a.	n.a.	n.a.	PFE1A80S3010	DSL1A144P547	5.0
D14.1	F2M1011	19	14.1	1800	39.0	n.a.	n.a.	n.a.	PFE1A80S3010	DSL1A144P547	5.0
D13.8	F2M1011	18	13.8	1800	38.0	n.a.	n.a.	n.a.	PFE1A80S3010	DSL1A144P547	5.0