

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	1DZXLO2.9013	2.91	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Direct Diesel Injection			Loader, Compressor, Other Industrial Equipment	
ENGINE MODELS (rated power in kilowatts, kw)	See Attachment (1 page)			

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
37<KW<75	Tier 1	STD	N/A	9.2	N/A	N/A	N/A	20	15	50
		CERT	--	7.8	--	--	--	3	4	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 18th day of June 2001.


 R. B. Summerfield, Chief
 Mobile Source Operations Division

Engine type	Displacement	Engine code	Nominal Power ± 5%		Nominal speed ± 50 rpm	Mean effective pressure	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	C48,1	64	48.1	3000	6.6	44.5	176	1800	7.6	43			900	3120	PFE1A90S3001	DSLA144P860	04178277UB	6	04178095UA	
F4M1011F	2914	C46	62	46.0	3000	6.3	42.0	167	1800	7.2	40			900	3120	PFE1A80S3010	DSLA144P547	04178277UB	7	04178095UA	
F4M1011F	2914	C47	63	47.0	2900	6.7	44.0	176	1800	7.6	43			900	3120	PFE1A90S3001	DSLA144P860	04178277UB	6	04178095UA	
F4M1011F	2914	C45,8	61	45.8	2800	6.7	43.0	176	1800	7.6	43			900	2920	PFE1A90S3001	DSLA144P860	04178277UB	6	04178095UA	
F4M1011F	2914	C43,6	58	43.6	2800	6.4	41.5	167	1800	7.2	40			900	2920	PFE1A80S3010	DSLA144P547	04178277UB	7	04178095UA	
F4M1011F	2914	C45,2	61	45.2	2750	6.8	43.0	176	1800	7.6	43			900	2860	PFE1A90S3001	DSLA144P860	04178277UB	6	04178095UA	
F4M1011F	2914	C44	59	44.0	2650	6.8	42.5	176	1800	7.6	43			900	2760	PFE1A90S3001	DSLA144P860	04178277UB	6	04178095UA	
F4M1011F	2914	C43,3	58	43.3	2600	6.9	42.5	176	1800	7.6	43			900	2710	PFE1A90S3001	DSLA144P860	04178277UB	6	04178095UA	
F4M1011F	2914	C41,3	55	41.3	2600	6.5	40.0	167	1800	7.2	40			900	2710	PFE1A80S3010	DSLA144P547	04178277UB	7	04178095UA	
F4M1011F	2914	C42,1	56	42.1	2500	6.9	42.5	176	1800	7.6	43			900	2600	PFE1A90S3001	DSLA144P860	04178277UB	6	04178095UA	
F4M1011F	2914	C40,2	54	40.2	2500	6.6	39.5	167	1800	7.2	40			900	2600	PFE1A80S3010	DSLA144P547	04178277UB	7	04178095UA	
F4M1011F	2914	C39,8	53	39.8	2300	7.1	43.0	176	1800	7.6	43			900	2400	PFE1A90S3001	DSLA144P860	04178277UB	6	04178095UA	
F4M1011F	2914	C37,9	51	37.9	2300	6.8	39.0	167	1800	7.2	40			900	2400	PFE1A80S3010	DSLA144P547	04178277UB	7	04178095UA	
F4M1011F	2914	C39	52	39.0	2250	7.1	42.5	176	1800	7.6	43			900	2400	PFE1A90S3001	DSLA144P860	04178277UB	6	04178095UA	
F4L1011FL	2914	C46,6	62	46.6	3000	6.4	44.5	176	1800	7.6	43			900	3120	PFE1A90S3001	DSLA144P860	04178277UB	6	04178095UA	
F4L1011FL	2914	C40,2	54	40.2	2400	6.9	42.5	176	1800	7.6	43			900	2600	PFE1A90S3001	DSLA144P860	04178277UB	6	04178095UA	
F4L1011FL	2914	C39,1	52	39.1	2300	7.0	42.5	176	1800	7.6	43			900	2600	PFE1A90S3001	DSLA144P860	04178277UB	6	04178095UA	