



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	8<KW<19 USEFUL LIFE (hours)	19<KW<37 USEFUL LIFE (hours)
2001	1DZXLO2.7018	1.37, 2.05, 2.73	Diesel	3000	5000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION		
Direct Diesel Injection			Loader, Tractor, Pump, Compressor, Generator Set, Other Industrial Equipment		
ENGINE MODELS (rated power in kilowatts, kw)	See Attachment (3 pages)				

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbon (HC), oxides of nitrogen (NO_x), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NO_x), 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	NO _x	NMHC+NO _x	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	--	--	9.5	2.4	0.34	1	1	3

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 13th day of June 2001.

R. B. Summerfield, Chief
Mobile Source Operations Division

Engine type	Displacement	Engine code	Nominal Power $\pm 5\%$	Nominal Power $\pm 5\%$	Nominal speed ± 50 rpm	Mean effective pressure	Injection rate at nom. speed, $\pm 4\text{mm}^3$	Peak torque $\pm 5\%$	Speed at peak torque ± 200 rpm	Mean effective pressure at peak torque	Injection rate at peak torque $\pm 4\text{mm}^3$	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 ($\pm 1^\circ$)	Speed governor
	cm ³		HP	kW	rpm	bar	mm ³ /stroke	Nm	rpm	bar	mm ³ /stroke	Nm	bar	mm ³ /stroke	rpm	rpm	description	description	draw. number	°btdc	description
F4L1011F	2732	C36	48	36.0	2400	6.6	36.5	153	1800	7.0	36				900	2400	PFE1A80S3010	DSLA144P547	04179680EA	7.0	04178095UA
F4L1011F	2732	C36,5	49	36.5	2300	7.0	37.5	161	1800	7.4	38.5				900	2400	PFE1A90S3001	DSLA144P860	04271599EA	4.2	04178095UA
F4L1011F	2732	C35	47	35.0	2300	6.7	36.0	153	1800	7.0	36				900	2400	PFE1A80S3010	DSLA144P547	04179680EA	7.0	04178095UA
F4L1011F	2732	D31	42	31.0	1900	7.2	40.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271964EA	5.0	04178095UA
F4L1011F	2732	D29/1	39	29.0	1850	6.9	37.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271964EA	5.0	04178095UA
F4L1011F	2732	D30,5	41	30.5	1800	7.4	40.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271964EA	5.0	04178095UA
F4L1011F	2732	D29	39	29.0	1800	7.1	38.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271964EA	5.0	04178095UA
F4L1011F	2732	D27,5	37	27.5	1800	6.7	36.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271964EA	5.0	04178095UA
F4L1011F	2732	D25	34	25.0	1800	6.1	36.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271964EA	5.0	04178095UA
F3L1011F	2049	C33,8/2	45	33.8	3000	6.6	40.0	121	1800	7.4	40				900	3230	PFE1A90S3001	DSLA144P860	04271599EA	5.0	04178095UA
F3L1011F	2049	C33	44	33.0	3000	6.4	39.5	121	1800	7.4	40				900	3120	PFE1A90S3001	DSLA144P860	04271599EA	5.0	04178095UA
F3L1011F	2049	C31	42	31.0	3000	6.1	37.5	116	1800	7.1	38				900	3120	PFE1A80S3010	DSLA144P547	04179680EA	7.0	04178095UA
F3L1011F	2049	C32,2	43	32.2	2900	6.5	39.0	121	1800	7.4	40				900	3120	PFE1A90S3001	DSLA144P860	04271599EA	5.0	04178095UA
F3L1011F	2049	C30,5	41	30.5	2900	6.2	37.5	116	1800	7.1	38				900	3120	PFE1A80S3010	DSLA144P547	04179680EA	7.0	04178095UA
F3L1011F	2049	C31,5	42	31.5	2800	6.6	39.0	121	1800	7.4	40				900	2920	PFE1A90S3001	DSLA144P860	04271599EA	5.0	04178095UA
F3L1011F	2049	C30	40	30.0	2800	6.3	37.0	116	1800	7.1	38				900	2920	PFE1A80S3010	DSLA144P547	04179680EA	7.0	04178095UA
F3L1011F	2049	C27,5/2	37	27.5	2800	5.8	37.0	116	1800	7.1	38				900	2920	PFE1A80S3010	DSLA144P547	04179680EA	7.0	04178095UA
F3L1011F	2049	C30/1	40	30.0	2600	6.8	39.0	121	1800	7.4	40				900	2710	PFE1A90S3001	DSLA144P860	04271599EA	5.0	04178095UA
F3L1011F	2049	C29	39	29.0	2500	6.8	38.5	121	1800	7.4	40				900	2600	PFE1A90S3001	DSLA144P860	04271599EA	4.2	04178095UA
F3L1011F	2049	C27,5	37	27.5	2500	6.4	36.5	116	1800	7.1	38				900	2600	PFE1A80S3010	DSLA144P547	04179680EA	7.0	04178095UA
F3L1011F	2049	C26/1	35	26.0	2500	6.1	35.0	110	1800	6.7	36				900	2600	PFE1A80S3010	DSLA144P547	04179680EA	7.0	04178095UA
F3L1011F	2049	C28,3	38	28.3	2400	6.9	39.0	121	1800	7.4	40				900	2400	PFE1A90S3001	DSLA144P860	04271599EA	4.2	04178095UA
F3L1011F	2049	C27,5/1	37	27.5	2300	7.0	39.0	121	1800	7.4	40				900	2400	PFE1A90S3001	DSLA144P860	04271599EA	4.2	04178095UA
F3L1011F	2049	C26	35	26.0	2300	6.6	36.5	116	1800	7.1	38				900	2400	PFE1A80S3010	DSLA144P547	04179680EA	7.0	04178095UA
F3L1011F	2049	C23	31	23.0	1800	7.5	40.0	121	1800	7.4	40				900	1880	PFE1A90S3001	DSLA144P860	04271599EA	5.0	04178095UA
F3L1011F	2049	D24	32	24.0	2000	7.0	37.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5.0	04178095UA
F3L1011F	2049	D21	28	21.0	1800	6.8	37.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5.0	04178095UA

Engine type	Displacement	Engine code	Nominal Power ± 5%	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
F3L1011F	2049	D23	31	23.0	1800	7.5	40.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5.0	04178095UA
F3L1011F	2049	D22	29	22.0	1800	7.2	38.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5.0	04178095UA
F3L1011F	2049	D20,5	27	20.5	1800	6.7	36.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5.0	04178095UA
F3L1011F	2049	D21,3	29	21.3	1700	7.3	38.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5.0	04178095UA
F2L1011F	1366	C22/3	29	22.0	3000	6.4	40.0	80.5	1800	7.4	41				900	3120	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2L1011F	1366	C21/1	28	21.0	3000	6.1	38.0	76.5	1800	7.0	39				900	3120	PFE1A80S3010	DSLA144P547	04179682EA	7.0	04178095UA
F2L1011F	1366	C21,5/1	29	21.5	2900	6.5	40.0	80.5	1800	7.4	41				900	3020	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2L1011F	1366	C21/2	28	21.0	2800	6.6	40.0	80.5	1800	7.4	41				900	2920	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2L1011F	1366	C20	27	20.0	2800	6.3	38.0	76.5	1800	7.0	39				900	2920	PFE1A80S3010	DSLA144P547	04179682EA	7.0	04178095UA
F2L1011F	1366	C19	25	19.0	2800	6.0	37.0	76.5	1800	7.0	39				900	2920	PFE1A80S3010	DSLA144P547	04179682EA	7.0	04178095UA
F2L1011F	1366	C18	24	18.0	2800	5.6	35.0	69.0	1800	6.3	35				900	2920	PFE1A80S3010	DSLA144P547	04179682EA	7.0	04178095UA
F2L1011F	1366	C20,7	28	20.7	2750	6.6	40.0	80.5	1800	7.4	41				900	2920	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2L1011F	1366	C20/1	27	20.0	2600	6.8	40.0	80.5	1800	7.4	41				900	2710	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2L1011F	1366	C19/1	25	19.0	2600	6.4	40.0	76.5	1800	7.0	39				900	2710	PFE1A80S3010	DSLA144P547	04179682EA	7.0	04178095UA
F2L1011F	1366	C19,5	26	19.5	2500	6.9	40.0	80.5	1800	7.4	41				900	2600	PFE1A90S3001	DSLA144P860	04271616EA	4.2	04178095UA
F2L1011F	1366	C18,5	25	18.5	2500	6.5	38.0	76.5	1800	7.0	39				900	2600	PFE1A80S3010	DSLA144P547	04179682EA	7.0	04178095UA
F2L1011F	1366	C17,5	23	17.5	2500	6.1	36.0	72.0	1800	6.6	37				900	2600	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2L1011F	1366	C18,5/1	25	18.5	2300	7.1	40.0	80.5	1800	7.4	41				900	2400	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2L1011F	1366	C17,5/1	23	17.5	2300	6.7	38.0	76.5	1800	7.0	39				900	2400	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2L1011F	1366	C16,5	22	16.5	2300	6.3	36.0	72.0	1800	6.6	37				900	2400	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2L1011F	1366	C16,5/1	22	16.5	2200	6.6	37.0	75.0	1800	6.9	39				900	2280	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2L1011F	1366	C16	21	16.0	2100	6.7	37.0	76.5	1800	7.0	39				900	2190	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2L1011F	1366	C16/1	21	16.0	2000	7.0	38.0	78.0	1800	7.2	40				900	2080	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2L1011F	1366	C15,5	21	15.5	2000	6.8	37.0	76.5	1800	7.0	39				900	2080	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2L1011F	1366	D15,5	20	15.0	1800	7.3	40.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5.0	04178095UA
F2L1011F	1366	D14,5	19	14.5	1800	7.1	39.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5.0	04178095UA
F2L1011F	1366	D13,5	18	13.5	1800	6.6	37.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5.0	04178095UA

Engine type	Displacement	Engine code	Nominal Power ± 5%	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	mm³/ stroke	Nm	rpm	bar	mm³/ stroke	Nm	bar	mm³/ stroke	rpm	rpm		description	description	draw. number	°btdc	description
F2M1011	1366	C22,6	30	22.6	3000	6.6	40.0	80.5	1800	7.4	41				900	3120	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2M1011	1366	C21,6	29	21.6	3000	6.3	38.0	76.5	1800	7.0	39				900	3120	PFE1A80S3010	DSLA144P547	04179682EA	7.0	04178095UA
F2M1011	1366	C21,5	29	21.5	2800	6.7	40.0	80.5	1800	7.4	41				900	2920	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2M1011	1366	C20,5	27	20.5	2800	6.4	38.0	76.5	1800	7.0	39				900	2920	PFE1A80S3010	DSLA144P547	04179682EA	7.0	04178095UA
F2M1011	1366	C20,4	27	20.4	2600	6.9	40.0	80.5	1800	7.4	41				900	2710	PFE1A90S3001	DSLA144P860	04271616EA	4.2	04178095UA
F2M1011	1366	C19,8	27	19.8	2500	7.0	40.0	80.5	1800	7.4	41				900	2600	PFE1A90S3001	DSLA144P860	04271616EA	4.2	04178095UA
F2M1011	1366	C18,8	25	18.8	2500	6.6	38.0	76.5	1800	7.0	39				900	2600	PFE1A80S3010	DSLA144P547	04179682EA	7.0	04178095UA
F2M1011	1366	C18,8/1	25	18.8	2300	7.2	40.0	80.5	1800	7.4	41				900	2400	PFE1A90S3001	DSLA144P860	04271616EA	4.2	04178095UA
F2M1011	1366	C17,8	24	17.8	2300	6.8	38.0	76.5	1800	7.0	39				900	2400	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2M1011	1366	C16,2	22	16.2	2000	7.1	39.0	78.0	1800	7.2	40				900	2080	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2M1011	1366	C15,7	21	15.7	2000	6.9	38.0	76.5	1800	7.0	39				900	2080	PFE1A90S3001	DSLA144P860	04271616EA	5.0	04178095UA
F2M1011	1366	D14,7	20	14.7	1800	7.2	40.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5.0	04178095UA
F2M1011	1366	D14,1	19	14.1	1800	6.9	39.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5.0	04178095UA
F2M1011	1366	D13,8	18	13.8	1800	6.7	38.0	n.a.	n.a.	n.a.	n.a.				n.a.	n.a.	PFE1A80S3010	DSLA144P547	04271963EA	5.0	04178095UA