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DAEWOO HEAVY INDUSTRIES & MACHINERY LTD.

EXECUTIVE ORDER U-R-019-0056
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 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	2DWXL08.1APA	8.1	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Direct Diesel Injection, Smoke Puff Limiter, Turbocharger, Charge Air Cooler			Compressor, Generator Set, 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
75 ≤ KW < 130	Tier 1	STD	N/A	9.2	N/A	N/A	N/A	20	15	50
130 ≤ KW < 225	Tier 1	STD	1.3	9.2	N/A	11.4	0.54	20	15	50
		CERT	0.4	7.2	--	1.6	0.36	10	5	20

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 7th day of March 2002.

Allen Lyons
Allen Lyons, Chief
New Vehicle/Engine Programs Branch

Engine Model Summary Form

EO# 4-R-019-0056
attach ment 1 of 1

Manufacturer: Daewoo Heavy Industries & Machinery Ltd.
 Engine category: Nonroad CI
 EPA Engine Family: 2DWXL08.1APA
 Mfr Family Name: D1146TI & D1146T
 Process Code: New Submission

1. Engine Code	2. Engine Model	3. BHP @ RPM (SAE Gross)	4. Fuel Rate: mm/stroke @ peak HP (for diesel only)	5. Fuel Rate: (l/h) @ peak HP (for diesel only)	6. Torque @ RPM (SEA Gross)	7. Fuel Rate: mm/stroke @ peak torque	8. Fuel Rate: (l/h) @ peak torque	9. Emission Control Device Per SAE J1930
	D1146TIPEA	200 @ 1900	117	73.6	594 @ 1400	124	57.5	DPF TC SPL
	D1146T DPL	188 @ 2200	111	80.8	549 @ 1400	116	53.8	TC
	D1146T DLB	171 @ 2200	90	65.5	507 @ 1300	100	43.0	TC
	D1146T DGA	185 @ 1800	110	65.5	N/A	N/A	N/A	TC
	D1146T DGA	168 @ 1800	104	62.0	N/A	N/A	N/A	TC
	D1146T DGA	145 @ 1500	105	52.1	N/A	N/A	N/A	TC
	D1146T DGA	139 @ 1500	100	49.7	N/A	N/A	N/A	TC
	D1146T DOA	185 @ 1800	110	65.5	N/A	N/A	N/A	TC
	D1146T DOA	168 @ 1800	104	62.0	N/A	N/A	N/A	TC
	D1146T DOA	145 @ 1500	105	52.1	N/A	N/A	N/A	TC
	D1146T DOA	139 @ 1500	100	49.7	N/A	N/A	N/A	TC
	D1146T DEA	168 @ 2000	86	56.9	507 @ 1300	100	43.0	TC
	D1146T DPA	150 @ 202 @ 2300	108	62.2	601 @ 1400	117	54.2	TC

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