



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	2VSXL12.1CE2	12.1	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Direct Diesel Injection, Electronic Control Module, Turbocharger, Charger Air Cooler			Loaders, 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
130 ≤ KW <225	Tier 1	STD	1.3	9.2	N/A	11.4	0.54	20	15	50
225 ≤ KW <450	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	20	15	50
		CERT	0.3	5.8	6.0	0.6	0.10	4	0	9

**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 31<sup>ST</sup> day of January 2002.

Allen Lyons, Chief  
New Vehicle/Engine Programs Branch

# Engine Model Summary Form

Manufacturer: **Volvo Construction Equipment Components**  
 Engine category: **Nonroad CI**  
 PA Engine Family: **2VSXL12.1CE2**  
 Mfr Family Name: **D12**  
 Process Code: **New Submission**

ED # U-R-003-0050

ATTACHMENT 1 of 1

1.Engine Code	2.Engine Model	3.BHP@RPM (SAE Gross)	4.Fuel Rate: mm/stroke @ peak HP (for diesel only)	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM (SEA Gross)	7.Fuel Rate: mm/stroke@peak torque
I	D12C AAE2	280 <sup>(kw)</sup> 375@1900	203	129	1550@1200	287
II	D12C ABE2	375@1900	203	129	1440@1200	267
III	D12C EAE2	320@1900	174	110	1180@1400	221
IV	D12C LBE2	331@1900	173	110	1300@1200	242
V	D12C LCE2	212 <sup>(kw)</sup> 284@1900	154	97	1254@1200	239

\* TEST ENGINE

EPA # VSX-NRCEI-02-05