



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-02-003;

**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)
2005	5DWXL11.1BIA	11.1	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Direct Diesel Injection, Turbocharger, Charge Air Cooler			Loader, Compressor, Generator Set, Other OEM Products	

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 2	STD	N/A	N/A	6.6	5.0	0.30	20	15	50
130 ≤ kW < 225	Tier 2	STD	N/A	N/A	6.6	3.5	0.20	20	15	50
225 ≤ kW < 450	Tier 2	STD	N/A	N/A	6.4	3.5	0.20	20	15	50
		CERT	--	--	6.3	1.0	0.19	14	3	37

**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 28 day of September 2006.

Annette Hebert, Chief  
Mobile Source Operations Division

# Engine Model Summary Form

**Manufacturer:** Daewoo Heavy Industries & Machinery Ltd.  
**Engine category:** Nonroad CI  
**EPA Engine Family:** 5DWXL11.1BIA  
**Mfr Family Name:** DE12TIS & DE08TIS & DE08TS  
**Process Code:** New Submission

Doc# U-2-019-0082

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	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
DE12TIS IEA	319 @ 2000	173	115	978 @ 1400	199	92	DDI, TC, CAC	
DE12TIS IEB	293 @ 2000	162	107	870 @ 1400	182	84		
DE12TIS IEC	257 @ 1900	137	86	797 @ 1400	163	76		
DE12TIS ILA	301 @ 2100	155	108	978 @ 1200	186	74		
DE12TIS ILB	232 @ 2100	125	87	833 @ 1200	156	62		
DE12TIS ILC	281 @ 2100	144	100	978 @ 1400	186	74		
DE08TIS PEA	202 @ 1900	118	74	667 @ 1300	133	57		
DE08TIS PLA	209 @ 2100	111	77	667 @ 1300	130	56		
DE08TS DFA	138 @ 2200	77	56	399 @ 1400	84	39		
DE08TS DFB	158 @ 2200	88	64	457 @ 1400	97	45		