KUKJE MACHINERY CO.

EXECUTIVE ORDER U-R-046-0035 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-02-003;

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)			
2009	9KMCL2.08A43	2.082	Diesel	5000			
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION				
	Indirect Diesel Inje	ection	Crane, Loader, Tractor, Dozer, Pump, Compressor and Other 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 (%)			
			НС	NOx	NMHC+NOx	СО	PM	ACCEL	LUG	PEAK
19 ≤ kW < 37	Tier 4 Interim	STD	N/A	N/A	7.5	5.5	0.30	20	15	50
		CERT	-		5.7	1.7	0.23	10	10	13

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

1.//

day of January 2009.

Annette Hebert, Chief

Mobile Source Operations Division

Engine Model Summary Form

U-R-046-0035

Manufacturer: Kukje Machinery Co., EPA Mnfr:1700

Engine category: Nonroad CI

EPA Engine Family: 9KMCL2.08A43

Mfr Family Name: A2000N1

Process Code: New Submission

8.Fuel Rate: 9.Emission Control (lbs/hr)@peak torque Device Per SAE J1930 IDI,EM IDI,EM IDI,EM 13.7 12.4 11.5 mm/stroke@peak torque 7.Fuel Rate: 38.0 34.5 32.0 6.Torque @ RPM (SEA Gross) 98.1@1600 89.2@1600 99.6@1600 mm/stroke @ peak HP (lbs/hr) @ peak HP (for diesel only) (for diesels only) 5.Fuel Rate: 17.0 21.4 18.0 4.Fuel Rate: 29.0 34.0 30.8 3.BHP@RPM (SAE Gross) 45@2800 42@2600 38@2600 2.Engine Model A2000N2 A2000N3 A2000N1 1.Engine Code N A A/A ₹ Z