KUKJE MACHINERY CO.

EXECUTIVE ORDER U-R-046-0064 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 engines and emission control systems 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)			
2012	CKMCL1.71A31	1.714	Diesel	5,000			
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION				
	Indirect Diesel Inje	ection	Crane, Loader, Tractor, Dozer, Pump, Compressor, Generator Set, 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	co	PM	ACCEL	LUG	PEAK
8 ≤ kW < 37	Interim Tier 4	OPTIONAL STD	N/A	N/A	7.5	5.5	0.30	20	15	50
		CERT	-		5.9	1.5	0.23	5	6	7

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has complied with the more stringent set of standards from the various power categories in conformance with Section 1039.230 (e) of the "California Exhaust Emission Standards and Test Procedures for 2008 and Later Tier 4 Off-Road Compression-Ignition Engines, Part I-C" adopted October 20, 2005.

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 _____ day of December 2011.

Annette Hebert, Chief

Mobile Source Operations Division

U-R-046-0064 11/21/11

Manufacturer:

Kukje Machinery Co., EPA Mnfr:1700

Engine category:

Nonroad CI

EPA Engine Family: CKMCL1.71A31

Mfr Family Name: A1700N1

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: (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 torqu	9.Emission Control de Device Per SAE J1930
N/A	A1700N1	37@2800	34.0	16.1	85.5@1600	39.0	10.52	IDI,EM
N/A	A1700N2	35@2600	33.0	14.5	83.3@1600	38.0	10.30	IDI,EM
N/A	A1700N4	32.2@2500	32.0	13.3	80.5@1600	35.5	9.5	IDI,EM
N/A	A1700-Gen1	25.3@1800	33.1	9.8	N/A	N/A	N/A	IDI,EM
N/A	A1700-Gen2	21.7@1500	37.0	9.0	N/A	NA	N/A	IDI,EM
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