California Environmental Protection Agency AIR RESOURCES BOARD

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	9KMCL1.71A31	1.714	Diesel	5000				
	FEATURES & EMISSION		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			E	EXHAUST (g/kw-l	OPACITY (%)				
	STANDARD CATEGORY		нс	NOx	NMHC+NOx	со	PM	ACCEL	LUG	PEAK
8 <u>≤</u> kW < 19	Tier 4 Final	STD	N/A	N/A	7.5	6.6	0.40	20	15	50
19 <u><</u> kW < 37	Tier 4 Interim	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 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 January 2009.

Annette Hebert, Chief Mobile Source Operations Division

U-R-046 -0034

And MENT Relation (Engine Model Summary Form

Manufacturer: Kukje Machinery Co., EPA Mnfr:1700

Engine category: Nonroad CI

EPA Engine Family: 9KMCL1.71A31 Mfr Family Name: A1700N1

Process Code: New Submission

rol 930	•		-								
9.Emission Control Device Per SAE J193	IDI,EM	IDI,EM	IDI,EM	IDI,EM							
8.Fuel Rate: 9.Emission Control (lbs/hr)@peak torque Device Per SAE J1930	10.52	10.30	09.6	N/A							
 . ruei kate: mm/stroke@peak torque 	39.0	38.0	35.5	N/A							
6.Torque @ RPM (SEA Gross)	85.5@1600	83.3@1600	76.5@1600	N/A							(a) A starting of the start
5.Fuel Kate (lbs/hr) @ peak HP (for diesels only)	16.1	14.5	14.3	9.8							
 4. Fuel Rate: mm/stroke @ peak HP (for diesel only) 	34.0	33.0	32.5	33.1							
3.BHP@RPM (SAE Gross)	37@2800	35@2600	32@2600	25.3@1800			· ·			м со на селот на село На селот на с	
2.Engine Model	A1700N1	A1700N2	A1700N3	A1700-Gen					•		
1.Engine Code	N/A	N/A	N/A	N/A						And a second sec	