California Environmental Protection Agency AIR RESOURCES BOARD	YANMAR CO., LTD.	EXECUTIVE ORDER U-R-028-0414 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)
2009	9YDXL0.57V2N	0.570	Diesel	3000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Indirect Diesel Injection	Crane, Loader, Tractor, Dozer, Pump, Compressor, Excavator

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
kW < 19	Tier 4	OPTIONAL STD	N/A	N/A	7.5	6.6	0.40	20	15	50
		CERT	--	--	5.4	1.0	0.14	4	4	5

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 5 day of December 2008.

Annette Hebert, Chief
Mobile Source Operations Division

Engine Model Summary Template

ATTACHMENT #1 OF 2
EGAU-R-028-0414

Engine Family	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
[illegible]	N/A	2TNV70-VHNA1	13.3/3000	18.5	6.1	25.4/1800	20.0	4.0	EM IDI
[illegible]	N/A	2TNV70-A	14.1/3600	17.5	6.9	22.9/2600	17.2	4.9	EM IDI
[illegible]	N/A	2TNV70-E	13.5/3400	17.3	6.5	23.4/2400	17.6	4.7	EM IDI
[illegible]	N/A	2TNV70-C	13.1/3200	17.3	6.1	24.3/2400	18.1	4.8	EM IDI
[illegible]	N/A	2TNV70-D	12.7/3000	18.1	6.0	25.1/2000	18.5	4.1	EM IDI
[illegible]	N/A	2TNV70-H	12.3/2900	17.8	5.7	25.1/2000	18.5	4.1	EM IDI
[illegible]	N/A	2TNV70-K	11.8/2800	17.5	5.4	24.8/1800	18.7	3.7	EM IDI
[illegible]	[illegible]	2TNV70-L	11.3/2700	17.3	5.1	24.8/1800	18.6	3.7	EM IDI
[illegible]	[illegible]	2TNV70-N	10.9/2600	17.2	4.9	24.8/1800	18.6	3.7	EM IDI
[illegible]	[illegible]	2TNV70-R	10.5/2500	17.0	4.7	24.9/1800	18.9	3.7	EM IDI
[illegible]	[illegible]	2TNV70-F	10.1/2400	16.9	4.5	24.9/1800	18.9	3.7	EM IDI
[illegible]	[illegible]	2TNV70-C	9.7/2300	16.7	4.2	24.6/1600	17.9	3.2	EM IDI
[illegible]	[illegible]	2TNV70-S	9.1/2200	16.4	4.0	24.6/1600	17.9	3.2	EM IDI
[illegible]	[illegible]	2TNV70-S	8.7/2100	16.5	3.8	24.4/1500	18.2	3.0	EM IDI
[illegible]	[illegible]	2TNV70-W	8.2/2000	16.6	3.7	24.4/1500	18.2	3.0	EM IDI
[illegible]	[illegible]	2GA1-A	14.1/3600	17.5	6.9	22.9/2600	17.2	4.9	EM IDI
[illegible]	[illegible]	2GA1-B	13.5/3400	17.3	6.5	23.4/2400	17.6	4.7	EM IDI
[illegible]	[illegible]	2GA1-C	13.1/3200	17.3	6.1	24.3/2400	18.1	4.8	EM IDI
[illegible]	[illegible]	2GA1-D	12.7/3000	18.1	6.0	25.1/2000	18.5	4.1	EM IDI
[illegible]	[illegible]	2GA1-K	11.8/2800	17.5	5.4	24.8/1800	18.7	3.7	EM IDI
[illegible]	[illegible]	2GA1-L	11.3/2700	17.3	5.1	24.8/1800	18.6	3.7	EM IDI
[illegible]	[illegible]	2GA1-M	10.9/2600	17.2	4.9	24.8/1800	18.6	3.7	EM IDI
[illegible]	[illegible]	2GA1-N	10.5/2500	17.0	4.7	24.9/1800	18.9	3.7	EM IDI
[illegible]	[illegible]	2GA1-P	10.1/2400	16.9	4.5	24.9/1800	18.9	3.7	EM IDI
[illegible]	[illegible]	2GA1-Q	9.7/2300	16.7	4.2	24.6/1600	17.9	3.2	EM IDI
[illegible]	[illegible]	[illegible]	9.1/2200	16.4	4.0	24.6/1600	17.9	3.2	EM IDI

Engine Model Summary Template

ATTACHMENT 1 2 OF 2
ED#EV-R-028-0414

Engine Family	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
[illegible]	N/A	2CA1.V	8.7/2100	16.5	3.8	24.4/1500	18.2	3.0	EM IDI
[illegible]	N/A	2CA1.W	8.2/2000	16.6	3.7	24.4/1500	18.2	3.0	EM IDI
[illegible]	N/A	2D70E-5K	11.8/2800	17.5	5.4	24.8/1800	18.7	3.7	EM IDI
[illegible]	N/A	2D70E-5L	11.3/2700	17.3	5.1	24.8/1800	18.6	3.7	EM IDI
[illegible]	N/A	2D70E-5M	10.9/2600	17.2	4.9	24.8/1800	18.6	3.7	EM IDI
[illegible]	N/A	2D70E-5N	10.5/2500	17.0	4.7	24.9/1800	18.9	3.7	EM IDI
[illegible]	N/A	2D70E-5P	10.1/2400	16.9	4.5	24.9/1800	18.9	3.7	EM IDI
[illegible]	N/A	2D70E-5Q	9.7/2300	16.7	4.2	24.6/1600	17.9	3.2	EM IDI
[illegible]	N/A	2D70E-5S	9.1/2200	16.4	4.0	24.6/1600	17.9	3.2	EM IDI