 AIR RESOURCES BOARD	YANMAR CO., LTD.	EXECUTIVE ORDER U-R-028-0110
		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)
2003	3YDXL3.32D4N	3.319	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Direct 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 hydrocarbons (HC), oxides of nitrogen (NO_x), or non-methane hydrocarbons plus oxides of nitrogen (NMHC+NO_x), 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	NO _x	NMHC+NO _x	CO	PM	ACCEL	LUG	PEAK
37 ≤ kW < 75	Tier 1	STD	N/A	9.2	N/A	N/A	N/A	20	15	50
		CERT	--	7.5	--	--	--	4	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 20th day of December 2002.


 for Allen Lyons, Chief
 Mobile Source Operations Division

Engine Model Summary Form

Manufacturer: Yanmar Co., Ltd.
 Engine category: Nonroad CI
 EPA Engine Family: 3YDXL3.32D4N
 Mfr Family Name: N/A
 Process Code: New Submission

ATTACHMENT

EO U-R-028-0110

1. Engine Code	2. Engine Model	3. BHP @ RPM (SAE Gross)	4. Fuel Rate: min/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 ³ /stroke @ peak torque	8. Fuel Rate: (lbs/hr) @ peak torque	9. Emission Control Device Per SAE J1930
N/A	4TNE98-DM	(52) 70.0/2500	46.8	26.0	193.0/1200	59.2	15.7	EM
N/A	4TNE98-JFW	57.7/2200	42.2	20.5	174.8/1300	52.6	15.4	EM
N/A	4TNE98-SA	70.0/2500	46.8	26.0	173.3/1600	55.5	19.8	EM
N/A	4TNE98-JCF	56.2/2200	41.4	20.3	174.8/1300	52.6	15.4	EM
N/A	4D98E-1FA	69.0/2500	45.8	25.6	173.3/1600	55.5	19.8	EM
N/A	4D98E-1FC	69.0/2500	45.8	25.6	173.3/1600	55.5	19.8	EM
N/A	4D98E-1FB	69.0/2300	49.9	25.6	173.3/1600	55.5	19.8	EM
N/A	4TNE98-NSR	60.1/2100	47.7	22.0	173.3/1600	55.5	19.8	EM
N/A	4TNE98-EBV	56.7/1900	48.8	20.4	173.3/1400	55.5	17.0	EM
N/A	4D98E-1HC	59.2/2500	39.5	22.0	144.6/1600	41.1	14.7	EM
N/A	4D98E-2HC	66.1/2500	43.1	24.0	173.5/1600	51.8	18.5	EM
N/A	4TNE98-HYS	70.0/2500	46.8	26.0	173.3/1600	55.5	19.8	EM
N/A	4D98E-1FD	69.0/2300	49.9	25.6	173.3/1600	55.5	19.8	EM
N/A	4TNE98-EFB	57.7/2200	42.2	20.5	174.8/1300	52.6	15.4	EM
N/A	4D98E-1AB	(40) 54.0/2450	38.2	20.5	139.6/1600	41.2	14.5	EM
N/A	4D98E-1AC	54.0/2450	38.2	20.5	139.6/1600	41.2	14.5	EM
N/A	4D98E-1AD	54.0/2450	38.2	20.5	139.6/1600	41.2	14.5	EM
N/A	4D98E-1AE	54.0/2450	38.2	20.5	139.6/1600	41.2	14.5	EM
N/A	4D98E-1AF	54.0/2450	38.2	20.5	139.6/1600	41.2	14.5	EM
N/A	4D98E-1AG	54.0/2450	38.2	20.5	139.6/1600	41.2	14.5	EM
N/A	4D98E-1AH	54.0/2450	38.2	20.5	139.6/1600	41.2	14.5	EM
N/A	4D98E-1AI	54.0/2450	38.2	20.5	139.6/1600	41.2	14.5	EM
N/A	4D98E-1AJ	54.0/2450	38.2	20.5	139.6/1600	41.2	14.5	EM
N/A	4D98E-1AK	54.0/2450	38.2	20.5	139.6/1600	41.2	14.5	EM
N/A	4D98E-1AL	54.0/2450	38.2	20.5	139.6/1600	41.2	14.5	EM
N/A	4D98E-1AM	54.0/2450	38.2	20.5	139.6/1600	41.2	14.5	EM