

YANMAR CO., LTD.

EXECUTIVE ORDER U-R-028-0167-1 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) 5000	
2004	4YDXL1.11X3N	1.12	Diesel		
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION		
Indirect Diesel Injection			Crane, Loader, Tractor, Dozer, Pump, Compressor, Other Industrial Equipment		

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 (NOx), or non-methane hydrocarbons 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	EMISSION STANDARD			,	EXHAUST (g/kw-l	OPACITY (%)				
CLASS	CATEGORY		HC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
19 ≤ kW < 37	Tier 2	STD	N/A	N/A	7.5	5.5	0.60	20	15	50
		CERT			5.8	1.1	0.50	3	4	

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.

This Executive Order hereby supersedes Executive Order U-R-028-0167 dated October 7, 2003.

Executed at El Monte, California on this \_\_\_\_\_\_ day of June 2004

Allen Lyons, Chief

Mobile Source Operations Division

## Engine Model Samary Form

Yanmar Co., Ltd. Manufacturer:

Engine category: Nonroad Cl EPA Engine Family: 4YDXL1.11X3N

Mfr Family Name: N/A

**New Submission** Process Code:

ATTACHMENT

ED# U-R-028-0167-1

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ntrol J1930	101	-		$\geq$				
9.Emission Control Device Per SAE J1930	EM,	EM	EM	EM	EM	EM	EM	
Emiss vice Pr								
8.Fuel Rate: (lbs/hr)@peak torque	ယ	ထ	8	ູນ	8	ဆ	ر ري	
8.Fuel Rate: hr)@peak tor	8.6	8.8	8.8	8.5	8.8	8.8	ထ	
8 H/sql)								ř
æ: peak			. !					
7.Fuel Rate: mm/stroke@peak torque	23.2	22.2	22.2	22.4	22.2	22.2	22,4	
7.F mm/st t								
_		:						
6.Torque @ RPM (SEA Gross)	49.4/2250	48.1/2400	48.1/2400	48.2/2300	48.1/2400	48.1/2400	48,2/2300	
Torque @ RP (SEA Gross)	49.4/	48.1/	48.1/	48.2/	48.1/	48.1/	48.2	
6.1								
ie: ak HP onfy)								
5.Fuel Rate: lbs/hr) @ peak HP (for diesels only)	17.4	17.3	17.2	15.7	17.3	17.2	15.7	
5.F (lbs/hr) (for d								
tate: peak HP only)								100
Rate: @ peak el only)	3.2	21.8	22.9	22.3	21.8	22.9	2.3	
4.Fuel R mm/stroke @ (for diesel	23.	2	, čV	2	2	2	22.	
/ww. )			ļ . '					
RPM iss)	9	8	9	8	00	8	00	
3.BHP@RPM (SAE Gross)	29.0/3400	29.1/3600	28.4/3400	3.7/32	9.1/36	28.4/3400	26.7/3200	
3.B (S)	75	26	28	4 26	7 2	28	5	
del 💸	2			3TNV76-C (4.4 26.7/3200	3CB1-A 017 29.1/3600			
e Mo	M/-9	76-A	3TNV76-B	7-97	31-A	3CB1-B	3CB1-C	
' з.внр@крм 2.Engine Model ∦w (SAE Gross)	3TNV76-VM2	3TNV76-A	3TN	3TN	3CE	3CE	305	
	3		:					
1.Engine Code			:				ļ.,	
Jgine	N/A	N/A	N/A	A/N	A/N	A/A	N/A	
<u>1</u>			:	•				

## Engine Model 5 nmary Form

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AC#O4-01

Yanmar Co., Ltd. Manufacturer:

Nonroad Cl Engine category:

4YDXL1.11X3N EPA Engine Family.

Mfr Family Name:

Running Change Process Code:

4.Fuel Rate: mm/stroke @ peak HP (for diesel only)

3.BHP@RPM (SAE Gross)

1. Engine Code 2. Engine Model

NA 3TNV76-XJLT

5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)

45.2/2300 6.Torque @ RPM (SEA Gross) 20.0 13200 10.6

7.Fuel Rate: mm/stroke@peak torque

8.Fuel Rate: 9.Emission Control (lbs/hr)@peak torque Device Per SAE J1930

7.9 EM (15)

## **Engine Model Summary Form**

Yanmar Co., Ltd. Manufacturer:

Nonroad Cl Engine category:

EPA Engine Family: 4YDXL1.11X3N

Mfr Family Name:

Running Change Process Code:

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8 Fuel Rate: 9.Emission Control (bs/hr)@peak torque Device Per SAE J1930	EM, JOIL	EM IDI	EM TDI
_	7.2	8.0	8.0
7.Fuel Rate: mm/stroke@peak torque	24.3	24.1	24.1
6.Torque @ RPM (SEA Gross)	51.6/1800	50.0/2000	50.0/2000
5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	11,8	11.7	11.7
4.Fuel Rate: 5.Fuel Rate: mm/stroke @ peak HP (lbs/hr) @ peak HP (for diesel only) (for diesels only)	23.8	23.6	23.6
3.BHP@RPM (SAE Gross)	26.5/3000	25.7/3000	25.7/3000
1.Engine Code 2.Engine Model	3TNV76-VM21	3TNV76-D	3CB1-D /1/18 25.7/3000
1.Engine Code	N/A	N/A	N/A

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