	<b>YANMAR CO., LTD.</b>	<b>EXECUTIVE ORDER U-R-028-0441</b> 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	9YDXL1.64M3N	1.642	Diesel	5000
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 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
8 ≤ kW < 37	Tier 4 Interim	OPTIONAL STD	N/A	N/A	7.5	5.5	0.30	20	15	50
		CERT	--	--	6.1	2.2	0.24	3	3	4


**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 11<sup>th</sup> day of December 2008.

  
Annette Hebert, Chief  
Mobile Source Operations Division

# Engine Model Summary Template

ATTACHMENT  
EO# V-R-028-0441

Engine Family	1. Engine Code	2. Engine Model	3. BHP@RPM (SAE Gross)	4. Fuel Rate:		5. Fuel Rate:		6. Torque @ RPM (SEA Gross)	7. Fuel Rate:		8. Fuel Rate: (lbs/hr)@peak torque	9. Emission Control Device Per SAE J1930
				mm/stroke @ peak HP (for diesel only)	mm/stroke @ peak HP (for diesels only)	mm/stroke@peak torque	mm/stroke@peak torque					
9YDXL1 64M3N	N/A	3KNDP	31.1	39.6/3000	15.4	83.5/1200	35.8	7.1	EM DI			
9YDXL1 64M3N	N/A	3KNDA	29.6	37.8/3000	14.7	80.2/1200	34.4	6.8	EM DI			
9YDXL1 64M3N	N/A	3KNKA	29.1	35.1/2800	13.5	78.8/1200	33.3	6.6	EM DI			
9YDXL1 64M3N	N/A	3KNLA	30.4	33.9/2700	13.5	79.6/1200	33.7	6.7	EM DI			
9YDXL1 64M3N	N/A	3KNMA	29.6	32.8/2600	12.7	80.1/1000	35.7	5.9	EM DI			
9YDXL1 64M3N	N/A	3KNNA	29.2	31.5/2500	12.1	79.9/1000	35.7	5.9	EM DI			
9YDXL1 64M3N	N/A	3KNPA	30.0	30.1/2400	11.9	80.0/1100	33.8	6.1	EM DI			
9YDXL1 64M3N	N/A	3KNQA	28.9	28.9/2300	11.0	80.1/1000	35.7	5.9	EM DI			
9YDXL1 64M3N	N/A	3KNSA	28.6	27.8/2200	10.4	80.2/1000	35.7	5.9	EM DI			
9YDXL1 64M3N	N/A	3KNWA	28.8	25.1/2000	9.5	78.5/1000	34.7	5.7	EM DI			
9YDXL1 64M3N	N/A	3KNKC	27.6	32.1/2800	12.8	71.0/1400	29.0	6.7	EM DI			
9YDXL1 64M3N	N/A	3KNMC	28.3	29.7/2600	12.2	72.6/1200	31.5	6.2	EM DI			
9YDXL1 64M3N	N/A	3KNNC	27.5	28.6/2500	11.4	72.8/1000	31.9	5.3	EM DI			
9YDXL1 64M3N	N/A	3KNSC	26.7	25.2/2200	9.7	72.5/1000	31.4	5.2	EM DI			
9YDXL1 64M3N	N/A	3KNNF	29.6	31.5/2500	12.2	79.3/1200	33.7	6.7	EM DI			
9YDXL1 64M3N	N/A	3KNDAE	29.6	37.8/3000	14.7	80.2/1200	34.4	6.8	EM DI			