California Environmental Protection Agency AIR RESOURCES BOARD	YANMAR CO., LTD.	EXECUTIVE ORDER U-R-028-0492 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)
2010	AYDXL3.32M4N	3.319	Diesel	8,000

SPECIAL FEATURES & EMISSION CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION
Mechanical Direct Injection, Electronic Control Module, Exhaust Gas Recirculation	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 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
37 ≤ kW < 56	Tier 4 - Interim	STD	N/A	N/A	4.7	5.0	0.30	20	15	50
		CERT	--	--	4.4	1.5	0.17	1	1	1

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 19th day of November 2009.

Annette Hebert, Chief
Mobile Source Operations Division

Engine Model Summary Template

ATTACHMENT

U-R-028-0492
11/10/04

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
AYDXL3.32M4N	N/A	4TNV98-ZDM1	71.1/2500	49.4	27.2	179.2/1600	56.5	19.9	ECM, EMEGR DFI
AYDXL3.32M4N	N/A	3TNNA	70.9/2500	48.8	26.9	176.1/1600	53.2	18.8	EMEGR DFI
AYDXL3.32M4N	N/A	3TNPA	68.7/2400	47.9	25.3	177.0/1550	53.4	18.2	EMEGR DFI
AYDXL3.32M4N	N/A	3TNQA	66.1/2300	47.1	23.9	177.6/1500	53.5	17.7	EMEGR DFI
AYDXL3.32M4N	N/A	3TNSA	63.6/2200	48.6	23.5	178.6/1400	55.1	17.0	EMEGR DFI
AYDXL3.32M4N	N/A	3TNVA	61.1/2100	47.9	22.2	178.7/1350	55.1	16.4	EMEGR DFI
AYDXL3.32M4N	N/A	3TNWA	58.4/2000	48.2	21.2	178.7/1300	55.1	15.8	EMEGR DFI
AYDXL3.32M4N	N/A	3TNNC	60.0/2500	40.8	22.5	148.2/1600	45.3	16.0	EMEGR DFI
AYDXL3.32M4N	N/A	3TNPC	58.0/2400	40.5	21.4	149.4/1550	45.1	15.4	EMEGR DFI
AYDXL3.32M4N	N/A	3TNQC	55.4/2300	40.0	20.3	148.8/1500	45.0	14.9	EMEGR DFI
AYDXL3.32M4N	N/A	3TNSC	53.3/2200	39.7	19.3	149.7/1400	45.3	14.0	EMEGR DFI
AYDXL3.32M4N	N/A	3TNVC	51.3/2100	40.3	18.7	151.0/1350	45.3	13.5	EMEGR DFI