

	YANMAR CO., LTD.	EXECUTIVE ORDER U-R-028-0565
		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)
2012	CYDXL1.11V3N	1.116	Diesel	3,000
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
8 ≤ kW < 19	Tier 4 Final	STD	N/A	N/A	7.5	6.6	0.40	20	15	50
		CERT	--	--	4.9	1.5	0.13	3	4	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.**

Executed at El Monte, California on this 16<sup>th</sup> day of November 2011.

*Annette Hebert FOR AGM*

Annette Hebert, Chief  
Mobile Source Operations Division

## Engine Model Summary Template

U-R-028-0565

ATTACHMENT 1 OF 2

11/10/11

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
CYDXL1.11V3N	N/A	3TNV76-VM1	24.0/2800	22.8	10.6	51.2/1900	25.0	7.9	EM IFI
CYDXL1.11V3N	N/A	3TNV76-BX	20.1/2400	21.8	8.6	50.2/1900	24.5	7.7	EM IFI
CYDXL1.11V3N	N/A	3TNV76-K	23.7/2800	22.5	10.4	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	3TNV76-L	22.8/2700	22.4	10.0	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	3TNV76-M	21.9/2600	22.0	9.5	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	3TNV76-N	21.1/2500	21.6	8.9	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	3TNV76-P	20.1/2400	21.3	8.4	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	3TNV76-Q	19.3/2300	21.1	8.0	49.5/1600	24.2	6.4	EM IFI
CYDXL1.11V3N	N/A	3TNV76-S	18.4/2200	21.3	7.7	49.5/1600	24.2	6.4	EM IFI
CYDXL1.11V3N	N/A	3TNV76-V	17.4/2100	20.7	7.2	49.2/1500	24.0	6.0	EM IFI
CYDXL1.11V3N	N/A	3TNV76-W	16.5/2000	20.6	6.8	49.0/1500	23.7	5.9	EM IFI
CYDXL1.11V3N	N/A	3TNV76-XTB	19.3/2300	21.1	8.0	49.5/1600	24.2	6.4	EM IFI
CYDXL1.11V3N	N/A	3TNV76-XJKH	24.8/3000	21.8	10.8	49.8/1900	23.9	7.5	EM IFI
CYDXL1.11V3N	N/A	3TNV76-XJKV	23.7/3000	20.9	10.4	47.8/1900	22.7	7.1	EM IFI
CYDXL1.11V3N	N/A	3CB1-K	23.7/2800	22.5	10.4	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	3CB1-L	22.8/2700	22.4	10.0	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	3CB1-M	21.9/2600	22.0	9.5	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	3CB1-N	21.1/2500	21.6	8.9	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	3CB1-P	20.1/2400	21.3	8.4	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	3CB1-Q	19.3/2300	21.1	8.0	49.5/1600	24.2	6.4	EM IFI
CYDXL1.11V3N	N/A	3CB1-S	18.4/2200	21.3	7.7	49.5/1600	24.2	6.4	EM IFI
CYDXL1.11V3N	N/A	3CB1-V	17.4/2100	20.7	7.2	49.2/1500	24.0	6.0	EM IFI
CYDXL1.11V3N	N/A	3CB1-W	16.5/2000	20.6	6.8	49.0/1500	23.7	5.9	EM IFI
CYDXL1.11V3N	N/A	3D76E-5K	23.7/2800	22.5	10.4	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	3D76E-5L	22.8/2700	22.4	10.0	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	3D76E-5M	21.9/2600	22.0	9.5	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	3D76E-5N	21.1/2500	21.6	8.9	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	3D76E-5P	20.1/2400	21.3	8.4	49.8/1800	24.1	7.2	EM IFI

## Engine Model Summary Template

U-R-028-0565

ATTACHMENT 2 OF 2

11/10/11

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
CYDXL1.11V3N	N/A	3D76E-5Q	19.3/2300	21.1	8.0	49.5/1600	24.2	6.4	EM IFI
CYDXL1.11V3N	N/A	D1.2ACAE2E1A	18.5/2200	21.3	7.7	49.5/1600	24.2	6.4	EM IFI
CYDXL1.11V3N	N/A	3TNV76-XHB	20.1/2400	21.3	8.4	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	3TNV76-XJUV	22.1/3200	17.9	9.5	43.7/2300	19.6	7.5	EM IFI
CYDXL1.11V3N	N/A	3TNV76-XJMZ	24.8/3000	21.8	10.8	48.2/2000	23.2	7.7	EM IFI
CYDXL1.11V3N	N/A	3D76E-6N	21.1/2500	21.6	8.9	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	3TNV76-XVA	23.7/2800	22.5	10.4	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	D1.1DCBE4	18.5/2200	21.3	7.7	49.5/1600	24.2	6.4	EM IFI
CYDXL1.11V3N	N/A	3TNV76-XJT	24.8/3000	21.8	10.8	49.5/1900	23.9	7.5	EM IFI
CYDXL1.11V3N	N/A	3TNV76-XHT	20.1/2400	21.3	8.4	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	D1.1DCAE4	16.5/2000	20.6	6.8	49.0/1500	23.7	5.9	EM IFI
CYDXL1.11V3N	N/A	D1.1DCCE4	20.1/2400	21.3	8.4	49.8/1800	24.1	7.2	EM IFI
CYDXL1.11V3N	N/A	3TNV76-XC	24.8/3200	20.8	11.0	48.1/2000	22.1	7.3	EM IFI
CYDXL1.11V3N	N/A	3TNV76-XZN	20.1/2400	21.3	8.4	49.8/1800	24.1	7.2	EM IFI