

CATERPILLAR INC.

EXECUTIVE ORDER U-R-001-0651

New Off-Road Compression-Ignition Engines Page 1 of 1

Pursuant to the authority vested in California 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-19-095;

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)			
2022	NCPXL27.0HXF	27.0	Diesel	8000			
SPECIAL	FEATURES & EMISSION C	CONTROL SYSTEMS	TYPICAL EQUIPMENT APPLICATION				
	Direct Injection, Turbo Ingine Control Module, Exhaust Gas Recirc	Oxidation Catalyst,	Loader, Tractor, Pump, Off-road Truck, Motor Grader, Shovel, Commercial Equipment				

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for non-methane hydrocarbon (NMHC), 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	EMISSION		EXHAUST (g/kw-hr)				OPACITY (%)			
POWER CLASS	STANDARD CATEGORY		NMHC	NOx	NMHC+NOx	СО	PM	ACCEL	LUG	PEAK
ELSE>560kW	Tier 4 Final	STD	0.19	3.5	N/A	3.5	0.04	N/A	N/A	N/A
		CERT	0.04	3.1		0.01	0.03	-		

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 on this 22nd day of November 2021.

Allen Lyons, Chief

Emissions Certification and Compliance Division

Attachment: Engine Models

EO #: U-R-001-0651

Family: NCPXL27.0HXF

Attachment Last Revised: 11/17/2022

Displacement -Peak Power -Peak Power -Peak Power -Peak Power - Fuel Peak Torque -Peak Torque Peak Torque -Peak Torque -Model Trim Units GHG Code Config Displacement Units Peak Power Speed (rpm) Fueling Units Peak Torque Units Speed (rpm) Fuel Fuel Units OBD Special Notes C27 Cert Test 1 N/A V12 27.02 1046 3412 lb-ft 1200 263 lb/hr N/A N/A N/A Liters horsenower 1800 372 lb/hr N/A C27 V12 811 283 3182 N/A N/A 27.02 Liters horsenower 1800 lb/hr lb-ft 1200 254 lb/hr N/A N/A N/A C27 N/A V12 27.02 811 1800 281 lb/hr 2778 lb-ft 1200 216 lb/hr N/A N/A N/A N/A Liters horsepower C27 N/A V12 27.02 Liters 759 1800 266 lb/hr 2993 lb-ft 1200 235 lb/hr N/A N/A N/A N/A horsepower C27 N/A 27.02 760 266 2556 1200 205 N/A N/A V12 Liters horsepower 1800 lb/hr lb-ft lb/hr N/A N/A C27 5 N/A V12 27.02 Liters 798 horsepower 1800 275 lb/hr 2689 lb-ft 1200 212 lb/hr N/A N/A N/A N/A C27 N/A V12 27.02 Liters 874 horsepower 1800 307 lb/hr 2947 lb-ft 1200 234 lb/hr N/A N/A N/A N/A C27 7 N/A V12 27.02 Liters 948 horsepower 1800 330 lb/hr 3200 lb-ft 1200 252 lb/hr N/A N/A N/A N/A C27 8 N/A V12 27.02 Liters 948 horsepower 1800 330 lb/hr 3200 lb-ft 1200 252 lb/hr N/A N/A N/A N/A C27 9 N/A V12 27.02 Liters 752 horsepower 1800 259 lb/hr 2583 lb-ft 1200 211 lb/hr N/A N/A N/A N/A C27 10 N/A V12 27.02 Liters 752 horsepower 1800 259 lb/hr 2583 lb-ft 1200 211 lb/hr N/A N/A N/A N/A C27 11 N/A V12 27.02 Liters 874 horsepower 1800 307 lb/hr 2947 lb-ft 1200 232 lb/hr N/A N/A N/A N/A C27 12 N/A V12 27.02 Liters 797 horsepower 1800 284 lb/hr 2660 lb-ft 1200 206 lb/hr N/A N/A N/A N/A C27 13 N/A 27.02 797 1800 284 2660 lh-ft 1200 206 lb/hr N/A N/A N/A V12 Liters horsepower lb/hr N/A C27 14 N/A 27.02 872 307 lb-ft 225 lb/hr N/A N/A N/A V12 Liters horsepower 1800 lb/hr 2924 1200 N/A C27 15 27.02 872 1800 307 2924 lb-ft 1200 225 lb/hr N/A N/A N/A N/A V12 lb/hr N/A Liters horsenower C27 16 N/A V12 27.02 947 1800 333 lh/hr 3171 lb-ft 1200 244 lb/hr N/A N/A N/A N/A Liters horsenower C27 17 N/A V12 27.02 947 1800 333 lh/hr 3171 lb-ft 1200 244 lb/hr N/A N/A N/A N/A Liters horsepower C27 18 N/A V12 27.02 Liters 1046 horsepower 1800 372 lb/hr 3412 lb-ft 1200 263 lb/hr N/A N/A N/A N/A C27 19 N/A V12 27.02 Liters 1046 horsenower 1800 372 lb/hr 3412 lb-ft 1200 263 lb/hr N/A N/A N/A N/A C27 20 N/A V12 27.02 Liters 811 horsepower 1800 281 lb/hr 2778 lb-ft 1200 216 lb/hr N/A N/A N/A N/A C27 752 257 1200 203 lb/hr N/A 21 N/A V12 27.02 Liters horsepower 1800 lb/hr 2583 lb-ft N/A N/A N/A C27 22 N/A V12 27.02 1047 1800 362 lb/hr 3418 lb-ft 1200 266 lb/hr N/A N/A N/A N/A Liters horsepower C27 23 N/A V12 27.02 872 1800 307 lb/hr 2924 lb-ft 1200 225 lb/hr N/A N/A N/A N/A Liters horsepower C27 24 N/A V12 27.02 Liters 811 horsepower 1800 281 lb/hr 3207 lb-ft 1200 247 lb/hr N/A N/A N/A N/A C27 25 N/A V12 27.02 Liters 755 horsepower 1800 260 lb/hr 2590 lb-ft 1200 204 lb/hr N/A N/A N/A N/A C27 26 N/A V12 27.02 Liters 752 horsepower 1800 259 lb/hr 2583 lb-ft 1200 211 lb/hr N/A N/A New Model Added N/A