## CATERPILLAR INC.

EXECUTIVE ORDER U-R-001-0612 New Off-Road Compression-Ignition Engines

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-14-012;

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)		
2020	LCPXL12.5NTF	12.5	Diesel	8000		
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION			
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Oxidation Catalyst, Engine Control Module, Periodic Trap Oxidizer, Selective Catalytic Reduction-Urea, Ammonia Oxidation Catalyst			Loader, Tractor, Agricultural Combine, Scraper, Excavator, Moto Grader, 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 POWER	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
CLASS			NMHC	NOx	NMHC+NOx	со	PM	ACCEL	LUG	PEAK
130 ≤ kW ≤ 560	Tier 4 Final	STD	0.19	0.40	N/A	3.5	0.02	N/A	N/A	N/A
		CERT	0.08	0.23		0.2	0.01			

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

Allen Laons, Chief

Emissions Compliance, Automotive Regulations and Science Division

day of June 2019.

## ATTACHMENT 10F1 Engine Model Summary Template U-R-001-0612

Engine Family	1.Engine Code	2,Engine Model	3.BHP@RPM	4.Fuel Rate: nm/stroke @ peak HP	5.Fuel Rate: (lbs/hr) @ peak HP (for diesels only)	6.Torque @ RPM	7.Fuel Rate: mm/stroke@peak torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control	
CPXL12.5NTF	Cert Test 1	C13B	577@2100	287.3	203.0	1943@1400	361.7	170.3	DFI,TC,ECM,CAC,PTOX, OC,SCR-U,AMOX	
CPXL12.5NTF	1	C13B	577@2100	287.3	203.0	1943@1400	361.7	170.3	DFI,TC,ECM,CAC,PTOX, OC.SCR-U.AMOX	
CPXL12.5NTF	1A	2406J	577@2100	287.3	203.0	1943@1400	361.7	170.3	DFI,TC,ECM,CAC,PTOX, OC,SCR-U.AMOX	
CPXL12.5NTF	2	C13B	536@2100	270.7	191.2	1807@1400	335.3	157.9	DFI,TC,ECM,CAC,PTOX, OC.SCR-U.AMOX	
CPXL12.5NTF	2A	2406J	536@2100	270.7	191.2	1807@1400	335.3	157.9	DFI,TC,ECM,CAC,PTOX, OC.SCR-U.AMOX	
CPXL12.5NTF	3	C13B	496@2100	254.9	180.1	1671@1400	308.7	145.4	DFI,TC,ECM,CAC,PTOX, OC,SCR-U.AMOX	
CPXL12.5NTF	3A	2406J	496@2100	254.9	180.1	1671@1400	308.7	145.4	DFI,TC,ECM,CAC,PTOX, OC,SCR-U.AMOX	
CPXL12.5NTF	4	C13B	456@2100	230.9	163.1	1536@1400	283.6	133.6	DFI,TC,ECM,CAC,PTOX, OC,SCR-U.AMOX	
CPXL12.5NTF	4A '	2406J	456@2100	230.9	163.1	1536@1400	283.6	133.6	DFI,TC,ECM,CAC,PTOX, OC,SCR-U.AMOX	