



**CALIFORNIA**  
AIR RESOURCES BOARD

**CATERPILLAR INC.**

**EXECUTIVE ORDER U-R-001-0605**  
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)
2019	KCPXL09.3HTF	9.3	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Oxidation Catalyst, Engine Control Module, Exhaust Gas Recirculation, Periodic Trap Oxidizer, Selective Catalytic Reduction-Urea, Ammonia Oxidation Catalyst			Loader, Tractor, Agricultural Combine, Scraper, Excavator, Motor Grader, Commercial Equipment	

The engine models and codes are attached.

The following are the exhaust certification standards (STD), or family emission limit(s) (FEL) as applicable, 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 CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			NMHC	NOx	NMHC+NOx	CO	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
		FEL	N/A	N/A	--	N/A	0.01	N/A	N/A	N/A
		CERT	0.02	0.12	--	0.1	0.01	--	--	--

**BE IT FURTHER RESOLVED:** That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of any engine within this engine family under 13 CCR Sections 2423 and 2427.

**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 2018.

  
Annette Hebert, Chief  
Emissions Compliance, Automotive Regulations and Science Division

ATTACHMENT 1 DFI  
CATERPILLAR INC

**Engine Model Summary Template** U-R-001-0605

9/26/2018

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
PXL09.3HTF	Cert Test 1	C9.3	325@1800	192	116.3	1260@1200	243	98.1	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	1	C9.3	268@2150	138.3	100.0	881@1400	172.4	81.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	2	C9.3	299@2200	148.5	109.9	1006@1400	187.8	88.4	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	3	C9.3	325@2200	161.7	119.7	1090@1400	206.6	97.3	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	4	C9.3	349@2200	175.5	129.9	1174@1400	223.8	105.4	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	5	C9.3	388@2200	192.5	142.5	1269@1400	240.2	113.1	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	6	C9.3	232@2000	129.3	87.0	850@1000	165.9	55.8	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	6A	C9.3	232@2000	129.3	87.0	850@1000	165.9	55.8	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	6B	C9.3	232@2000	129.3	87.0	850@1400	165.9	55.8	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	7	C9.3	253@2000	138.7	93.3	930@1000	183.0	61.6	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	7A	C9.3	253@2000	138.7	93.3	930@1000	183.0	61.6	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	7B	C9.3	253@2000	138.7	93.3	930@1000	183.0	61.6	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	7C	C9.3	253@2000	138.7	93.3	930@1000	183.0	61.6	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	8	C9.3	274@2000	146.3	98.4	1010@1000	196.7	66.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	8A	C9.3	274@2000	146.3	98.4	1010@1000	196.7	66.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	8B	C9.3	274@2000	146.3	98.4	1010@1000	196.7	66.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	9	C9.3	295@2000	155.9	104.9	1090@1000	211.6	71.2	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	10	C9.3	296@2200	154.3	114.2	1166@1200	219.8	88.7	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX
PXL09.3HTF	11	C9.3	299@2200	156.5	115.8	1261@1200	238.7	96.4	DFI,TC,ECM,CAC,EGR,PTOX, OC,SCR-U,AMOX