

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-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)
2017	HVSXL12.8T4F	12.8	Diesel	8000
<b>SPECIAL FEATURES &amp; EMISSION CONTROL SYSTEMS</b>			<b>TYPICAL EQUIPMENT APPLICATION</b>	
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Electronic Control Modules, Smoke Puff Limiter, Exhaust Gas Recirculation, Diesel Oxidation Catalyst, Periodic Trap Oxidizer, Selective Catalytic Reduction-Urea, Ammonia Oxidation Catalyst			Loaders, Other Industrial 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 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	--	--	--	--	0.01	--	--	--
		CERT	0.08	0.19	--	0.03	0.004	--	--	--

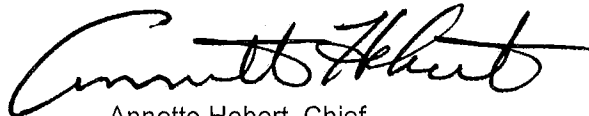
**BE IT FURTHER RESOLVED:** That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of 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 3 day of February 2017.



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

Attachment 1 of 1

**Engine Model Summary Template**

U-R-003-0080

1-25-2017

Engine Family	1.Engine Code	2.Engine Model	3.kW@RPM (SAE Gross)	4.Fuel Rate: mm <sup>3</sup> /stroke @ peak kW (for diesel only)	5.Fuel Rate: kg/hr @ peak kW (for diesels only)	6.Torque Nm @ RPM (SEA Gross)	7.Fuel Rate: mm <sup>3</sup> /stroke@ peak torque	8.Fuel Rate: (kg/hr)@ peak torque	9.Emission Control Device Per SAE J1930	PTex	Amox
HVSXL12.8T4F	*)13-110	D13J	338@1900	267 ± 4%	72 ± 4%	2525@1050	347 ± 4%	57 ± 4%	EM,ECM,TC,CAC,EGR,SPL,DPF,DDI, SCR-U,DOC		
HVSXL12.8T4F	13-124	D13J	310@1900	226 ± 4%	65 ± 4%	2343@1140	322 ± 4%	56 ± 4%	EM,ECM,TC,CAC,EGR,SPL,DPF,DDI, SCR-U,DOC		
HVSXL12.8T4F	13-42	D13J	336@1900	244 ± 4%	69 ± 4%	2407@1140	330 ± 4%	59 ± 4%	EM,ECM,TC,CAC,EGR,SPL,DPF,DDI, SCR-U,DOC		
HVSXL12.8T4F	**)Ref to 13-42	D13J	315@1900	230 ± 4%	65 ± 4%	2340@1140	321 ± 4%	57 ± 4%	EM,ECM,TC,CAC,EGR,SPL,DPF,DDI, SCR-U,DOC		
HVSXL12.8T4F	13-51	D13J	290@1900	213 ± 4%	61 ± 4%	2276@1140	318 ± 4%	54 ± 4%	EM,ECM,TC,CAC,EGR,SPL,DPF,DDI, SCR-U,DOC		
HVSXL12.8T4F	13-50	D13J	251@1900	183 ± 4%	53 ± 4%	2276@1100	317 ± 4%	52 ± 4%	EM,ECM,TC,CAC,EGR,SPL,DPF,DDI, SCR-U,DOC		
HVSXL12.8T4F	**)Ref to 13-50	D13J	251@1900	183 ± 4%	53 ± 4%	1810@1100	250 ± 4%	41 ± 4%	EM,ECM,TC,CAC,EGR,SPL,DPF,DDI, SCR-U,DOC		
HVSXL12.8T4F	**)Ref to 13-50	D13J	251@1900	183 ± 4%	53 ± 4%	1770@1100	244 ± 4%	40 ± 4%	EM,ECM,TC,CAC,EGR,SPL,DPF,DDI, SCR-U,DOC		
HVSXL12.8T4F	13-49	D13J	218@1900	167 ± 4%	47 ± 4%	2071@1000	289 ± 4%	43 ± 4%	EM,ECM,TC,CAC,EGR,SPL,DPF,DDI, SCR-U,DOC		
HVSXL12.8T4F	**)Ref to 13-49	D13J	218@1900	167 ± 4%	47 ± 4%	1620@1000	226 ± 4%	34 ± 4%	EM,ECM,TC,CAC,EGR,SPL,DPF,DDI, SCR-U,DOC		
HVSXL12.8T4F	**)Ref to 13-49	D13J	218@1900	167 ± 4%	47 ± 4%	1605@1000	224 ± 4%	33 ± 4%	EM,ECM,TC,CAC,EGR,SPL,DPF,DDI, SCR-U,DOC		
HVSXL12.8T4F	13-48	D13J	199@1900	152 ± 4%	43 ± 4%	1999@1000	282 ± 4%	42 ± 4%	EM,ECM,TC,CAC,EGR,SPL,DPF,DDI, SCR-U,DOC		
HVSXL12.8T4F	**)Ref to 13-48	D13J	199@1900	152 ± 4%	43 ± 4%	1520@1000	213 ± 4%	32 ± 4%	EM,ECM,TC,CAC,EGR,SPL,DPF,DDI, SCR-U,DOC		
HVSXL12.8T4F	**)Ref to 13-48	D13J	199@1900	152 ± 4%	43 ± 4%	1435@1100	200 ± 4%	30 ± 4%	EM,ECM,TC,CAC,EGR,SPL,DPF,DDI, SCR-U,DOC		
HVSXL12.8T4F	13-63	D13J	284@1800	216 ± 4%	58 ± 4%	1928@1350	259 ± 4%	52 ± 4%	EM,ECM,TC,CAC,EGR,SPL,DPF,DDI, SCR-U,DOC		
HVSXL12.8T4F	13-62	D13J	230@1700	187 ± 4%	48 ± 4%	1692@1275	230 ± 4%	44 ± 4%	EM,ECM,TC,CAC,EGR,SPL,DPF,DDI, SCR-U,DOC		

\*) Test engine

\*\*) MultiTorque Curve Level 1

\*\*) MultiTorque Curve Level 2