



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)
2020	LLHAL09.0SQC	9.0	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Turbocharger, Charge Air Cooler, Electronic Control Module, Electronic Direct Injection, Selective Catalyst Reduction-Urea, Ammonia Oxidation Catalyst, DEF Quality Sensor			Crane, Loader, Dozer, Harvester	

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
		CERT	0.01	0.35	--	0.4	0.02	--	--	--

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 30th day of December 2019.


Allen Lyons, Chief
Emissions Certification and Compliance Division

Engine Model Summary Template

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
LLHAL09.0SQC	R04PQ7101	D964 A7-04	402@2100	292@402	137@402	1283@1400	346@1283	108@1283	TC, CAC, ECM, DDI, SCR-U, AMOX, DQS
LLHAL09.0SQC	R04PQ7102	D964 A7-04	382@2100	278@382	131@382	1283@1400	346@1283	108@1283	TC, CAC, ECM, DDI, SCR-U, AMOX, DQS
LLHAL09.0SQC	R04PQ7103	D964 A7-04	342@2100	250@342	118@342	1280@1400	345@1280	108@1280	TC, CAC, ECM, DDI, SCR-U, AMOX, DQS
LLHAL09.0SQC	R04PQ7104	D964 A7-04	302@2100	223@302	105@302	1132@1400	298@1132	93@1132	TC, CAC, ECM, DDI, SCR-U, AMOX, DQS
LLHAL09.0SQC	R04PQ7101	TCD 9.0 L4	402@2100	292@402	137@402	1283@1400	346@1283	108@1283	TC, CAC, ECM, DDI, SCR-U, AMOX, DQS
LLHAL09.0SQC	R04PQ7102	TCD 9.0 L4	382@2100	278@382	131@382	1283@1400	346@1283	108@1283	TC, CAC, ECM, DDI, SCR-U, AMOX, DQS
LLHAL09.0SQC	R04PQ7103	TCD 9.0 L4	342@2100	250@342	118@342	1280@1400	345@1280	108@1280	TC, CAC, ECM, DDI, SCR-U, AMOX, DQS
LLHAL09.0SQC	R04PQ7104	TCD 9.0 L4	302@2100	223@302	105@302	1132@1400	298@1132	93@1132	TC, CAC, ECM, DDI, SCR-U, AMOX, DQS