

Pursuant to the authority vested in California Air Resources Board by Health and Safety Code Division 26, Part 5, Chapter 2; and pursuant to the authority vested in the undersigned by Health and Safety Code Sections 39515 and 39516 and Executive Order G-19-095;

IT IS ORDERED AND RESOLVED: The engine and emission control systems produced by the manufacturer are certified as described below for use in on-road motor vehicles with a manufacturer's GVWR over 14,000 pounds. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	ENGINE SIZES (L)	FUEL TYPE ¹	STANDARDS & TEST PROCEDURE	INTENDED SERVICE CLASS ²	ECS & SPECIAL FEATURES ³	DIAGNOSTIC ⁶
2023	PPCRH12.9C21	12.9	Diesel	Diesel	HHDD	DDI, TC, CAC, ECM, EGR-C, OC, DPF, SCR-U, AMOX	OBD(\$)
PRIMARY ENGINE'S IDLE EMISSIONS CONTROL ⁵		ADDITIONAL IDLE EMISSIONS CONTROL ⁵					
30g		N/A					
ENGINE (L)	ENGINE MODELS / CODES (rated power, in hp)						
12.9	See attachment for engine models and ratings						
[*] =not applicable; GVWR =gross vehicle weight rating; 13 CCR xyz =Title 13, California Code of Regulations, Section xyz; 40 CFR 86.abc =Title 40, Code of Federal Regulations, Section 86.abc; L =liter; hp =horsepower; kw =kilowatt; hr =hour; ¹ CNG/LNG =compressed/liquefied natural gas; LPG =liquefied petroleum gas; E85 =85% ethanol fuel; MF =multi fuel a.k.a. BF =bi fuel; DF =dual fuel; FF =flexible fuel; ² L/M/H HDD =light/medium/heavy heavy-duty diesel; UB =urban bus; HDO =heavy duty Otto; ³ ECS =emission control system; TWC/OC =three-way/oxidizing catalyst; NAC =NOx adsorption catalyst; SCR-U / SCR-N =selective catalytic reduction – urea / -- ammonia; WU (prefix) =warm-up catalyst; DPF =diesel particulate filter; PTOX =periodic trap oxidizer; HO2S/O2S =heated/oxygen sensor; HAFS/AFS =heated/air-fuel-ratio sensor (a.k.a., universal or linear oxygen sensor); TBI =throttle body fuel injection; SFI/MFI =sequential/multi port fuel injection; DGI =direct gasoline injection; GCARB =gaseous carburetor; IDI/DDI =indirect/direct diesel injection; TC/SC =turbo/super charger; CAC =charge air cooler; EGR / EGR-C =exhaust gas recirculation / cooled EGR; PAIR/AIR =pulsed/secondary air injection; SPL =smoke puff limiter; ECM/PCM =engine/powertrain control module; EM =engine modification; AMOX =Ammonia Oxidation Catalyst; NOXS =NOx sensor; 2 (prefix) =parallel; (2) (suffix) =in series; ⁵ ESS =engine shutdown system (per 13 CCR 1956.8(a)(6)(A)(1)); 30g =30 g/hr NOx (per 13 CCR 1956.8(a)(6)(C)); APS =internal combustion auxiliary power system; ALT =alternative method (per 13 CCR 1956.8(a)(6)(D)); Exempt =exempted per 13 CCR 1956.8(a)(6)(B) or for CNG/LNG fuel systems; N/A =not applicable (e.g., Otto engines and vehicles); ⁶ EMD =engine manufacturer diagnostic system (13 CCR 1971); OBD(F) / (P) / (\$) =full / partial / partial with a fine / on-board diagnostic;							

Following are: 1) the FTP exhaust emission standards, or family emission limit(s) as applicable, under 13 CCR 1956.8; 2) the SET and NTE limits under the applicable California exhaust emission standards and test procedures for heavy-duty diesel engines and vehicles (Test Procedures); and 3) the corresponding certification levels, for this engine family. "Diesel" CO, SET and NTE certification compliance may have been demonstrated by the manufacturer as provided under the applicable Test Procedures in lieu of testing. (For flexible- and dual-fueled engines, the CERT values in brackets [] are those when tested on conventional test fuel. For multi-fueled engines, the STD and CERT values for default operation permitted in 13 CCR 1956.8 are in parentheses.). ⁴

in g/bhp-hr	NMHC		NOx		NMHC+NOx		CO		PM		HCHO	
	FTP	SET	FTP	SET	FTP	SET	FTP	SET	FTP	SET	FTP	SET
STD	0.14	0.14	0.20	0.20	*	*	15.5	15.5	0.01	0.01	*	*
CERT	0.04	0.02	0.14	0.08	*	*	0.01	0.00	0.001	0.002	*	*
NTE	0.21		0.30		*		19.4		0.02		*	

⁴ **g/bhp-hr**=grams per brake horsepower-hour; **FTP**=Federal Test Procedure; **SET**=Supplemental emissions testing; **NTE**=Not-to-Exceed; **STD**=standard or emission test cap; **FEL**=family emission limit; **CERT**=certification level; **NMHC/HC**=non-methane/hydrocarbon; **NOx**=oxides of nitrogen; **CO**=carbon monoxide; **PM**=particulate matter; **HCHO**=formaldehyde;

BE IT FURTHER RESOLVED: The manufacturer has demonstrated compliance with the Greenhouse Gas Emission Standards as specified in Title 13 CCR 1956.8 and the incorporated "California Exhaust Emission Standards and Test Procedures for 2004 and Subsequent Model Heavy Duty Diesel-Engines and Vehicles" (HDDE Test Procedures) adopted December 12, 2002, as last amended September 9, 2021.

PRIMARY INTENDED SERVICE CLASS: TRACTOR/VOCATIONAL				
In g/bhp-hr	CO ₂		CH ₄	N ₂ O
	FTP	SET		
STD	513	447	0.10	0.10
FCL	488 - 521	440 - 444	*	*
FEL	503 - 537	453 - 457	0.10	0.10
CERT	478	434	0.01	0.06

⁴ **g/bhp-hr**=grams per brake horsepower-hour; **FTP**=Federal Test Procedure; **SET**=Supplemental emissions testing; **STD** = standard or emission test cap; **FEL**=family emission limit; **FCL**=family certification level; **CERT**=certification level; **CO₂**=carbon dioxide; **CH₄**=methane; **N₂O**=nitrous oxide; **VOCATIONAL**=vocational engine; **TRACTOR**=tractor engine

BE IT FURTHER RESOLVED: Certification to the FEL(s) / FCL(s) listed above, as applicable, is subject to the following terms, limitations and conditions. The FEL(s) / FCL(s) is the emission level declared by the manufacturer and serves in lieu of an emission standard for certification purposes in any averaging, banking, or trading (ABT) programs. It will be used for determining compliance of any engine in this family and compliance with such ABT programs.

BE IT FURTHER RESOLVED: For the listed engine family, the manufacturer has submitted separate FEL(s) / FCL(s) for each subfamily of heavy-duty engines produced and delivered for sale. All FEL(s) / FCL(s) in any ABT programs, as applicable, are used to demonstrate certification compliance under the incorporated "California Exhaust Emissions Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" (HDDE Test Procedures) adopted December 12, 2002, and as last amended September 9, 2021.

BE IT FURTHER RESOLVED: For the listed engine models the manufacturer has submitted the materials to demonstrate certification compliance with 13 CCR 1965 (emission control labels), 13 CCR 1971.1 (on-board diagnostic, full or partial compliance) and 13 CCR 2035 et seq. (emission control warranty).

BE IT FURTHER RESOLVED: That the manufacturer has elected to include engine models in this engine family which are identified for "emergency vehicle use only". These "emergency vehicle use only" engines are exempt from requirements imposed pursuant to California law and the regulations adopted pursuant thereto for motor vehicle pollution control devices per California Vehicle Code Section 27156.2. The manufacturer must clearly label these engines for "emergency vehicle use only" on the engines' emission control label.

BE IT FURTHER RESOLVED: Except in vehicle applications exempted per 13 CCR 1956.8(a)(6)(B), engines in this engine family certified under 13 CCR 1956.8(a)(6)(C) [30 g/hr NO_x] and section 35.B.4 of the incorporated "California Exhaust Emissions Standards and Test Procedures for 2004 and Subsequent Model Heavy-Duty Diesel Engines and Vehicles" (HDDE Test Procedures) adopted December 12, 2002, as last amended September 9, 2021, shall be provided with an approved "Certified Clean Idle" label that shall be affixed to the vehicle into which the engine is installed.

BE IT FURTHER RESOLVED: The listed engine models is conditionally certified in accordance with 13 CCR Section 1971.1 (k) (deficiency and fines provisions for certification of malfunction and diagnostic system) because the heavy-duty on-board diagnostic (HD OBD) system has been determined to have six deficiencies, and therefore is approved subject to the manufacturer paying a fine of \$100 per engine for the third through sixth deficiencies in the listed engine family that is produced and delivered for sale in California. On a quarterly basis, the manufacturer shall submit to California Air Resources Board reports of the number of engines produced and delivered for sale in California and pay the full fine owed for that quarter pursuant to this conditional certification. Payment shall be made payable to the State Treasurer for deposit in the Air Pollution Control Fund no later than thirty (30) days after the end of each calendar quarter during the 2023 model-year production period. Failure to pay the quarterly fine, in full, in the time provided, may be cause for the Executive Officer to rescind this conditional certification, effective from the start of the quarter in question, in which case all engines covered under this conditional certification for that quarter and all future quarters would be deemed uncertified and subject to a civil penalty of up to \$42,450 per engine pursuant to HSC Section 43154.

Engines certified under this Executive Order must conform to all applicable California emission regulations.

The Bureau of Automotive Repair will be notified by copy of this Executive Order.

Executed on this 16th day of December 2022.



Robin U. Lang, Chief
Emissions Certification and Compliance Division

Model	Code	Trim	Config	Displacement	Displacement - Units	Peak Power	Peak Power - Units	Peak Power - Speed (rpm)	Peak Power - Fueling	Peak Power - Fuel Units	Peak Torque	Peak Torque - Units	Peak Torque - Speed (rpm)	Peak Torque - Fuel	Peak Torque - Fuel Units	OBD	GHG	Special	Notes
MX-13_510hp	510hp	N/A	I-6	12.9	Liters	510	horsepower	1600	284.6	mm3/stroke	1850	lb-ft	1000	315.7	mm3/stroke	Partial with Fines	Tractor		Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_510hp	510hp	N/A	I-6	12.9	Liters	510	horsepower	1600	284.6	mm3/stroke	1850	lb-ft	1000	315.7	mm3/stroke	Partial with Fines	Vocational		Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_510hp_FE	510hp	N/A	I-6	12.9	Liters	510	horsepower	1600	284.6	mm3/stroke	1850	lb-ft	1000	315.7	mm3/stroke	Partial with Fines	Tractor	FE = Fire and Emergency	Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_510hp_FE	510hp	N/A	I-6	12.9	Liters	510	horsepower	1600	284.6	mm3/stroke	1850	lb-ft	1000	315.7	mm3/stroke	Partial with Fines	Vocational	FE = Fire and Emergency	Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_510hp_DA	510hp	N/A	I-6	12.9	Liters	510	horsepower	1600	284.6	mm3/stroke	1850	lb-ft	1000	315.7	mm3/stroke	Partial with Fines	Tractor	DA = Delegated Assembly	Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_510hp_DA	510hp	N/A	I-6	12.9	Liters	510	horsepower	1600	284.6	mm3/stroke	1850	lb-ft	1000	315.7	mm3/stroke	Partial with Fines	Vocational	DA = Delegated Assembly	Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_483hp	483hp	N/A	I-6	12.9	Liters	483	horsepower	1600	269.9	mm3/stroke	1650	lb-ft	900	288.1	mm3/stroke	Partial with Fines	Tractor		Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_483hp	483hp	N/A	I-6	12.9	Liters	483	horsepower	1600	269.9	mm3/stroke	1650	lb-ft	900	288.1	mm3/stroke	Partial with Fines	Vocational		Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_483hp_DA	483hp	N/A	I-6	12.9	Liters	483	horsepower	1600	269.9	mm3/stroke	1650	lb-ft	900	288.1	mm3/stroke	Partial with Fines	Tractor	DA = Delegated Assembly	Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_483hp_DA	483hp	N/A	I-6	12.9	Liters	483	horsepower	1600	269.9	mm3/stroke	1650	lb-ft	900	288.1	mm3/stroke	Partial with Fines	Vocational	DA = Delegated Assembly	Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_456hp	456hp	N/A	I-6	12.9	Liters	456	horsepower	1600	259.2	mm3/stroke	1650	lb-ft	900	281.5	mm3/stroke	Partial with Fines	Tractor		Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_456hp	456hp	N/A	I-6	12.9	Liters	456	horsepower	1600	259.2	mm3/stroke	1650	lb-ft	900	281.5	mm3/stroke	Partial with Fines	Vocational		Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_456hp_MT1850	456hp	N/A	I-6	12.9	Liters	456	horsepower	1600	259.2	mm3/stroke	1650 - 1850	lb-ft	900	281.5 - 308.2	mm3/stroke	Partial with Fines	Tractor	MT = Multi-Torque	Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_456hp_MT1850	456hp	N/A	I-6	12.9	Liters	456	horsepower	1600	259.2	mm3/stroke	1650 - 1850	lb-ft	900	281.5 - 308.2	mm3/stroke	Partial with Fines	Vocational	MT = Multi-Torque	Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_456hp_MT1750	456hp	N/A	I-6	12.9	Liters	456	horsepower	1600	259.2	mm3/stroke	1550 - 1750	lb-ft	850 - 900	267.3 - 298.6	mm3/stroke	Partial with Fines	Tractor	MT = Multi-Torque	Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_456hp_MT1750	456hp	N/A	I-6	12.9	Liters	456	horsepower	1600	259.2	mm3/stroke	1550 - 1750	lb-ft	850 - 900	267.3 - 298.6	mm3/stroke	Partial with Fines	Vocational	MT = Multi-Torque	Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_429hp	429hp	N/A	I-6	12.9	Liters	429	horsepower	1600	242.6	mm3/stroke	1550	lb-ft	900	265.3	mm3/stroke	Partial with Fines	Tractor		Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_429hp	429hp	N/A	I-6	12.9	Liters	429	horsepower	1600	242.6	mm3/stroke	1550	lb-ft	900	265.3	mm3/stroke	Partial with Fines	Vocational		Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_406hp_MT1750	406hp	N/A	I-6	12.9	Liters	406	horsepower	1600	228.6	mm3/stroke	1650 - 1750	lb-ft	900	281.5 - 298.6	mm3/stroke	Partial with Fines	Tractor	MT = Multi-Torque	Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX
MX-13_406hp_MT1750	406hp	N/A	I-6	12.9	Liters	406	horsepower	1600	228.6	mm3/stroke	1650 - 1750	lb-ft	900	281.5 - 298.6	mm3/stroke	Partial with Fines	Vocational	MT = Multi-Torque	Emission Control Devices per SAE J1930 DDI / TC / CAC / ECM / EGR-C / OC / SCR-U / PTOX/AMOX