

CHONGQING ZONGSHEN GENERAL POWER MACHINE CO., LTD.

EXECUTIVE ORDER U-U-082-0514
New Off-Road Small Spark-Ignition
Engines at or Below 19 Kilowatts

Pursuant to the authority vested in California Air Resources Board by the Health and Safety Code, Division 26, Part 5, Chapters 1 and 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: That the following engine and emission control systems produced by the manufacturer are certified for use in small off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	FNGINE FAMILY		DISPLACEMENT (cc)	MENT ENGINE CLASS		FUEL TYPE (CNG/LNG=compressed/liquefied natural gas LPG=liquefied petroleum gas)		
2022	NCZHS.4592DF		420, 439, 459	4-stroke, ≥ 225 cc		Gasoline-LPG Dual-Fuel		
DURABILITY HOURS		SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION			
250		EM			Compressor, Pump, Pressure Washer, Generator Set			
ENGINE CODES/MODELS (rated power in kilowatt, kW)		See Attachment						

ABBREVIATIONS: EM=engine modification TWC/OC=three-way/oxidizing catalyst WUTWC/WUOC=warm-up TWC/OC O2S=oxygen sensor HO2S=heated O2S EGR=exhaust gas recirculation AIR=secondary air injection PAIR=pulsed AIR MFI=multi port fuel injection SFI=sequential MFI TBI=throttle body fuel injection DFI=direct fuel injection TC/SC=turbo/super charger CAC=charge air cooler 2(prefix)=parallel (2)(suffix)=in series ECM=engine control module

The following are the hydrocarbon plus oxides of nitrogen (HC+NOx), carbon monoxide (CO), and particulate matter (PM) emission standards (Title 13, California Code of Regulations, (13 CCR) Section 2403(b)), and certification emission levels for this engine family in grams per kilowatt-hour (g/kW-hr). Engines within this engine family shall have closed crankcases in conformance with Section 1054.115(a) of the "California Exhaust Emission Standards and Test Procedures for New 2013 and Later Small Off-Road Engines," adopted October 25, 2012.

*=not applicable	HC+NOx (g/kW-hr)	CO (g/kW-hr)	PM (g/kW-hr)	
STANDARD	8.0	549	*	
FAMILY EMISSION LEVEL	*	*	*	
CERTIFICATION LEVEL	5.2	275	*	

BE IT FURTHER RESOLVED: That the family emission level(s) (FELs), as applicable, is an emission limit declared by the manufacturer for use in the 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 2403(e)(1) and 2407(a).

BE IT FURTHER RESOLVED: That for the listed engines, the manufacturer has submitted, and the Executive Officer hereby approves, the information and materials to demonstrate certification compliance with 13 CCR Section 2404 (emission control labels) and 13 CCR Sections 2405 and 2406 (emission control system warranty).

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

Quarterly reports of engines produced in this engine family for sale in California shall be submitted to the Executive Officer no later than 45 days after the end of each calendar guarter.

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 on this <u>13th</u> day of October 2021.

Allen Lyons, Chief

Emissions Certification and Compliance Division

Date: _3/1/2022_

Engine Family: _NCZHS.4592DF_

For CARB Use Only
Executive Order: U-U-082-0514
Attachment _1_ of _1_
RC1: 04-04-22

Model Summary

	47.	48.	49.	50.	51.	52.	53.	54.	55.	56.
Worst Case (Check One)	Model Designation	Sales Code	Displacement (cc)	Bore/Stroke	Ignition Timing	Max Power (kW)	Rated Speed (RPM)	Rated Torque	Torque Speed (RPM)	Emission Control System
X	GB460EM-2_	50-State	459	92/69 mm	BTDC 28°	11.0 kW	3600	30 N.m	2600	EM
	GB440M-2_	50-State	439	92/66 mm	BTDC 28°	10.0 kW	3600	27 N.m	2600	EM
	FH440M_	50-State	439	92/66 mm	BTDC 26°	9.5 kW	3600	30 N.m	2800	EM
	GB420M-2_	50-State	420	90/66 mm	BTDC 25°	9.0 kW	3600	26 N.m	2800	EM
	GB420M-2-01	50-State	420	90/66 mm	BTDC 25°	9.0 kW	3600	26 N.m	2800	EM
	GB420M-2-02	50-State	420	90/66 mm	BTDC 25°	9.0 kW	3600	26 N.m	2800	EM
	GB420M-2-03	50-State	420	90/66 mm	BTDC 25°	9.0 kW	3600	26 N.m	2800	EM
	GB420M-2-04	50-State	420	90/66 mm	BTDC 25°	9.0 kW	3600	26 N.m	2800	EM
	GB420M-2-05	50-State	420	90/66 mm	BTDC 25°	9.0 kW	3600	26 N.m	2800	EM
	GB460M-2_	50-State	459	92/69 mm	BTDC 28°	11.0 kW	3600	30 N.m	2600	EM
	GB460M-2-01	50-State	459	92/69 mm	BTDC 28°	11.0 kW	3600	30 N.m	2600	EM
	GB420M-2-06	50-State	420	90/66 mm	BTDC 25°	9.0 kW	3600	26 N.m	2800	EM
	GB420M-2-07	50-State	420	90/66 mm	BTDC 25°	9.0 kW	3600	26 N.m	2800	EM
	GB460M-2-02	50-State	459	92/69 mm	BTDC 28°	11.0 kW	3600	30 N.m	2600	EM