

EXHAUST EMISSION DATA SHEET

MQ POWER GENERATOR SET

Model: CG500DUAL



The engine used in this generator set is certified to comply with United States EPA Tier 4 and CARB Mobile Off-Highway emission regulations.

ENGINE DATA

Manufacturer: Volvo	Bore: 5.67 in. (144 mm)
Model: TWD1672GE	Stroke: 6.5 in. (165 mm)
Type: 4-Cycle, Diesel	Displacement: 984 cid (16.1 liters)
Aspiration: Electronic Direct Injection, Turbocharger, Charge Air Cooler, ECM,SCR	Compression Ratio: 16.8:1

PERFORMANCE DATA

SAE Gross HP @ 1800 RPM (60 Hz)	836
Rated Load Fuel Consumption (gal/Hr)	34.0
Rated Load Exhaust Gas Flow (cfm)	4347
Rated Load Exhaust Gas Temperature (°F)	831

United States EPA - Mobile Off-Highway Tier 4 Limits - >751 BHP

Criteria Pollutant	Emission Requirements	Certified Engine Emissions
NOx (Oxides of Nitrogen as NO2)	0.499 gr/bhp-hr	0.246 gr/bhp-hr
HC (Total Unburned Hydrocarbons)	N/A gr/bhp-hr	N/A gr/bhp-hr
NOx + HC (Combined)	N/A gr/bhp-hr	N/A gr/bhp-hr
CO (Carbon Monoxide)	2.6 gr/bhp-hr	0.07 gr/bhp-hr
PM (Particulate Matter)	0.022 gr/bhp-hr	0.014 gr/bhp-hr
NMHC (Non-Methane Hydrocarbons)	0.14 gr/bhp-hr	0.002 gr/bhp-hr
NMHC + NOx	N/A gr/bhp-hr	N/A gr/bhp-hr

EPA Engine Family:	JVPXL16.1CDC
EPA Certificate of Conformance:	JVPXL16.1CDC-006
ARB Executive Order:	U-R-014-0167
Effective Date:	Model Year 2018

Note: Engine operation with excessive air intake or exhaust restriction beyond factory published maximum limits, or with improper service maintenance, may result in higher emission levels.

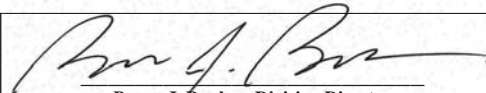


**UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2018 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT**

**OFFICE OF TRANSPORTATION
AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105**

Certificate Issued To: AB Volvo Penta
(U.S. Manufacturer or Importer)
Certificate Number: JVPXL16.1CDC-006

Effective Date:
10/16/2017
Expiration Date:
12/31/2018


Byron J. Bunker, Division Director
Compliance Division

Issue Date:
10/16/2017
Revision Date:
N/A

Model Year: 2018
Manufacturer Type: Original Engine Manufacturer
Engine Family: JVPXL16.1CDC

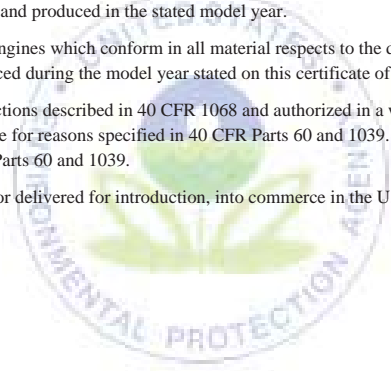
Mobile/Stationary Indicator: Both
Emissions Power Category: 560<kW<=900
Fuel Type: Diesel
After Treatment Devices: Ammonia Slip Catalyst, Selective Catalytic Reduction
Non-after Treatment Devices: Electronic Control, Smoke Puff Limiter

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Parts 60 and 1039, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following engines, by engine family, more fully described in the documentation required by 40 CFR Parts 60 and 1039 and produced in the stated model year.

This certificate of conformity covers only those new compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Parts 60 and 1039 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Parts 60 and 1039.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Parts 60 and 1039. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Parts 60 and 1039.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.





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 system 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)
2018	JVPXL16.1CDC	16.1	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Electronic Control Module, Smoke Puff Limiter, Selective Catalytic Reduction - Urea			Generator Set	

The engine models and codes are attached.

The following are the exhaust certification standards (STD) and certification levels (CERT) for hydrocarbon (HC), 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
560kW < GEN ≤ 900kW	Tier 4 Final	STD	0.19	0.67	N/A	3.5	0.03	N/A	N/A	N/A
		CERT	0.003	0.33	-	0.1	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 20 day of November 2017.

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

Attachment 1/1

Engine Model Summary Template

U-R-014-0167
11/2/2017

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@pea k torque	8.Fuel Rate: (lbs/hr)@peak torque	9.Emission Control Device Per SAE J1930
JVPXL16.1CDC	I	TWD1673 GE	919@1800	505	305	3634Nm@1800	505	305	DDI,EM,ECM,CAC,TC,SPL,SCR-U
JVPXL16.1CDC	II	TWD1672 GE	825@1800	447	270	3264Nm@1800	447	270	DDI,EM,ECM,CAC,TC,SPL,SCR-U