### **EXHAUST EMISSION DATA SHEET**

### MQ POWER GENERATOR SET





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:
 KUBOTA
 Bore:
 2.52 in.
 (64 mm)

 Model:
 Z482
 Stroke:
 2.68 in.
 (68 mm)

 Type:
 4-Cycle, In-Line, 2-Cylinder, Diesel
 Displacement: 29.2 cid (0.479 liters)

Aspiration: Naturally Aspirated, Indirect Injection Compression Ratio: 23:1

### **PERFORMANCE DATA**

SAE Gross HP @ 3600 RPM (60 Hz) 12.3
Rated Load Fuel Consumption (gal/Hr) 0.69
Rated Load Exhaust Gas Flow (cfm) 66
Rated Load Exhaust Gas Temperature (°F) 932

United States EPA - Mobile Off-Highway Tier 4 Limits -

 $0 \le \sim < 25 \text{ BHP}$ 

Criteria Pollutant	Emis	ssion Requirements	Certifie	ed Engine Emissions
NOx (Oxides of Nitrogen as NO2)	N/A	gr/bhp-hr	N/A	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)	4.92	gr/bhp-hr	1.86	gr/bhp-hr
PM (Particulate Matter)	0.29	gr/bhp-hr	0.15	gr/bhp-hr
NMHC (Non-Methane Hydrocarbons)	N/A	gr/bhp-hr	N/A	gr/bhp-hr
NMHC + NOx	5.59	gr/bhp-hr	4.47	gr/bhp-hr

EPA Engine Family: JKBXL.719KCC

EPA Certificate of Conformance: JKBXL.719KCC-017

ARB Executive Order: U-R-025-0764

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.

Date: 2/7/2018



# 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: Kubota Corporation

(U.S. Manufacturer or Importer)

Certificate Number: JKBXL.719KCC-017

 $\frac{\text{Effective Date:}}{10/10/2017}$ 

**Expiration Date:** 12/31/2018

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Revision Date: N/A

**Issue Date:** 

10/10/2017

Model Year: 2018

Manufacturer Type: Original Engine Manufacturer

**Engine Family:** JKBXL.719KCC

Mobile/Stationary Indicator: Mobile Emissions Power Category: 8<=kW<19

Fuel Type: Diesel

**After Treatment Devices:** No After Treatment Devices Installed **Non-after Treatment Devices:** Engine Design Modification

Byron J. Bunker, Division Director

Compliance Division

Pursuant to Section 213 of the Clean Air Act (42 U.S.C. section 7547) and 40 CFR Part 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 Part 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 Part 1039 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Part 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 Part 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 Part 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 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)		
2018	JKBXL.719KCC	0.479, 0.719	Diesel	3000		
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION			
Indirect Diesel Injection			Generator Set, Light Tower, Welder, Auxiliary Power Unit			

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 EMISSION POWER STANDARD CLASS CATEGORY		EXHAUST (g/kW-hr)					OPACITY (%)			
		NMHC	NOx	NMHC+NOx	· co	PM	ACCEL	LUG	PEAK	
kW < 19	Tier 4 Final	OPTIONAL STD	N/A	- N/A	7.5	6.6	0.40	N/A	N/A	N/A
		CERT			6.0	2.5	0.21			

**BE IT FURTHER RESOLVED:** That for the listed engine models, the manufacturer has complied with the more stringent set of standards from the various power categories in conformance with Section 1039.230 (e) of the "California Exhaust Emission Standards and Test Procedures for New 2011 and Later Tier 4 Off-Road Compression Ignition Engines, Part I-D" adopted October 20, 2005 and last amended October 25, 2012.

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

\_ day of September 2017.

Annette Hebert, Chief

Emissions Compliance, Automotive Regulations and Science Division

## **Engine Model Summary Form**

EO#U-R-0>5-0764 Date: 9/15/2017

**KUBOTA Corporation** Manufacturer:

Nonroad Cl Engine category:

EPA Engine Family: JKBXL.719KCC

**New Submission** 

Mfr Family Name:

Process Code:

N/A

Attachment page 1 of 1

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	
D722-D2-EF	20.2@3600	15.2	9.2	29.6@3600	15.2	9.2	EM, IFI	
Z482-D2-EF	13.8@3600	15.4	6.2	20.1@3600	15.4	6.2	EM, IFI	
Z482-D2-EF	13.1@3600	15.2	6.1	19.2@3600	15.2	6.1	EM, IFI	
Z482-D2-EF	12.7@3600	14.7	5.9	18.6@3600	14.7	5.9	EM, IFI	
Z482-D2-EF	12.2@3600	14.2	5.7	17.8@3600	14.2	5.7	EM, IFI	
Z482-D2-EF	9.5@2600	14.3	4.2	19.3@2600	14.3	4.2	EM, IFI	
Z482-D2-EF	11.0@3000	<sup>1</sup> 14.6	4.9	19.3@3000	14.6	4.9	EM, IFI	
Z482-D2-EF	6.0@1800	13.6	2.7	17.6@1800	13.6	2.7	EM, IFI	
Z482-D2-EF	6.0@1800	13,6	2.7	17.6@1800	13.6	2.7	EM, IFI	
Z482-D2-EF	8.7@2400	14.0	3.8	19.1@2400	14.0	3.8	EM, IFI	
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	D722-D2-EF Z482-D2-EF Z482-D2-EF Z482-D2-EF Z482-D2-EF Z482-D2-EF Z482-D2-EF Z482-D2-EF Z482-D2-EF	D722-D2-EF   20.2@3600   Z482-D2-EF   13.1@3600   Z482-D2-EF   12.7@3600   Z482-D2-EF   12.2@3600   Z482-D2-EF   12.2@3600   Z482-D2-EF   9.5@2600   Z482-D2-EF   11.0@3000   Z482-D2-EF   6.0@1800   Z482-D2-EF   C.0@1800	2.Engine Model       3.BHP@RPM (SAE Gross)       mm/stroke @ peak HP (for diesel only)         D722-D2-EF       20.2@3600       15.2         Z482-D2-EF       13.8@3600       15.4         Z482-D2-EF       13.1@3600       15.2         Z482-D2-EF       12.7@3600       14.7         Z482-D2-EF       12.2@3600       14.2         Z482-D2-EF       9.5@2600       14.3         Z482-D2-EF       11.0@3000       14.6         Z482-D2-EF       6.0@1800       13.6         Z482-D2-EF       6.0@1800       13.6	2.Engine Model (SAE Gross) mm/stroke @ peak HP (for diesel only) (Ibs/hr) @ peak HP (	2.Engine Model (SAE Gross) mm/stroke @ peak HP (for diesel only) (for diesels only) (SEA Gross) (SEA G	2.Engine Model         3.BHP@RPM (SAE Gross)         mm/stroke @ peak HP (for diesel only)         (lbs/hr) @ peak HP (for diesels only)         6.1 orque @ RPM (SEA Gross)         mm/stroke@peak torque           D722-D2-EF         20.2@3600         15.2         9.2         29.6@3600         15.2           Z482-D2-EF         13.8@3600         15.4         6.2         20.1@3600         15.4           Z482-D2-EF         13.1@3600         15.2         6.1         19.2@3600         15.2           Z482-D2-EF         12.7@3600         14.7         5.9         18.6@3600         14.7           Z482-D2-EF         12.2@3600         14.2         5.7         17.8@3600         14.2           Z482-D2-EF         9.5@2600         14.3         4.2         19.3@2600         14.3           Z482-D2-EF         11.0@33000         14.6         4.9         19.3@3000         14.6           Z482-D2-EF         6.0@1800         13.6         2.7         17.6@1800         13.6           Z482-D2-EF         8.7@2400         14.0         3.8         19.1@2400         14.0	2.Engine Model (SAE Gross) mm/stroke @ peak HP (flor diesel only) (for diesel only)	