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:KUBOTABore:2.52in.(64mm)Model:Z482Stroke:2.68in.(68mm)Type:4-Cycle, In-Line, 2-Cylinder, DieselDisplacement:29.2cid(0.479liters)

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

PERFORMANCE DATA

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

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

0≤ ~ <25 BHP

| Criteria Pollutant | Emission Requirements | | Certifie | d 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: NKBXL.719KCC

EPA Certificate of Conformance: NKBXL.719KCC-012

ARB Executive Order: U-R-025-0981

Effective Date: Model Year 2022

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.

Data And Specifications Subject To Change Without Notice Date: 4/15/21



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY 2022 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: NKBXL.719KCC-012

Effective Date: 07/08/2021

Expiration Date: 12/31/2022

 $\frac{\text{Issue Date:}}{07/08/2021}$

 $\frac{\text{Revision Date:}}{N/A}$

Model Year: 2022

Manufacturer Type: Original Engine Manufacturer

Engine Family: NKBXL.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.



KUBOTA CORPORATION

EXECUTIVE ORDER U-R-025-0981

New Off-Road Compression-Ignition Engines Page 1 of 1

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 | | | FUEL TYPE | USEFUL LIFE (hours) | | |
|---------------|-----------------------|-----------------|--|------------------------|--|--|
| 2022 | NKBXL.719KCC | 0.479, 0.719 | Diesel | 3000 | | |
| SPECIAL | FEATURES & EMISSION C | CONTROL SYSTEMS | TYPICAL EQUIPMENT APPLICATION | | | |
| | Indirect Diesel Inje | ection | 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 | 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 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).

BE IT FURTHER RESOLVED: That for the listed engine models which include engines from different power categories in the same engine family, the manufacturer is complying with the more stringent set of standards from the 8 ≤ kW < 19 power category in conformance with the incorporated 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 1-D" adopted October 20, 2005 and last amended October 25, 2012.

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 on this 19th day of August 2021.

Á**ll**en **⊭**yons, Chief

Emissions Certification and Compliance Division

Attachment: Engine Models EO #: U-R-025-0981 Family: NKBXL.719KCC Attachment I

Attachment Last Revised: 7/26/2021

Peak Power -Displacement -Peak Power -Peak Power -Peak Power - Fuel Peak Torque - Peak Torque - Peak Torque - Fuel Config Model Code Trim Displacement Units Peak Power Units Speed (rpm) Fueling Units Peak Torque Units Speed (rpm) Fuel Units OBD GHG Special Notes 15.1 kilowatt D722-D2-EF D722-D2-EF01 I-3 0.719 Liters 3600 15.2 mm3/stroke 40.1 N-m 3600 15.2 mm3/stroke N/A N/A N/A N/A Z482-D2-EF Z482-D2-EF01 1-2 0.479 Liters 10.3 kilowatt 3600 15.4 mm3/stroke 27.3 N-m 3600 15.4 mm3/stroke N/A N/A N/A N/A Z482-D2-EF Z482-D2-EF02 1-2 0.479 Liters 9.8 kilowatt 3600 15.2 mm3/stroke 26.0 N-m 3600 15.2 mm3/stroke N/A N/A N/A N/A Z482-D2-EF Z482-D2-EF03 1-2 0.479 Liters 9.5 kilowatt 3600 14.7 mm3/stroke 25.2 N-m 3600 14.7 mm3/stroke N/A N/A N/A N/A Z482-D2-EF Z482-D2-EF04 1-2 0.479 Liters 9.1 kilowatt 3600 14.2 mm3/stroke 24.1 N-m 3600 14.2 mm3/stroke N/A N/A N/A N/A Z482-D2-EF Z482-D2-EF05 1-2 0.479 7.1 2600 14.3 mm3/stroke 2600 14.3 N/A N/A N/A Liters kilowatt 26.1 N-m mm3/stroke N/A Z482-D2-EF Z482-D2-EF06 1-2 0.479 Liters 8.2 kilowatt 3000 14.6 mm3/stroke 26.1 3000 14.6 mm3/stroke N/A N/A N/A N/A N-m Z482-D2-EF Z482-D2-EF07 1-2 0.479 Liters 4.5 kilowatt 1800 13.6 mm3/stroke 23.9 N-m 1800 13.6 mm3/stroke N/A N/A N/A N/A Z482-D2-EF Z482-D2-EF07e 4.5 1-2 0.479 Liters kilowatt 1800 13.6 mm3/stroke 23.9 N-m 1800 13.6 mm3/stroke N/A N/A N/A N/A Z482-D2-EF Z482-D2-EF08 0.479 6.5 kilowatt mm3/stroke 2400 1-2 Liters 2400 14.0 25.9 N-m 14.0 mm3/stroke N/A N/A N/A N/A