

## **KUBOTA Corporation**

EXECUTIVE ORDER U-R-025-0413 New Off-Road Compression-Ignition Engines

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-02-003;

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<br>YEAR | ENGINE FAMILY                                     | DISPLACEMENT (liters) | FUEL TYPE                     | USEFUL LIFE (hours) |  |  |  |  |  |  |
|---------------|---|-----------------------|-------------------------------|---------------------|--|--|--|--|--|--|
| 2010          | AKBXL02.2RCD                                      | 2.216                 | Diesel 5                      |                     |  |  |  |  |  |  |
|               | FEATURES & EMISSION (                             | CONTROL SYSTEMS       | TYPICAL EQUIPMENT APPLICATION |                     |  |  |  |  |  |  |
| Ele           | Direct Diesel Injec<br>ectronic Control Module (S | tion,<br>Some Models) | Truck Refrigeration           | n Units             |  |  |  |  |  |  |

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<br>POWER<br>CLASS | EMISSION             |      |     | E   |          | OPACITY (%) |      |       |     |      |  |
|-------------------------|----------------------|------|-----|-----|----------|-------------|------|-------|-----|------|--|
|                         | STANDARD<br>CATEGORY |      | HC  | NOx | NMHC+NOx | со          | PM   | ACCEL | LUG | PEAK |  |
| 19 ≤ kW < 37            | Tier 4 Interim       | STD  | N/A | N/A | 7.5      | 5.5         | 0.30 | 20    | 15  | 50   |  |
| -                       |                      | CERT |     |     | 6.1      | 1.0         | 0.21 | 1     | 1   | 1    |  |

**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 February 2009

Annette Hebert, Chief

Mobile Source Operations Division

## **Engine Model Summary Form**

KUBOTA Corporation Manufacturer:

Nonroad CI Engine category:

EPA Engine Family: AKBXL02.2RCD

Mfr Family Name: N/A

New Submission Process Code:

Attachment

U-R-025-0413

| 30  | )((F           | )<br>)                   | 200 PM          |                |                 |                | >                           |  |  |  |  |  |  |  | - 10 (A)   |  |     |  |
|---|----------------|--------------------------|-----------------|----------------|-----------------|----------------|-----------------------------|--|--|--|--|--|--|--|--|--|-----|--|
| 8. Fuel Rate: 9. Emission Control (lbs/hr)@peak torque Device Per SAE J1930 | E              | EM                       | EM, Electronic  | EM             | EM, Electronic  | EM             | . EM, Electronic            |  | ,  |  |  |  |  |  |  |  |     | A STATE OF THE PARTY OF THE PAR |
| 8.Fuel Rate:<br>(lbs/hr)@peak torque  | 11.3           | 11.8                     | 11.8            | 10.0           | 10.0            | 10.0           | 10.0                        |  |  |  | AND THE RESERVE OF THE PROPERTY OF THE PROPERT |  |  | A CONTRACTOR OF THE CONTRACTOR | The second secon |  | 100 | **************************************   |
| 7.Fuel Rate:<br>mm/stroke@peak<br>torque                                    | 31.7           | 29.3                     | 29.3            | 29.7           | 29.7            | 29.7           | 29.7                        |  |  |  | A PARTIE DE LA CONTRACTOR DEL CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR DE LA CONTRACTOR | Total and the state of the stat |  |  |  | The state of the s |     |  |
| 6. Torque @ RPM<br>(SEA Gross)  | 101.0@1600     | 93.7@1800                | 93.7@1800       | 93.5@1500      | 93.5@1500       | 93.5@1500      | 93.5@1500                   |  |  |  |  |  |  |  |  |  |     |  |
| 5.Fuel Rate:<br>(lbs/hr) @ peak HP<br>(for diesels only)                    | 12.5           | 14.5                     | 14.5            | 12.1           | . 12.1          | 11.4           | 11.4                        |  |  |  |  |  |  |  |  |  |     |  |
| 4.Fuel Rate:<br>mm/stroke @ peak HP<br>(for diesel only)                    | 31.0           | 29.5                     | 29.5            | 30.0           | 30.0            | 30.0           | 30.0                        |  |  |  |  |  | The second secon |  |  | Attifutures considerate de constante de cons |     |  |
| 3.BHP@RPM<br>(SAE Gross)  | 33.4@1800      | 37.8@2200                | 37.8@2200       | 32.1@1800      | 32.1@1800       | 30.3@1700      | 30.3@1700                   |  | and the same of th |  |  |  |  |  |  |  |     |  |
| 2.Engine Model  | V2203L-DI-ET   | V2203L-DI-ET28 37.8@2200 | V2203L-DI-ET    | V2203L-DI-ET   | V2203L-DI-ET    | V2203L-DI-ET   | V2203L-DI-ET ₹*.6 30.3@1700 |  |  |  |  |  |  |  |  |  |     |  |
| Engine Code   | V2203L-DI-ET01 | V2203L-DI-ET02           | /2203L-DI-ET02e | V2203L-DI-ET03 | /2203L-DI-ET03e | V2203L-DI-ET04 | /2203L-DI-ET04e             |  | And the state of t |  |  |  |  |  |  |  |     |  |