

Rear Lift Calibration in a Kubota M7 (VCU2 - Body Computer System)



Most of the daily tasks that a tractor owner needs to perform are based on the hydraulics of his vehicles. By using different implements, these hydraulics systems give the tractor a remarkable level of adaptability to the different actions that the farmers need to execute on their professional activity. As these systems are very important, and due to the use and high-level exposure of these hydraulic systems, it is a fact that during the life of the tractor, many faults and breakdowns will occur. Follow us along the easy process.

Diagnostics capabilities for Kubota M7 Series Tractors are fully developed in Jaltest. If we just focus on the VCU2 – Body Computer system, Jaltest will be able not only to read and clear fault codes from the electronic control unit, but also check malfunctioning components and review wiring diagrams to identify the specific fault that caused the mechanical issue in the machine. [Pic1] [Pic2]

Once that fault has been detected, likely we will need to replace a specific component in order to restore the full functionalities of the system. In order to do that, we will need to calibrate those replacements. See below an example of a real fault code for this system:

11047.13 - "Rear Lift Position Sensor. Values out of calibration range or misadjusted component."

To solve this issue, we will need to perform the Rear Lift Calibration with Jaltest AGV [Pic3]. This actuation is also carried out through the VCU2 – Body Computer System, where we are also able to perform other very useful calibrations such as the Suspension Front Axle or the Steering Angle Sensor.

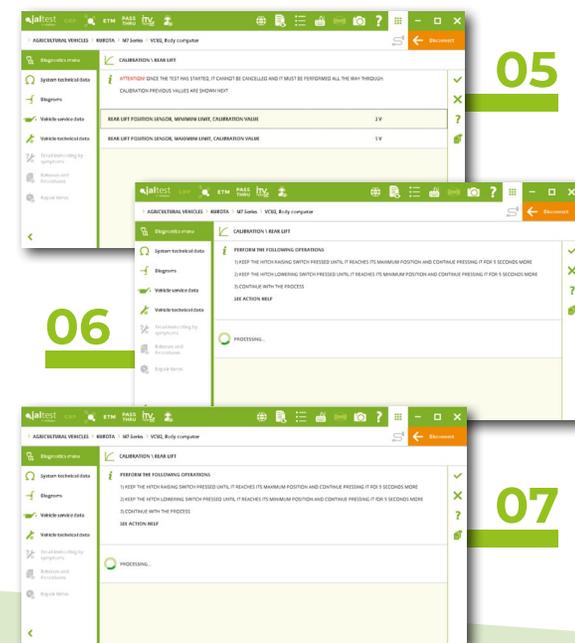
This Rear Lift Calibration is about saving the maximum and minimum voltage values registered by the position sensor, so the ECU (Electronic Control Unit) can figure out the

rest of the intermediate values. In this way, it can determine the right position where the rear lift needs to be placed to perform at its fullest capacity.

Jaltest Users will just need to follow the instructions provided in the Software, meet the required initial conditions [Pic4] and then continue with the process until our Diagnostic Tool shows the calibration values currently saved in the ECU. [Pic5]

After those initial steps, we will start the process of the calibration itself and as per the directions provided in the Software, the user will be required to take control of the hydraulic lift and raise it to the highest position before taking it to the lowest. [Pic6]

The next step is to switch the ignition off during 5 seconds and take it back on in order to save this new calibration values in the ECU. [Pic7]. The job is now done!



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click on images to enlarge



01

The screenshot displays the 'System selection' screen in the jaltest diagnostic software. The breadcrumb navigation at the top reads: > AGRICULTURAL VEHICLES > KUBOTA > M7 Series > E-CDIS, Electronic Diesel Control, Common Rail. A 'Connect' button is visible in the top right corner.

Diagnostics menu	System selection	Types	System List
System technical data	System Scan	ALL <input checked="" type="checkbox"/>	Search by system name <input type="text"/> <input type="button" value="Q"/> <input checked="" type="radio"/> Name <input type="radio"/> Actions
Diagrams	Frequent Tests	Aftertreatment <input checked="" type="checkbox"/>	ACU, Exhaust gas treatment system
Vehicle service data	Manual diagnosis	Central computer <input checked="" type="checkbox"/>	ARU, Armrest control
Vehicle technical data		Electronic module <input checked="" type="checkbox"/>	E-CDIS, Electronic Diesel Control, Common Rail
Troubleshooting by symptoms		Engine <input checked="" type="checkbox"/>	TCU-KVT, Transmission
Releases and Procedures (TSBs)		Transmission <input checked="" type="checkbox"/>	TCU-PST, Transmission
Component Replacement Guides			VCU1, Body computer
Repair times			VCU2, Body computer
			VDC, Transmission
			ZF Semi-PowerShift, Transmission

At the bottom of the interface, the status bar shows: 20.3.1.1 (303) Expert Days of license: 350 21:44

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02

jaltest BY COJALI GRP VIN INFO OEM RP1210

> AGRICULTURAL VEHICLES > KUBOTA > M7 Series > VCU2, Body computer

Diagnostics menu CALIBRATION

System technical data Search in the list of actions

- STEERING ANGLE SENSOR
- REAR LIFT
- SUSPENSION FRONT AXLE

20.3.1.1 (303) Expert Days of license: 350 21:45

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03

The screenshot displays the jaltest diagnostic software interface. At the top, the logo 'jaltest BY COJALI' is visible, along with 'GRP', 'VIN INFO', and 'OEM RP1210'. The breadcrumb navigation shows the path: 'AGRICULTURAL VEHICLES > KUBOTA > M7 Series > VCU2, Body computer'. A 'Disconnect' button is located in the top right corner. The left sidebar contains a 'Diagnostics menu' with various options: System technical data, Diagrams, Vehicle service data, Vehicle technical data (highlighted), Troubleshooting by symptoms, Releases and Procedures (TSBs), Component Replacement Guides, and Repair times. The main content area is titled 'CALIBRATION \ REAR LIFT' and includes a section for 'Add customized help' with a green checkmark. Below this, there is a detailed description of the calibration process, a note that the system must be calibrated when components are replaced, and an 'Important note' stating that if the rear hitch movement cannot be performed with the cabin switches, it must be operated with the switches of the rear mudguard. A green 'X' icon is visible on the right side of the text area. The bottom status bar shows the version '20.3.1.1 (303)', the user role 'Expert', 'Days of license: 350', and the time '21:45'.

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04

The screenshot displays the jaltest diagnostic software interface. At the top, the header includes the jaltest logo, GRP, VIN INFO, and OEM RP1210. A navigation breadcrumb shows the path: > AGRICULTURAL VEHICLES > KUBOTA > M7 Series > VCU2, Body computer. A 'Disconnect' button is visible in the top right corner. The left sidebar contains a 'Diagnostics menu' with options: System technical data, Diagrams, Vehicle service data, Vehicle technical data (highlighted), Troubleshooting by symptoms, Releases and Procedures (TSBs), Component Replacement Guides, and Repair times. The main content area is titled 'CALIBRATION \ REAR LIFT' and contains an information icon and the following text:
INITIAL CONDITIONS:
- PARK THE VEHICLE ON A FLAT SURFACE
- ENGINE STARTED
- PARKING BRAKE ACTIVATED
- HYDRAULIC LIFT: INTERMEDIATE POSITION
PLEASE, MAKE SURE THE INITIAL CONDITIONS ARE MET, OTHERWISE UNEXPECTED OR INCORRECT RESULTS MAY BE OBTAINED
On the right side of the main content area, there are four icons: a checkmark, an 'X', a question mark, and a document icon. The bottom status bar shows '20.3.1.1 (303)', 'Expert', 'Days of license: 350', and the time '21:46'.

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05

The screenshot displays the jaltest diagnostic software interface. At the top, the navigation path is: AGRICULTURAL VEHICLES > KUBOTA > M7 Series > VCU2, Body computer. The main window title is "CALIBRATION \ REAR LIFT".

The interface includes a left sidebar with the following menu items: Diagnostics menu, System technical data, Diagrams, Vehicle service data, Vehicle technical data, Troubleshooting by symptoms, Releases and Procedures (TSBs), Component Replacement Guides, and Repair times.

The main content area shows a calibration procedure with the following steps and values:

- ATTENTION!** ONCE THE TEST HAS STARTED, IT CANNOT BE CANCELED AND IT MUST BE PERFORMED ALL THE WAY THROUGH. CALIBRATION PREVIOUS VALUES ARE SHOWN NEXT.
- REAR LIFT POSITION SENSOR, MINIMUM LIMIT, CALIBRATION VALUE: 3 V
- REAR LIFT POSITION SENSOR, MAXIMUM LIMIT, CALIBRATION VALUE: 4 V

The bottom status bar shows the version "20.3.1.1 (303)", the user role "Expert", and the license information "Days of license: 350". The system tray includes icons for battery, Wi-Fi, and search, along with the time "21:46".

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06

The screenshot displays the jaltest diagnostic software interface. At the top, the logo 'jaltest BY COJALI' is visible, along with 'GRP VIN INFO OEM RPT210'. The navigation path is 'AGRICULTURAL VEHICLES > KUBOTA > M7 Series > VCU2, Body computer'. The main menu on the left includes 'Diagnostics menu', 'System technical data', 'Diagrams', 'Vehicle service data', 'Vehicle technical data', 'Troubleshooting by symptoms', 'Releases and Procedures (TSBs)', 'Component Replacement Guides', and 'Repair times'. The main content area is titled 'CALIBRATION \ REAR LIFT' and contains the following instructions:

- PERFORM THE FOLLOWING OPERATIONS**
- 1) KEEP THE HITCH RAISING SWITCH PRESSED UNTIL IT REACHES ITS MAXIMUM POSITION AND CONTINUE PRESSING IT FOR 5 SECONDS MORE
- 2) KEEP THE HITCH LOWERING SWITCH PRESSED UNTIL IT REACHES ITS MINIMUM POSITION AND CONTINUE PRESSING IT FOR 5 SECONDS MORE
- 3) CONTINUE WITH THE PROCESS

Below the instructions, there is a 'SEE ACTION HELP' link and a 'PROCESSING...' status indicator. The bottom status bar shows '20.3.1.1 (303)', 'Expert', 'Days of license: 350', and the time '21:47'.

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07

jaltest GRP VIN INFO OEM RP1210

> AGRICULTURAL VEHICLES > KUBOTA > M7 Series > VCU2, Body computer

Disconnect

Diagnostics menu CALIBRATION \ REAR LIFT

System technical data **i** TURN OFF THE IGNITION AND WAIT APPROXIMATELY 5 SECONDS
TURN ON THE IGNITION AGAIN.
CONTINUE WITH THE PROCESS

Diagrams

Vehicle service data

Vehicle technical data

Troubleshooting by symptoms

Releases and Procedures (TSBs)

Component Replacement Guides

Repair times



20.3.1.1 (303) Expert Days of license: 350 21:47

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