

# INSTALLATION MANUAL

## Agra-GPS Kubota-JD Bridge

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M7-2 Premium KVT with Autosteer enabled.



## **Important Safety Information**

Read this manual and the operation and safety instructions carefully before installing the Kubota-JD Bridge.

- Follow all safety information presented within this manual.
- If you require assistance with any portion of the installation or service of your equipment, contact your Agra-GPS for support.
- Follow all safety labels affixed to the system components. Be sure to keep safety labels in good condition and replace any missing or damaged labels. To obtain replacements for missing or damaged safety labels, contact Agra-GPS.

When operating the machine after installing the Kubota-JD Bridge, observe the following safety measures:

- Be alert and aware of surroundings.
- Do not operate the Kubota-JD Bridge system while under the influence of alcohol or an illegal substance.
- Remain in the operator's position in the machine at all times when the Kubota-JD Bridge system is engaged.
- Determine and remain a safe working distance from other individuals. The operator is responsible for disabling the Kubota-JD Bridge system when a safe working distance has been diminished.
- Ensure the Kubota-JD Bridge is disabled prior to starting any maintenance work on the machine or parts of the Kubota-JD Bridge system.
- Follow all safety instructions from Kubota as well as the John Deere.
- The Kubota-JD Bridge must only be used in the field, never on the street.

## **Electrical Safety**

- Always verify that the power leads are connected to the correct polarity as marked. Reversing the power leads could cause severe damage to the equipment.
- Verify that all cables and connectors are not going over sharp edges and are not pinned, as this could cause power shortages and/or malfunctions.

## Introduction

Congratulations on your purchase of the Kubota-JD Bridge. The Kubota-JD Bridge is designed to bridge the communication between a Kubota tractor (autosteer ready) and a John Deere display (1800, 2600, 2630, or 4640). This allows a JD display to create maps in the John Deere format and provides straight AB-Line, curve, or circle track autosteer.

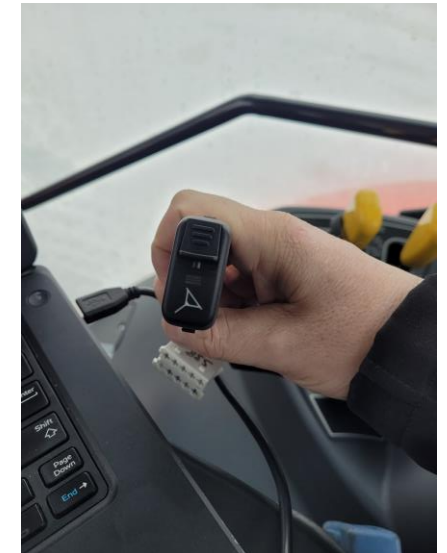
The operator uses the JD display to create AB-lines. The current position is determined by a John Deere receiver and all this information is used by the Kubota-JD Bridge to create steering instructions for the tractor. All conditions for autosteer such as minimum speed, steering enabled etc. Must be met by the Kubota tractor system before the autosteer engage option in the tractor can be activated.

### NOTICE

This manual is not intended to replace the manuals for the tractor or the John Deere system. The operator must read and understand the manuals and instructions of these systems, before using the Kubota-JD Bridge.

### NOTE:

You do not need the geo control license number as there is no NAC so if the tractor is autosteer equipped you can proceed with the install. You will need the autosteer enable switch and the autosteer momentary switch to go into the 3 switch panel by the pto levers. The JD GPS controls the autosteering valve through the Agra-GPS bridge.



## Installation of the Kubota-JD Bridge

### Step 1: Mounting the Kubota-JD Bridge

First, start by disconnecting the negative terminal of the battery. Then you can remove the lower panel located by bottom right side of the seat. Once inside the panel, slide the Kubota-JD bridge into its holder and mount it against the built-in mounting bracket with the 'cable side' of the bridge facing down.

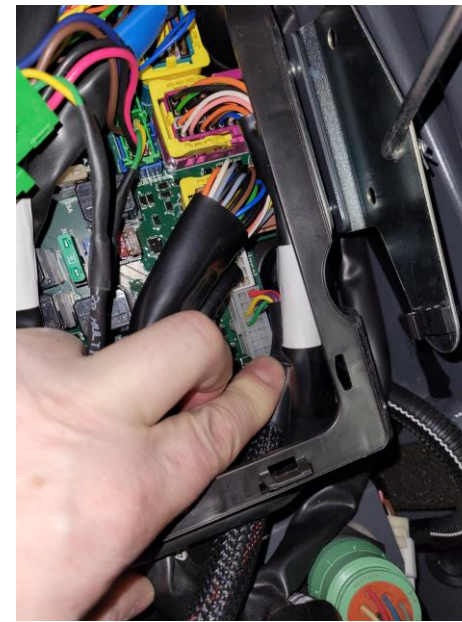


Once the bridge is mounted, attach the grey 12-pin Deutsch male end of the Kubota adapter cable to the bridge's grey 12-pin Deutsch female. Feed the other end up to the circuitboard (located underneath the panel to the back right of the cab) so that you can make the following connections.

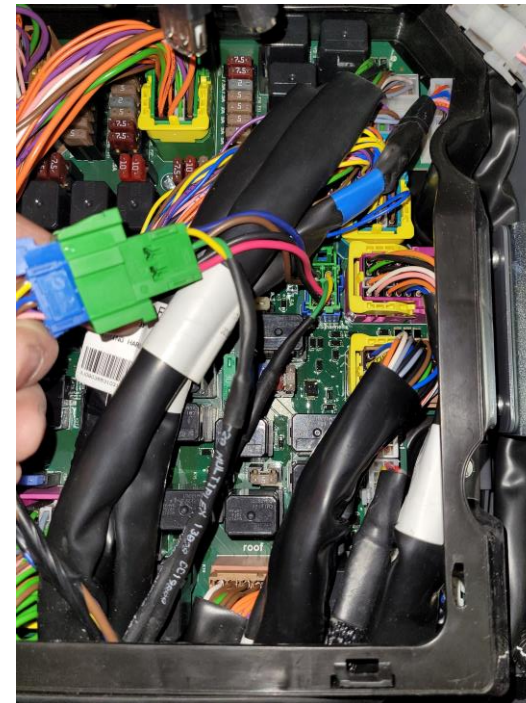


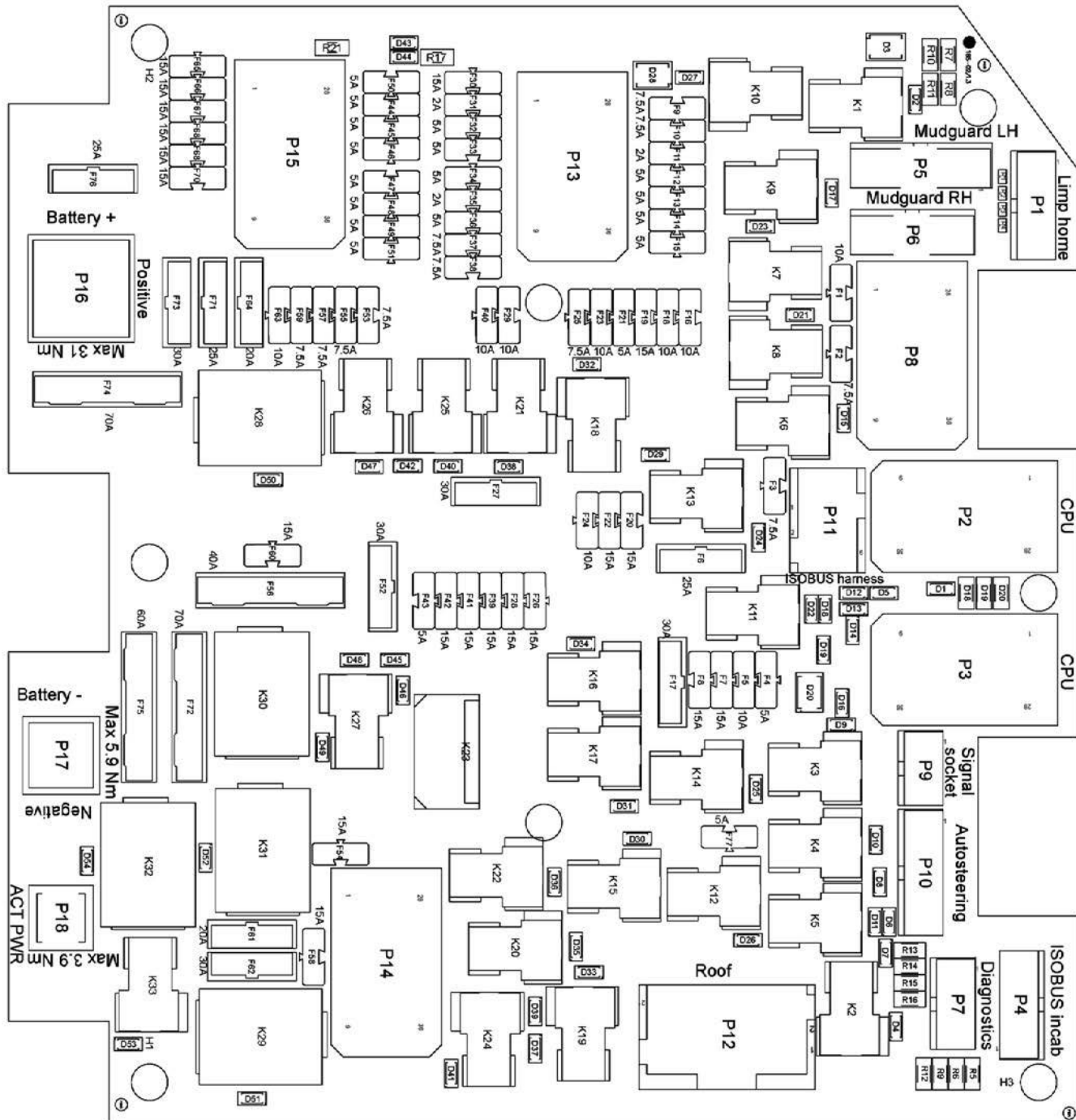


The 14-pin Molex female 39-01-2140 connects to the 14-pin Molex male at the Bottom right of the circuit board.



Unplug the ISOBUS connector harness on the circuit board. The 6-pin JPT female TE 1-965640 (blue plug) connects to the 6-pin JPT male blue plug on the circuit board. The 6-pin JPT male (brown plug) connects to the 6-pin JPT female of the ISOBUS connector harness that was just unplugged. It is in the middle of the board.





P10 is your 14 pin autosteer connection bottom right it will be empty when you look at the board

P11 is your isobus harness it will have a blue plug, this is the one you unplug and attach the Y harness with the green plugs.

Next, connect the 12-pin Deutsch male end of the bridge into the 12-pin Deutsch female end of the "Cable to JD components" cable. The other ends of this cable will go to the John Deere receiver and the John Deere Monitor.

## **Step 2: Mounting the JD Display**

The mounts for the JD display are NOT part of the Kubota-JD Bridge, however they can either be ordered as an optional item from AgraGPS or directly from RAM.

The JD-display may be mounted many different ways.

You may use the standard JD mounts or a RAM mount. RAM-270U + 2 \* 1.5" balls (RAM-202U) + 4" double socket arm (RAM-201U)

<http://www.rammount.com/part/RAM-270U>  
(John Deere 4640 mounted on the right door)



### Step 3: Mounting the JD Receiver

The Kubota-JD Bridge does NOT include a standard JD-receiver bracket.

You will want to create a mount which is centered left-right on the cab roof.

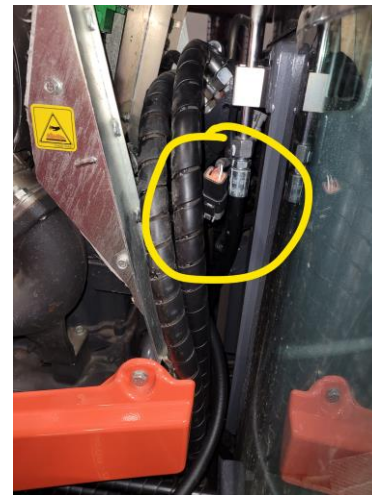


Once this is completed now you will want to reconnect the negative battery terminal and start the tractor to ensure that everything powers up including the JD monitor. Once this is verified you can proceed to the next steps:

1) Check the parameters for VCU1 and VCU2. In VCU1 you will need to have existence of autosteering enabled. In VCU2 you will need to have Steering angle sensor availability enabled and the Autosteering Availability turned off and the NAC turned on in your parameters. Please ensure you check these prior to doing any work on the system. If the Autosteering Availability is turned on it will generate 3 different errors when you enable auto steering these are:

VCU2 SPN 523105 fmi 19, SPN 523106 fmi 19, SPN 523104 fmi 19 (it is looking for the NAC which is not on the tractor)

2) Once verified power down and connect your Y cable with the hood up driver's side there is a 4 pin plug for the steering controller connect there as seen in the picture attached. **If loader is equipped remove it from the machine.**





3) Once you start the tractor and everything is powered up you will need to perform the wheel angle sensor and the spool calibration in the steering controller (SC) using the Y cable supplied with KOBD AG or Ace. For simplification, the following steps are done with KOBD ACE:

4) Attach a flow meter to remote 1 and start using that valve, restrict the flow until you see 1500 psi on the gauge this will speed the oil temp warm up for the transmission.

5) Monitor the transmission oil temp in the data monitor under the tcu section and wait until it reaches 55-60 degrees Celsius prior to doing any calibration.

6) Connect ACE to the Y cable with the tractor running, park brake engaged, autosteering switch turned on and tractor at idle with no load on the hydraulics.

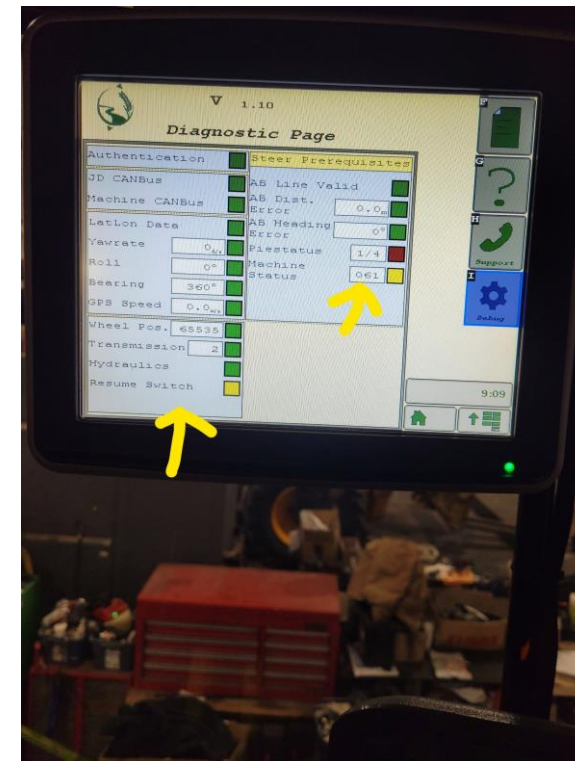
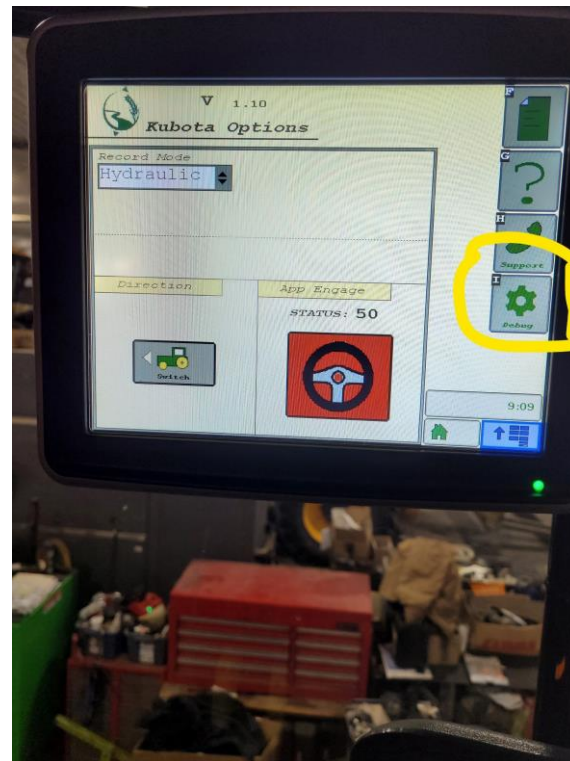
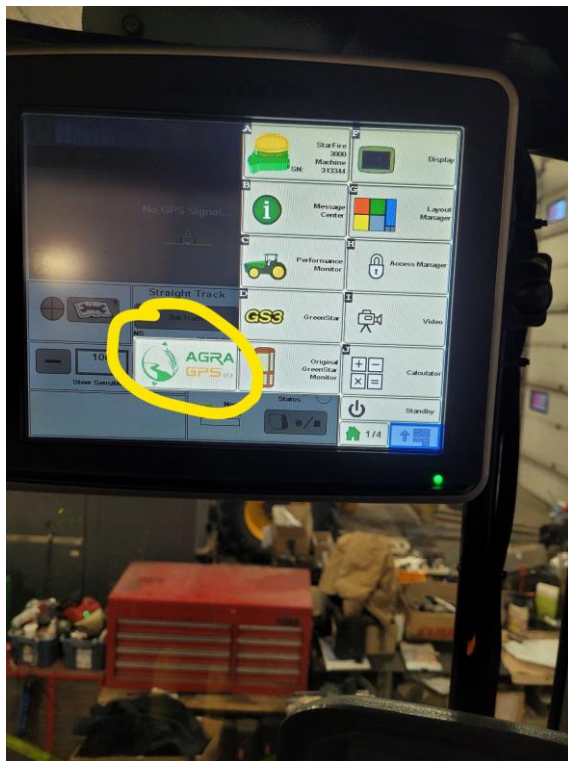
7) Perform the wheel angle sensor calibration (WAS calibration in the sc) if it fails it will generate an error when you restart the tractor. Wait for it to prompt you by highlighting the desired step in blue to perform it. If it fails, you will see a WAS error come up on the dash and monitor SCM error SPN 520205 FMI 23 is the error. Shut the machine down and restart it. Perform it again with warmer or cooler oil depending on the temperature and ensure you follow the prompts.

8) Perform the spool calibration it is critical to have the oil warm for this part as it takes time (approx. 10 mins) and if you do not have the transmission oil temp close to 60 degrees prior to start it will cool off and fail during the calibration. When prompted by the blue highlighted part in ACE perform the necessary steps as outlined. After the initial click it takes a few minutes to prompt you to move the steering wheel (only small movement needed left and right). Once completed it will start moving the wheels (not steering wheel) left and right slightly and slowly do not touch the steering wheel during this and allow it to complete. If it fails you will see 1 of 3 errors A, B or C. Error code A : Invalid wheel angle observed Error code B : Can't calculate value within spool set point limit Error code C : Timeout occurred at move to max point.

. If it fails you will also see SCM error SPN 520501-22 pop up. This indicates that the spool is in the incorrect position and is not where it needs to be. Please redo the calibration.

**9) Ensure you turn off the existence of the NAC once these steps are completed, otherwise it will generate errors.**

Cycle the key off for a period of 10 seconds post successful calibration. Now power everything up and start the engine with the autosteer switch turned off. Once running switch the auto steering switch on and press the momentary autosteer switch. At this point it should start talking to the agra-gps bridge and the JD GPS system. You can check this by pressing the bottom right button and selecting the agra-gps icon and then the debug icon to see that the steering switch is lit up in yellow (momentary switch will make it green) and the right side bottom is lit up in green.



## Trouble shooting:

If the JD monitor does not power up recheck connections at the fuse panel and ensure that they are all tight and secured. If they are check the fuses for the autosteering system.

If you see error SPN 520201-FMI 22 cycle the key off, wait about 10 seconds and recycle the key to see if it clears.

If you see error SPN 299023-FMI 12 it means you powered it up with the autosteering switch on and it timed out from not seeing flow. Cycle the key to the off position for 10 seconds and restart the tractor.

If you see SPN 520208- FMI 31 it is an external safety that disables the autosteering. This usually means that the wheel angle sensor and the speed sensor do not mesh so redo your wheel angle sensor calibration.