INSTALLATION MANUAL

Agra-GPS CNH-JD Bridge for Patriot Sprayers

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Revision B
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Release Notice
This is the March release (Revision B) of the CNH-JD Bridge for 2016 CNH Patriot Sprayers.

Disclaimer

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DO NOT USE THE CNH-JD Bridge IF YOU DISAGREE WITH THE DISCLAIMER.

Important Safety Information

Read this manual and the operation and safety instructions carefully before installing the CNH-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 CNH-JD Bridge, observe the following safety measures:

- Be alert and away of surroundings.

- Do not operate the CNH-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 while the CNH-JD Bridge system is engaged.

- Determine and remain a safe working distance from other individuals. The operator is responsible for disabling the CNH-JD Bridge system when a safe working distance has been diminished.

- Ensure the CNH-JD Bridge is disabled prior to starting any maintenance work on the machine or parts of the CNH-JD Bridge system.

- Follow all safety instructions from the CNH system as well as the JD system!

- The CNH-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 CNH-JD Bridge. The CNH-JD Bridge is designed to bridge the communication between CNH Patriot Sprayer 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 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 CNH-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 CNH 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 AgraGPS CNH-JD Bridge.

Step 1: Mounting the CNH-JD Bridge

Remove the buddy seat	
Remove the plastic cover that was under the buddy seat, there are bolts under the rubber floor mat that must be removed.	

At the bottom, underneath the fuse panel there will likely be a large silver CNH navigation controller. Remove both the 40 and 24 pin connectors from the control unit.
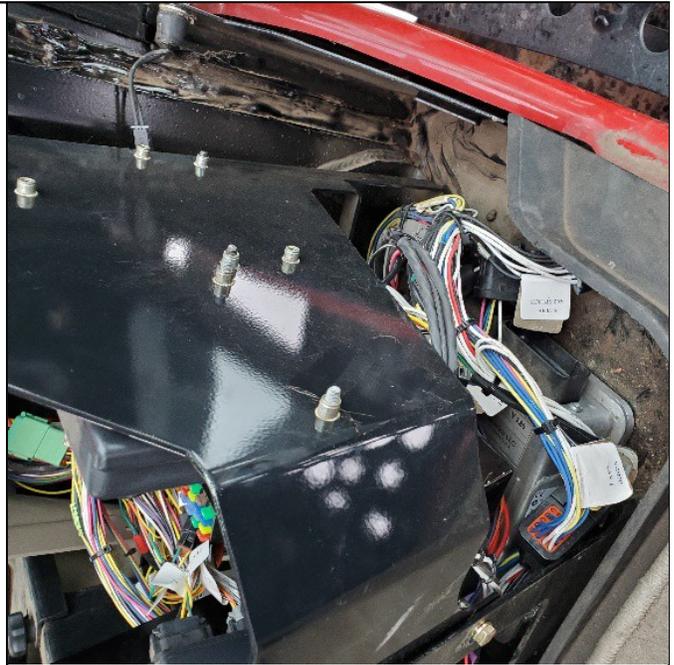
Using the included removal tool, remove the wire in pin 3 of the 24-pin connector. Once removed, push the pin into pin 7 of the 40-pin connector.

The 40-pin connector now has all connections required to run steering operations. Connect the 40-pin connector of the Agra-GPS adapter.

Next you will require access to the cabling behind the right rear corner post.
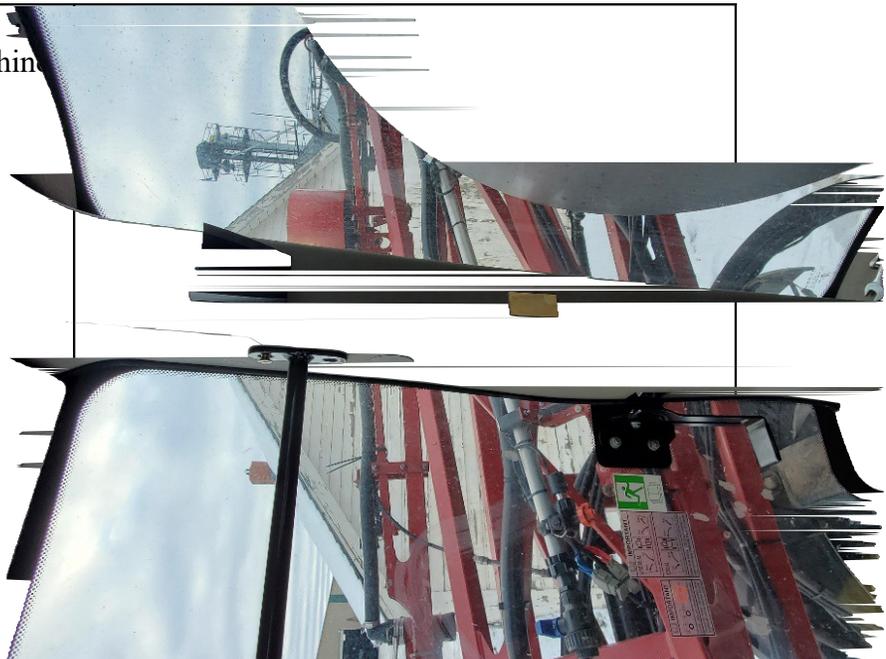
Remove the bolts holding the crossbar to the corner post.

Remove the side door latch.

Remove the plastic cover revealing the post cabling.
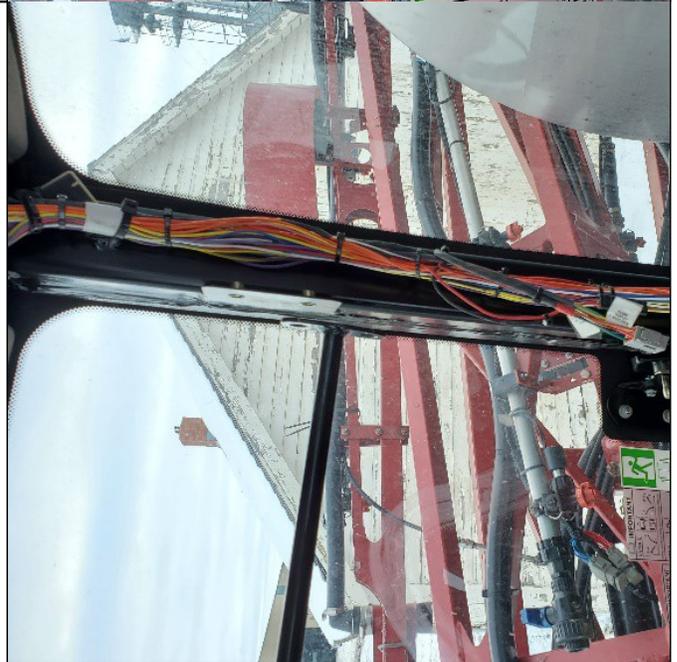
The adapter from the fuse panel section can be fed through behind the plastic behind the seat, through to the right corner post.
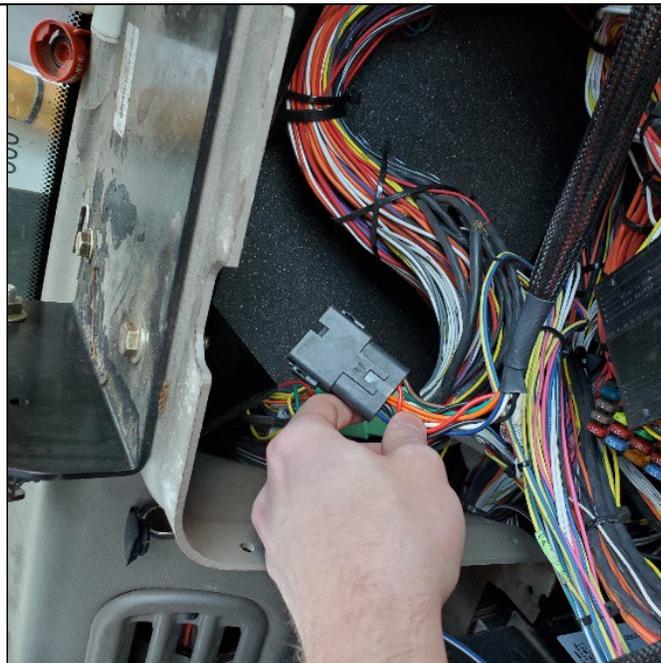
The "vent" behind the seat can be removed to assist in feeding the cable through to the corner post.
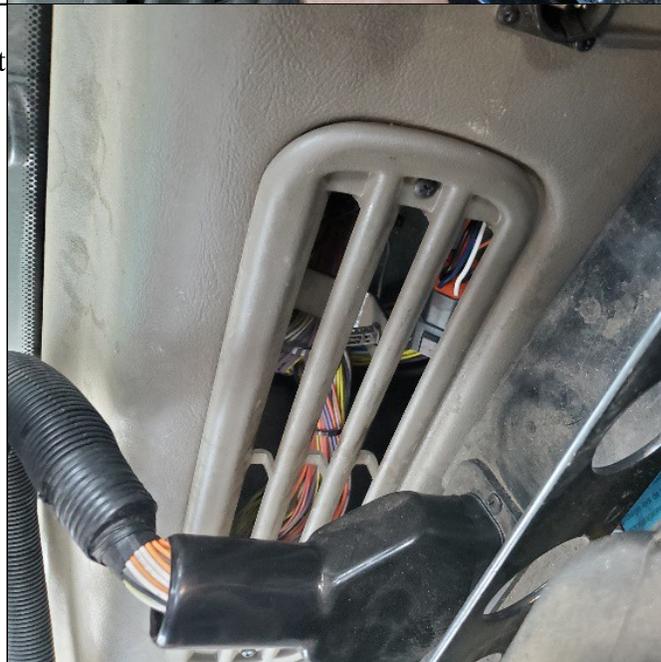
Find the connector labelled C602 behind the panel. Open it and insert the 12-pin DTM connectors of the provided AgraGPS harness.

Note: It is sometimes also called the display connector! If you do not have a display you may only see one open connector. If a display cable exists, open the connection and insert the AgraGPS connectors.
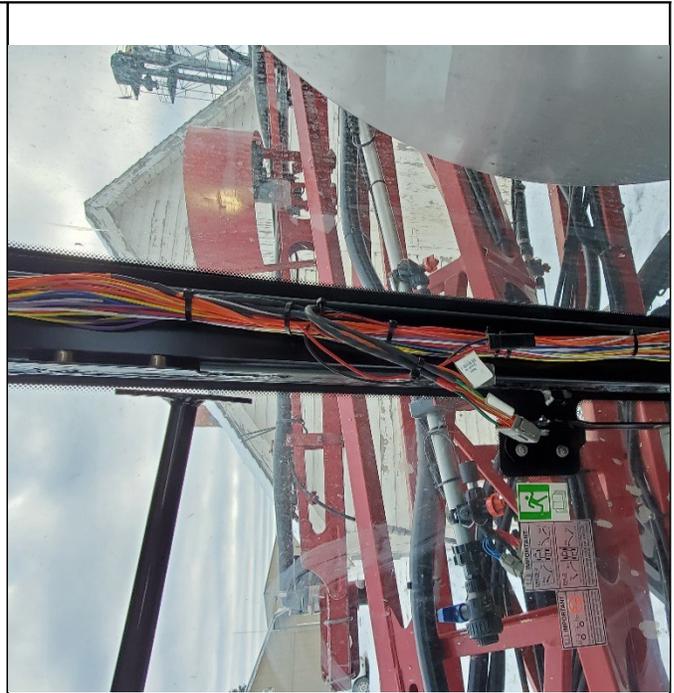
Finally connect the 12-pin black Deutsch and the 12 pin Grey Deutsch plugs to the bridge. The bridge can be left behind the plastic cover below the pillar post cover. It can be easily accessed while the side door is open.

Then the monitor cable can be routed from where the bridge is placed to where the JD monitor is mounted

Step 2: Mounting the JD receiver

The mounts for the JD display and receiver are NOT part of the CNH-JD Bridge.

The JD mount can easily be bolted to the metal bracket provided on the roof of the CNH Patriot.

Using the short 12-pin adapter cable, the JD receiver is connected to the 12-pin Deutsch in the CNH tractor roof.

DO NOT CONNECT the John Deere GPS receiver without the adapter cable to the CNH roof outlet.

Step 3: Wheel angle sensor installation

The machine requires the installation of a wheel angle sensor.

The sensor is installed on the hydraulic cylinder of the front right wheel.	
Mount the L-shaped plates onto the end of the ram, where it connects with the articulation point of the wheel. Approximately 0.5 inches or 13mm from the edge of the articulation bolt. Ensure that the plates do not interfere with the full movement of the wheel.	

Mount the U-Bolt plate at the other end of the hydraulic cylinder, just past the end-port connection. Approximately 2 inches or 50mm from the end of the cylinder.

Mount the sensor body to the top of the plate. The sensor must be mounted on the top of the plate.

Do not secure the other end of the sensor.

While the other end of the sensor is not secure, turn the wheel all the way to the left, ensure that the sensor can still be secured without exceeding its movement range.

Next turn the wheel all the way to the right, ensure that the sensor can be secured without hitting the sensor end stop.

Once you confirm that the sensor will not exceed its range, or hit the end stop across the entire range of wheel motion, secure the sensor to the L-shaped plate.

Locate the 4-pin DTM plug which connect to the CNH steering sensor. Disconnect the plug.
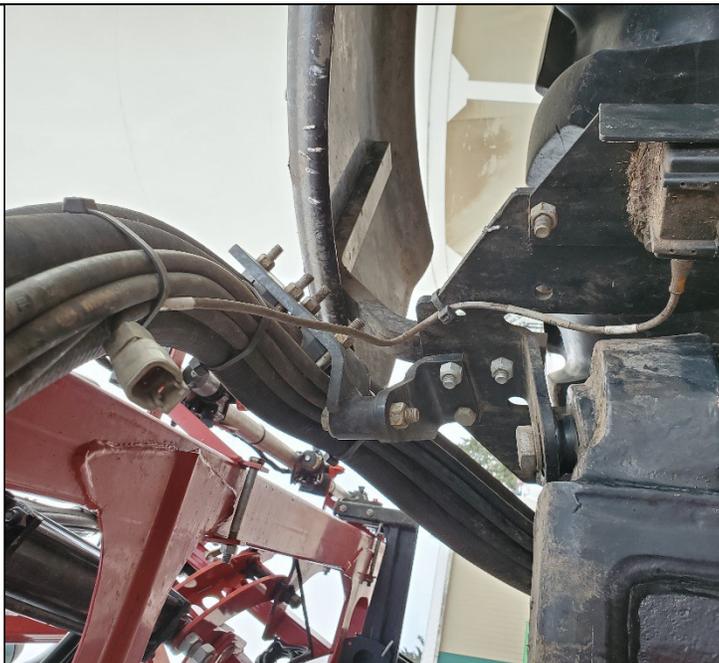
Cut the zip ties in order to bring the female plug closer to the chassis of the machine.
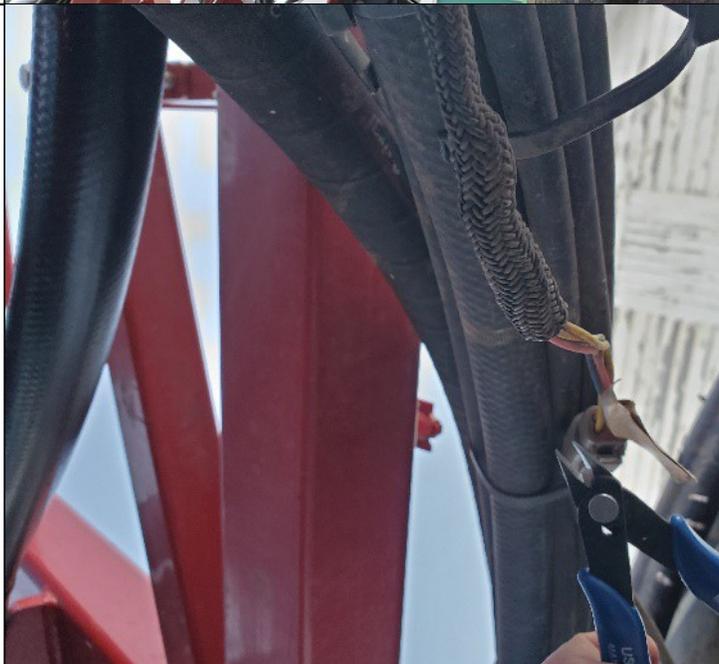
Bring the plug closer to the chassis of the machine and replace the cut zip ties.

Then connect the linear sensor connector to the 4-pin DTM female.

Step 5: ISO Application

The AgraGPS bridge comes with an ISO application that will be loaded onto the John Deere monitor. The app should automatically store itself on the monitor after the first few minutes of the initial startup. On subsequent runs the app will load itself from memory as soon as possible.

Where to find the AgraGPS ISO application on the John Deere monitor:

- On a John Deere 4640 the application will be loaded in the ISOBus VT section on the main page of the display.

- On John Deere 1800, 2600, 2630 the application will be shown in the side menu of the John Deere display. The side menu is opened by clicking the button on the bottom right of the display.
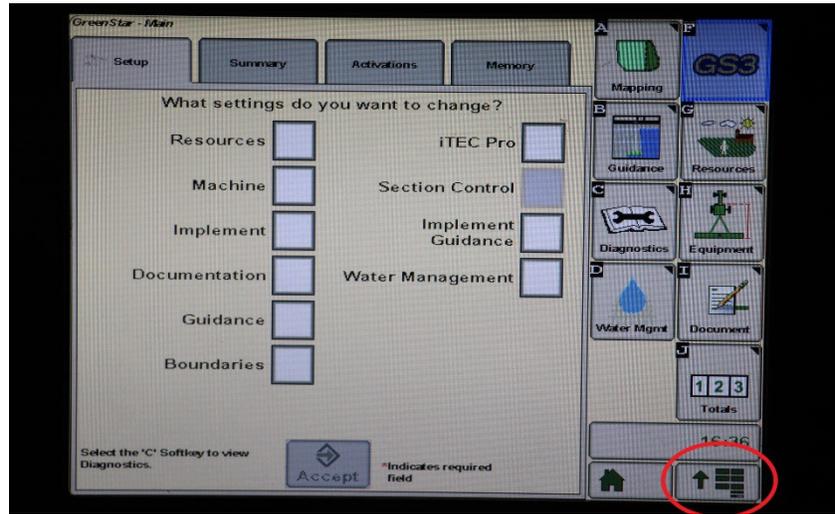
- **NOTE:** John Deere 1800 and 2600 monitors do not show a loading bar for ISO applications, while 2630 and 4640 monitors do.
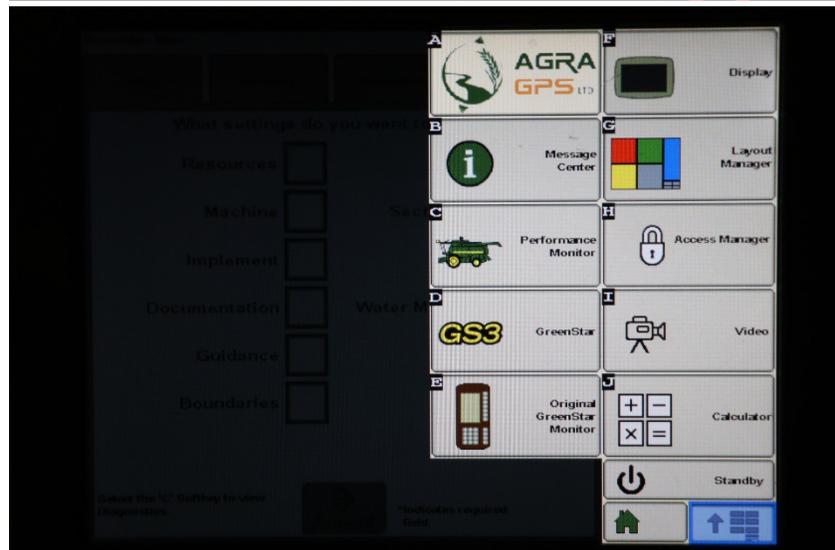
If the ISO application is not loaded:

- Try clearing the monitor's memory. On 2630 monitors this can be done in the Message Center in the side menu. Go to the Cleanup tab, check controllers, then Begin Cleanup. On 4640 monitors this can be done in the info page of the ISOBus VT. Navigate to the ISOBus VT window and click the info button at the top of the page, then press Clean Up ISO Bus VT.

- Do a hard reset of the John Deere monitor (Unplug it, then plug it back in).

- Do a full restart of the machine. Remember the app may take a few minutes to load.

Step 6: Calibration

Once completed you can see the range of the wheel angle sensor in the AgraGPS ISO app in the JD display.

Select "Sprayer" in the Machine Type section.

You must calibrate the left and right values, as well as the center.

The maximum value possible is 65535, and the minimum value will be zero. The sensor should not display either the maximum or minimum if mounted correctly.
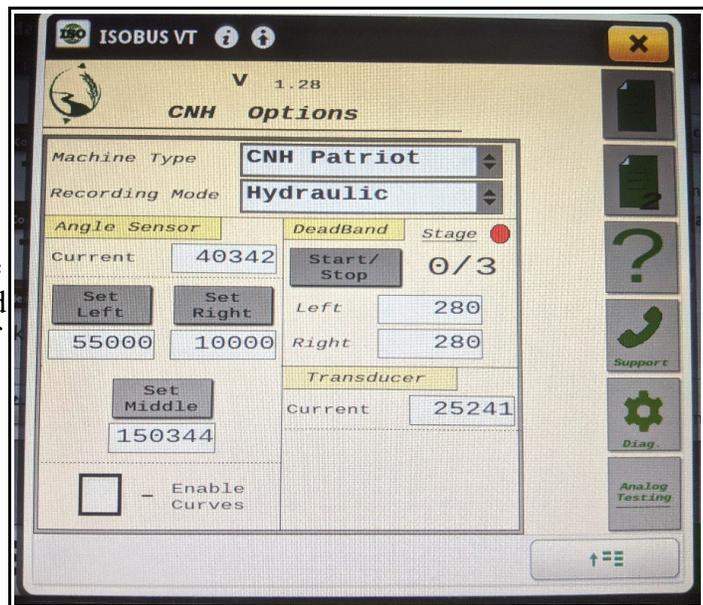
To calibrate the wheel angle sensor, follow the procedure below:

For AgraGPS ISO app version V2.00+
1) Move the wheels of the machine fully to the left, then press the "Set Left" button to save the current position.
2) Move the wheels of the machine to the center, then press the "Set Middle" button to save the current position.
3) Move the wheels of the machine fully to the right, then press the "Set Right" button to save the current position
4) Ensure that the recorded "Right" value is higher than the "Left" value, and that the two values are in the thousands. If the values are reversed, the setting "Wheel Angle Reversal" can be toggled within the AgraGPS ISOApp settings page.
For AgraGPS ISO app version V2.00+For AgraGPS ISO app version V1.00-V1.99
1) Move the wheels of the machine fully to the left, then press the "Set Left" button to save the current position.
2) Move the wheels of the machine to the center, then press the "Set Middle" button to save the current position.
3) Move the wheels of the machine fully to the right, then press the "Set Right" button to save the current position
4) Ensure that the recorded "Left" value is higher than the "Right" value, and that the two values are in the thousands.

Next the dead band of the valve must be set.

To automatically calibrate, center the wheels and press "Start". The automatic calibration procedure can take up to 10 minutes at times.

For safety, ensure nobody is near the wheels, and no object are near the wheels, as they may move during the calibration process.

Step 7: Pro 600/700 GPS

To allow the Pro 600/700 display to receive GPS information from the bridge, ensure the following three (3) settings are applied in the monitor.

1) Set GPS model to "372"
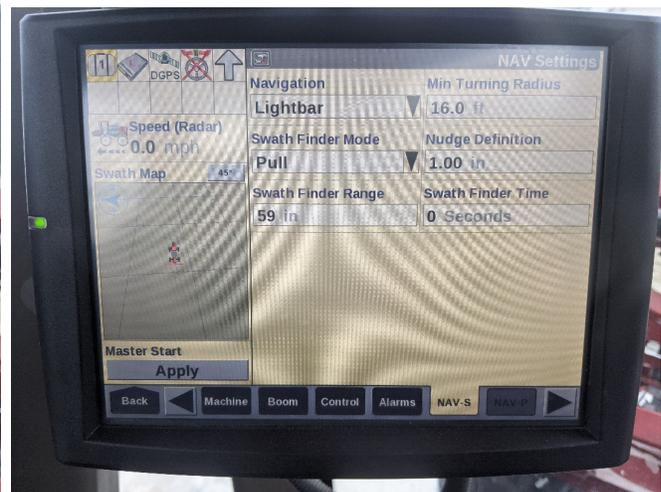
2) Set Navigation to "Lightbar"
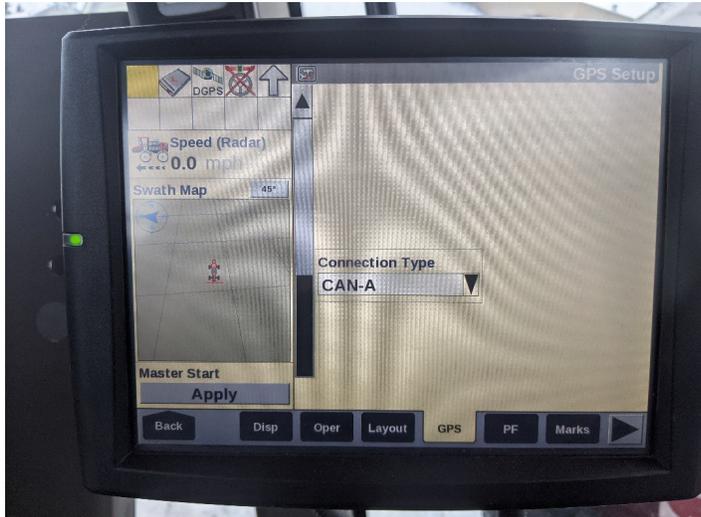
3) Set connection type to "CAN-A"