INSTALLATION MANUAL

CRG-Fendt 1167 + MTG modem

CRG-Fendt
April 2024

CE UK CA

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Release Notice: This is the April 2024 release of the CRG-Fendt 1167 Installation Manual.

It is assumed that users of the products described herein have either system integration or technical experience, as well as an understanding of the fundamentals of agricultural machinery.

In this manual, the CRG-Fendt may be referred to simply as the CRG.

Refer to the CRG User Manual for additional setup instructions.

Disclaimer

While every effort has been made to ensure the accuracy of this document, Agra-GPS Ltd assumes no responsibility for omissions and errors. Nor is any liability assumed for damages resulting from the use of information contained herein. Agra-GPS Ltd shall not be responsible or liable for incidental or consequential damages or a loss of anticipated benefits or profits, work stoppage or loss, or impairment of data arising out of the use, or inability to use, this system or any of its components.

DO NOT USE THE CRG-FENDT IF YOU DISAGREE WITH THE DISCLAIMER.

Important Safety Information

Read this manual and the machine operation & safety instructions carefully before installing the CRG. Refer to Appendix A for Product Specifications.

- Follow all safety information presented within this manual.
- If you require assistance with any portion of the installation or service of your equipment, contact 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 CRG, observe the following safety measures:

- Be alert and aware of surroundings.
- Do not operate the CRG system while impaired.
- Always remain in the operator's position in the machine when the CRG system is engaged.
- Determine and maintain a safe working distance away from other individuals. The operator is responsible for disabling the CRG system when a safe working distance has been diminished.
- Ensure the CRG is disabled prior to starting any maintenance work on the machine or parts of the CRG system.
- Follow all safety instructions from the Fendt machine as well as the John Deere system.
- The CRG must only be used in the field, never on public roads.

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 in contact with sharp edges or anything that could cause chafing, as this could result in power shorts and/or other malfunctions.
- Power is supplied to the CRG even when the key is off. Power can be removed in 3 different ways: 1) Remove the connector from the CRG, 2) Remove the fuse supplying circuit power, or 3) Remove a battery lead while the machine is off.

Risk of Fire

- The circuit supplying 12 volt power for this product requires a fuse. The maximum fuse rating is 5 amps, and the minimum is 1 amp.

Introduction

Congratulations on your purchase of the CRG! The CRG (Fendt version) is designed to bridge the communication between a Fendt tractor and a John Deere (JD) display (1800, 2600, 2630, 4240, 4640 or all 5gen). This allows a JD display to create maps in the John Deere format, and also provides autosteer functionality. The operator uses the JD display to create AB-lines or field documentation, or to handle any other GPS system input.

The CRG contains a) an RTK-capable GPS receiver, **AND** b) a full steering controller capable of steering a Fendt tractor with a John Deere display!

All conditions for autosteer such as minimum speed, steering enabled, etc., must be met by the Fendt tractor before the autosteer engage option can be activated.

NOTICE

This manual is not intended to replace the manuals for the Fendt tractor nor the John Deere GPS system. The operator must read and understand the manuals and instructions of these systems, before using the CRG.

Components

The CRG-Fendt kit contains the following items:

1. CRG receiver
2. Harness to connect the John Deere display to the ISO in-cab connector of the Fendt tractor
3. Harness from the CRG to the roof connector for autosteer integration
4. Harness to integrate the CRG to a John Deere tractor as a receiver-only option

Step 1: Install the CRG

1a) Open the Roof Panel

The CRG is installed in the roof above the steering wheel.

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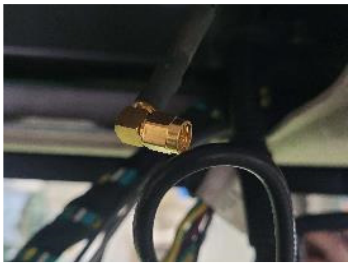
Removing the cover, exposing the 2 layers of metal brackets. The CRG is installed at the upper bracket. VD03 or VD04 steer controller (white box) must be removed. Also a Novatel or Trimble receiver if the tractor was equipped with GPS receiver must be removed. Disconnect at the X75/X0315 connection. 	

The CRG bottom has a JD mount option and below a mount hole pattern which fits the Fendt top metal bracket.

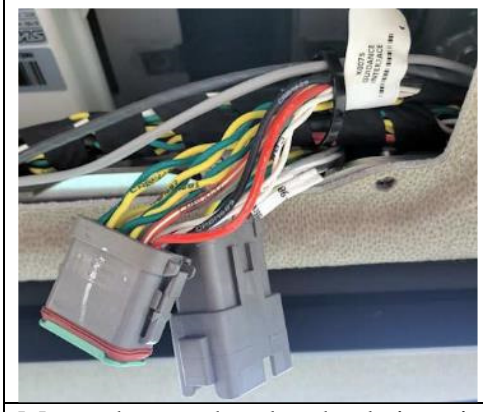
Remove the JD mount plate.

Mount the CRG on the top bracket, add the CRG harness and reinstall the top bracket,

The CRG comes with a build in modem (CRG-JD-WM option) and ships with a cell phone antenna. Some 1167 have a cell phone antenna for RTK correction and this antenna may be used for the CRG. Find the SMA connector from the roof antenna and connect to the CRG.



Connect the CRG harness at the CRG itself and at the X0075 12-pin deutsch connector.



Move the top bracket back into its original position. Note: If you use the Fendt cell antenna, make sure its connected first, otherwise make sure to attach the CRG antenna!

Note: The X0075 is connected to the X0315 connector. The CRG adapter does go to the X0075! The X0315 remains open and is not used.

NOTE: Each CRG is shipped with an adapter cable for connecting a CRG to a 12-pin JD roof connector (normally used by JD receivers). For the Fendt, this cable is not used.	
OPTIONAL: MTG installation The John Deere MTG or jdlink modem provides easy access to the myjohndeere.com cloud storage offered by John Deere. It may be installed by integrating to the Fendt Gateway connections at the lower level of the brackets. The gateway sits on the left lower side. The M-modem is NOT supported, the R-modem and the older jdlink modems are supported. The modem fits where the VD04 was installed originally. **Partno: MTG12-CH700GW**	

Step 2: Mount the JD Display

The mounts for the JD display are NOT part of the CRG kit. Customer preferences for the display mounts vary, one option is the CAB-RAM kit which fits 3gen,4gen and 5gen JD displays.	
The harness for the JD display connects to the 9pin incab iso connector. They are available at the front and back roof panel connections.	
Connect the other end of the display cable to the 26 pos connector at the back of the JD display.	

Step 3: Setup ISObus Apps

The CRG comes with 2 ISObus VT applications (ISO apps) that will be loaded onto the John Deere monitor:

1) CRG ISO app: this app is virtually the same with all variants of the CRG. Refer to the CRG User Manual for additional setup instructions.
2) Bridge ISO app: the app included with the CRG-Fendt is specific to Fendt machines. As such it will be explained further below. If you need assistance to find the Bridge ISO app, refer to the CRG User Manual.

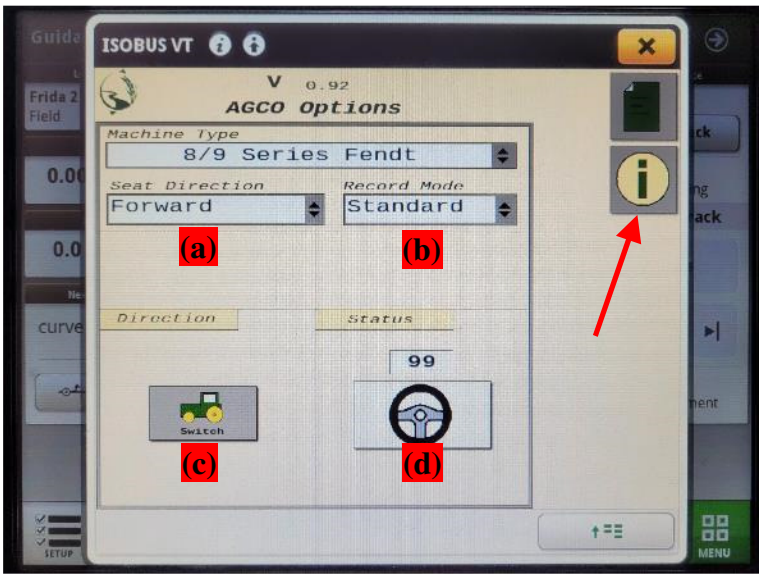
The apps will automatically install themselves into the monitor after the first few minutes of the initial start-up. On subsequent runs the apps will load themselves from monitor memory much more quickly.

Step 4: Configure CRG-Bridge ISO App

Before adjusting auto-steer performance, the proper settings must be entered into the CRG-Bridge ISO app.

The Bridge options home page is shown.

Press the button indicated by arrow to access other information pages.



a) Ensure the Machine Type and Seat Direction are appropriate for your machine.

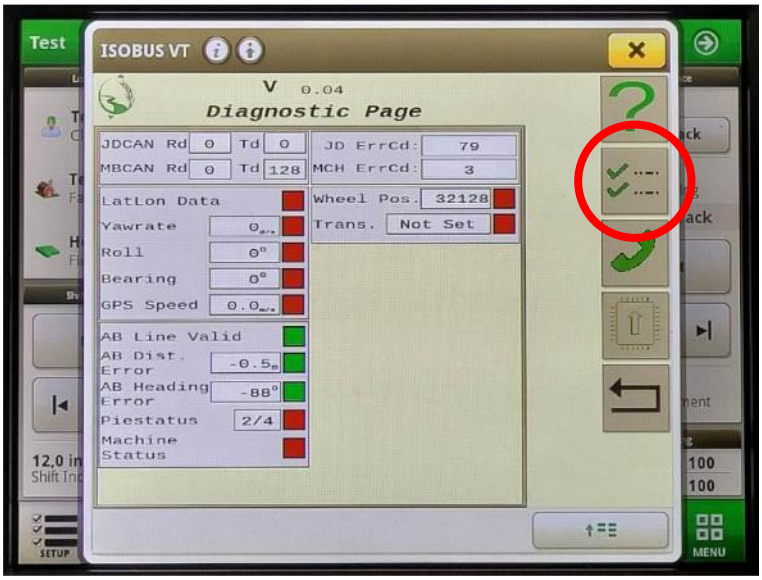
b) Record Mode refers to the recording of the work area of the field completed by the implement. Record Mode selects between "Standard" and "On Resume", where "On Resume" can be triggered by hydraulics (for example, it only records work area when the implement in the ground and not when raised).

c) While driving, if the direction of the machine is detected incorrectly, you can force it to change it here.

d) You can see how the CRG detects the steering wheel angle from here

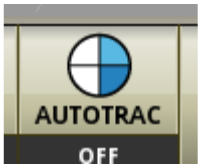
Other information pages include Help , Contact , and Firmware Update (refer to the CRG Firmware Update Manual)

The button for accessing the Diagnostic page is circled.



Auto-Steer Operation

Refer to the AutoTrac Pie indicator on the JD monitor screen. With the CRG attached and the Bridge Enabled (in General Settings), you should already see 2 quarters of the Pie displayed if everything is normal (Installed and Configured).



Press the AutoSteer-Enable button on the armrest to obtain 3 quarters (Enabled).

If the Pie has not already moved to 3 quarters (Enabled), try pressing the Pie on screen.

Press the Engage (also known as Resume) button to activate Auto-Steering (4 quarters). It will engage if all other conditions are met, such as minimum speed. You can press the Engage button again to disengage, or simply turn the steering wheel.

Appendix A: Product Specifications

Operating Voltage Range:	10 to 16 VDC, 12V nominal
Power Consumption:	less than 3W
Operating Temperature:	-20°C to +40°C ambient
Weatherproof:	NEMA 3X, IP65
Supported:	Bluetooth® BLE, RTCM-3.x, NTRIP 2.0

NOTE: Circuit protection fuse is required: 1A minimum, 5A maximum

COMPLIANCE

This product is in compliance with the following standards:

EMC

- FCC 47 CFR Part 15B: Radio Frequency Devices – Unintentional Radiators
- ICES-003 Issue 7 (2020-10): Information Technology Equipment (including Digital Apparatus)
- EN ISO 14982 (2009): Agricultural and Forestry Machinery – Electromagnetic Compatibility
- ETSI EN 301 489-17 V3.2.4 (2020-09): Electromagnetic Compatibility (EMC) Standard for Radio Equipment and Services (Part 17: Specific conditions for Broadband Data Transmission Systems)
- ETSI EN 301 489-1 V2.2.3 (2019-11): Electromagnetic Compatibility (EMC) Standard for Radio Equipment and Services (Part 1: Common technical requirements)

SAFETY

- EN 62368-1 (2014): Audio/video, information and communication technology equipment (Part 1: Safety requirements)
- IEC 60950-22 (2016): Information technology equipment – Safety (Part 22: Equipment to be installed outdoors)
- IEC 60529-1 (2001): Degrees of protection provided by enclosures. (IP code)

Electromagnetic Compatibility Statements

RF Exposure

The integrated Bluetooth® device operates at an output power level which is within the ISED SAR test exemption limits at any user distance. Maximum output (Class 2 Bluetooth® LE): +10 dBm (+1.5 dBm typical). Frequency range: 2.402 GHz to 2.480 GHz. Maximum gain (integral chip antenna): 1.63 dBi.

USA: FCC

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in the specified installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

****DO NOT MODIFY**** Changes or modifications not expressly approved by Agra-GPS Ltd could void the user's authority to operate the equipment.

Canada: ISED

This device contains licence-exempt transmitter(s)/receiver(s) that comply with Innovation, Science and Economic Development Canada's licence-exempt RSS(s). Operation is subject to the following two conditions:

1. This device may not cause interference.
2. This device must accept any interference, including interference that may cause undesired operation of the device.

L'émetteur/récepteur exempt de licence contenu dans le présent appareil est conforme aux CNR d'Innovation, Sciences et Développement économique Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

1. L'appareil ne doit pas produire de brouillage ;
2. L'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

EU & UK

Hereby, Agra-GPS Ltd, declares that the Bluetooth® module has been installed in accordance with the installation instructions, and in equivalent assessment conditions as tested for compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU, and the essential requirements and other relevant provisions of UK Radio Equipment Regulations 2017.