Supported Models:
John Deere 8120 MFWD
John Deere 8130 MFWD
John Deere 8220 MFWD
John Deere 8230 MFWD
John Deere 8320 MFWD
John Deere 8330 MFWD
John Deere 8420 MFWD
John Deere 8430 MFWD

(All models AT-ready and equipped with factory electrohydraulic steering system.)
Special Requirements

Tools
This list consists of special tools that are needed. A complete set of common installation tools is assumed. If you find that you are using other special tools, please notify Documentation@gpsfarm.com.

• metric open wrenches
• metric socket wrenches up to 24mm
• soft brush
• clean rags
• oil collection pan (for collecting oil when hose connections are opened)

Attention
Tighten all screws, bolts, nuts, hose connections and cable connections after the final assembly of the AutoFarm Steering System on the vehicle.

Technician Feedback
Please contact Novariant via email to Documentation@gpsfarm.com with:
• outdated pictures or instructions
• tips for other installers
• general comments or suggestions
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1. Installation Overview

1.1 Installation Process Overview

This guide provides installation instructions for installing the Novariant AutoSteer™ assisted steering system on a John Deere tractor. There are four primary steps to completing the installation on a John Deere wheeled tractor. They are:
1. Connect the AutoSteer harness to the steering wheel sensor.
2. Disconnect the existing John Deere connectors and replace them with Novariant dummy connectors.
3. Connect the AutoSteer harness to the John Deere electrohydraulic steering valve.
4. Perform Novariant standard platform installation as outlined in chapters 3-9 of this manual.

1.2 Installation Kit Overview

The John Deere 8420 Tractor Installation Kit (PN# 182-0042-01) contains the following components. (Component size is not shown to scale below.)
<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Cable routing hardware</td>
<td>200-0076-01</td>
</tr>
<tr>
<td>2</td>
<td>Wheel Angle Sensor (WAS) unit</td>
<td>200-0081-01</td>
</tr>
<tr>
<td>3</td>
<td>User Terminal Monitor bracket</td>
<td>200-0200-01</td>
</tr>
<tr>
<td>4</td>
<td>Installation Guide</td>
<td>602-0056-01</td>
</tr>
<tr>
<td>5</td>
<td>SA Module</td>
<td>200-0206-01</td>
</tr>
<tr>
<td>6</td>
<td>Main Harness</td>
<td>201-0153-01</td>
</tr>
<tr>
<td>7</td>
<td>SAM Harness</td>
<td>201-0240-01</td>
</tr>
<tr>
<td>8</td>
<td>Roof Module bracket</td>
<td>200-0221-02</td>
</tr>
<tr>
<td>9</td>
<td>SA Module bracket</td>
<td>200-0190-01</td>
</tr>
<tr>
<td>10</td>
<td>Roof mounting bolt kit</td>
<td>200-0238-01</td>
</tr>
<tr>
<td>11</td>
<td>Terminator Kit SAM Extender cable</td>
<td>200-0313-01</td>
</tr>
</tbody>
</table>
2. Install AutoSteer on JD Tractor Systems

2.1 Chapter Overview

This chapter provides installation instructions for the following:
1. Connect the AutoSteer harness to the steering wheel sensor.
2. Disconnect the JD Flowmeter sensor.
3. Connect the AutoSteer harness to the John Deere electrohydraulic steering valve.

2.2 Connect AutoSteer Harness to JD Steering Wheel Sensor

The JD steering wheel encoder is located in the steering column of the steering wheel in the tractor cab as shown in the photos below.
Remove the plastic cover to gain access to the encoder cable connectors.

Locate and disconnect the existing John Deere connectors shown in the photos below.
disconnected JD connectors
Remove the JD harness from the steering sensor and cover the two connectors with the two dummy connectors provided in the installation kit. Put a plastic bag over or tie off the existing open connector to protect it from elements.

Connect the AutoFarm cable to one connector on the encoder and cover the second connector. You can connect the AutoFarm cable to either of the two connectors.
Close steering wheel column cover.

### 2.3 Disconnect the JD Flowmeter Sensor

Locate the JD Flowmeter and connector shown in the photo below.
Use a 4 mm Allen Key wrench to unscrew the existing connector and sensor assembly as shown in the photo below.

Remove the sensor assembly and insert the two spacer bushings supplied with the installation kit as shown in the photo below.
Replace sensor assembly as shown in the photo below. Use the two longer screws provided in the AutoFarm installation kit.

2.4 Connect to the JD Valve

Locate the JD electrohydraulic steering valve as shown in the photo below.
Disconnect the existing JD connector from the JD electrohydraulic steering valve as shown in the photo below.

Connect the JD connector with the AutoFarm dummy connector to protect the original connector. Note: If a dummy connector for this cable was not supplied in your kit, protect the connector on the tractor harness with sheet of strong plastic and cable ties. Secure the harness in a protected position on the tractor.
Connect the AutoFarm harness to the valve as shown in the photos below

2.5 Continue to the Novariant Standard Platform Installation

Continue to the standard AutoSteer installation outlined in chapters 3-9 of this guide.
3. **Install Roof Module**

### 3.1 Safety Notes

<table>
<thead>
<tr>
<th>Safety Note</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>3.1 Safety Notes</td>
<td>The AutoFarm system must be powered OFF when installing or removing the roof module.</td>
</tr>
<tr>
<td></td>
<td>The supplied locking pin or a padlock must be in place whenever the vehicle is in operation.</td>
</tr>
<tr>
<td></td>
<td>The roof module must be removed when transporting the vehicle at speeds above 30 mph.</td>
</tr>
<tr>
<td></td>
<td>Make sure that you are in a stable position on the tractor platform when removing the roof module, so that you do not fall or drop the roof module.</td>
</tr>
</tbody>
</table>

### 3.2 Install the Mounting Rail

- Remove the cab roof bolts.
Align the mounting rail to mounting holes and fasten the mounting rail to the roof. The lettered holes and the dummy cable connector must be on the left side of the tractor. Use longer bolts and spacer washers provided in the installation kit.

3.3 Mount the Roof Module

Slide the roof module into locked position. The cable connection must be on the left side of the tractor, facing the rear. Check if all three pins on the bottom of the roof module are firmly engaged in the slots on the mounting rail.
Make sure that the spring lock is in place.

Insert and close the locking pin through the holes in the roof module and the mounting rail. Note that a padlock can replace the locking pin.
Attach the radio modem antenna. Note: The antenna should be attached “hand tight” - do not use any tools to tighten the antenna. Apply a light film of silicone grease to the antenna O-ring before installing.
4. Install the User Terminal

4.1 User Terminal Installation Overview

The user terminal components are shown below.
4.2 Mount and Adjust the User Terminal

Remove hole covers from the cab post.

Mount the bracket assembly.
Attach the adjustable arm to the user terminal.

Replace adjustment bolt caps and adjust user terminal viewing angle. (Different vehicle shown below.)
The completed user terminal installation is shown below.
5. Install the Wheel Angle Sensor (WAS)

5.1 Wheel Angle Sensor Overview

5.2 Mount Tie Rod and Sensor Brackets

5.3 Adjust the Sensor and Linkage Arms

Adjust linkage arm length and/or linkage bracket position to obtain between 3200 and 3800 counts. Turn the wheels all the way in both directions to make sure the linkage arms can move without interference. Note: This step is done during the calibration and tuning steps.
6. Install the SA Module

6.1 Mount the SA Module Bracket

Mount the SA module bracket in a protected position on the tractor.

6.2 Mount the SA Module to the Bracket

Mount the SA Module to the bracket.
AutoFarm recommends mounting the SA module in the positions shown below.

Do NOT mount the SA module in the positions shown in the figure below.
## 7. Install the SA Module Cable Harness

### 7.1 Attach the Cable to the SA Module

Connect the cable to the SA Module.

![cable connected to SA module](image)

- **bottom of SA module**
- **cable connector**
- **locking mechanism in open position**

Close the cable connector locking mechanism.

![cable connector locked](image)

- **locked position**
Note: To disconnect the cable from the SA module, the connector must first be unlocked as shown.

7.2 Connect the SA Module Harness to the Wheel Angle Sensor

Route and secure the WAS cable from the SA Module beneath the cab to the WAS.

Attach the cable to the WAS.
7.3 Attach SA Module Cable Harness to Main Cable Harness

Route the SA Module cable into the cab through the rubber plug under the right side of rear window.

Attach the harnesses with two connectors.
8. Install the Main Cable Harness

8.1 Attach the Main Cable Harness to the User Terminal.

8.2 Attach the Cable to the Power Supply
8.3 Attach the Main Cable Harness to the Roof Array

Route the cable out of the cab through an existing rubber plug under the left side of rear window.

Attach the cable to the roof array.
Secure the cable to the roof using the eye clamp.

Route the cable down the left side of the cab and secure with cable ties.
### 9. Final Checklist

<table>
<thead>
<tr>
<th>Task</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check all cable connections.</td>
</tr>
<tr>
<td>Power up the vehicle and check for hydraulic leaks.</td>
</tr>
<tr>
<td>Check manual steering.</td>
</tr>
<tr>
<td>Power up the AutoSteer system and begin the calibration and tuning process.</td>
</tr>
</tbody>
</table>