Please refer to this manual prior to beginning the installation of the AutoSteer system

AutoTrac Ready Installation

Supported Models.

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<th>John Deere</th>
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<td>8420-ILS</td>
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</table>
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Introduction

This manual provides the basic information and overview of the installation procedure for installing an AutoSteer system on a vehicle. The AutoSteer system can be installed on many makes, models, and types of vehicles. Read this manual prior to beginning the installation as this manual provides the cautions and warnings that need to be recognized and understood prior to installing or operating a AutoSteer system.

This manual provides the instructions for the installation of the components that come with this AutoSteer installation kit. The installation is broken down into specific sections that may refer to sub-kit assemblies that are part of this kit. These sub-kits will come with their own instructions so refer to those when directed for information on installing the sub-kit parts.

Prior to operating and installing the AutoSteer system, be sure to read and understand the AutoSteer Operator’s Manual that comes with the AutoSteer system. That manual provides the instructions on how to operate the AutoSteer system as well as additional safety information.

Legal Disclaimer

Note: Read and follow ALL instructions in this manual carefully before installing or operating the AutoSteer system.

Note: Take careful note of the safety information in the Safety Information section of this manual and the additional safety messages provided throughout this manual and any other supplemental material provided.

The manufacturer disclaims any liability for damage or injury that results from the failure to follow the instructions, cautions, and warnings set forth herein.

Please take special note of the following warnings:

1. There is NO obstacle avoidance system included with the manufacturer’s product. The owner must always have a human present in the operator’s seat of the vehicle when the AutoSteer system is in use to look for obstacles including people, animals, trees, ditches, buildings, etc. and take control of the vehicle to manually avoid them if necessary.

2. The AutoSteer system does NOT control the speed of the vehicle. The operator must always adjust the speed of the vehicle manually so that it is operated at a safe speed that will not cause the vehicle to roll over or go out of control.

3. The AutoSteer system will take over control of the vehicle’s steering system when the AutoSteer system is activated during testing, calibration, tuning, and automatic steering operations. The vehicle’s steering axles, tracks, articulation point, or wheels may move unpredictably when activated. Prior to starting the vehicle and/or activating the AutoSteer system, verify that all people and obstacles are clear of the vehicle to prevent death, injury, or damage to property.

4. Use of the AutoSteer system is NOT permitted while the vehicle is on public roads or in public areas. Verify that the system is powered OFF before driving on roads or in public areas.
Safety Information

Warning Alerts

The AutoSteer system installer and manufacturer disclaim any responsibility for damage or physical harm caused by the failure to adhere to the following safety requirements:

- As the operator of the vehicle, you are responsible for its safe operation.
- The steering system is *not* designed to replace the vehicle’s operator.

**Note:** After the installation of the AutoSteer system, verify that all the screws, bolts, nuts, and cable connections are tight. If any of the hydraulic lines or fittings were loosened during the installation, verify that they have been reattached and tightened to prevent oil leaks. Verify that all the cables and hoses have been secured to prevent them from being damaged.

---

**WARNING**

To understand the potential hazards associated with the operation of a AutoSteer equipped vehicle, read the provided documentation prior to installing or operating the AutoSteer system.

---

**WARNING**

To prevent accidental death or injury from being run over by the vehicle or automated motion of the steering system, never leave the vehicle’s operator seat with the AutoSteer system engaged.

---

**WARNING**

To prevent accidental death or injury from being run over by the vehicle verify that area around the vehicle is clear of people and obstacles before startup, calibration, tuning, or use of the AutoSteer system.
To prevent the accidental engagement of the AutoSteer system and loss of vehicle control while driving on roads, shut down the AutoSteer system. Never drive on roads or in public areas with the AutoSteer system powered up.

Verify that you are in a stable position on the vehicle’s platform or stairs when installing or removing the GPS antenna so you do not fall. If the vehicle does not provide a safe platform, use a ladder to safely access the vehicle’s roof.

To avoid electrical shock hazards, remove the GPS antenna and/or other antennas from the vehicle before driving under low structures or low electrical power lines.

High-Pressure Fluid Hazard
If the installation requires working on the hydraulic system on the vehicle, read and understand the hydraulic sections of the vehicle manufacturer’s operators manual before starting the installation. Wear hand and eye protection while performing hydraulic system maintenance. Relieve hydraulic system pressure before servicing the hydraulic system.
**Safety Information**

### WARNING

If the vehicle has a Wheel Angle Sensor as part of the installation, always shut off the vehicle when working around the steering axle while installing, checking, and adjusting the Wheel Angle Sensor and rod lengths. The steering mechanism could move suddenly and cause severe injury or death.

### Caution Alerts

The AutoSteer system installer and manufacturer disclaim any responsibility for damage or physical harm caused by the failure to adhere to the following safety requirements:

#### CAUTION

- The GPS antenna must be removed when transporting or driving the vehicle at speeds above 31 mph (50 km/h). The GPS antenna can possibly detach due to wind loads at higher speeds.

- The AutoSteer system does not detect obstacles in the vehicle’s path. The vehicle operator must observe the path being driven and take over steering manually if an obstacle must be avoided.

- The AutoSteer system does not control the speed of the vehicle. The operator must manually adjust the speed of the vehicle to keep the vehicle safely under control.

- The AutoSteer system must be powered OFF when installing or removing the GPS antenna, AutoSteer Control Unit, or any other part of the AutoSteer system.
Installation Requirements

Standard Tool Requirements

The installer is assumed to have a complete set of common installation tools including:

- Imperial and Metric open end wrenches (both standard size and stubby lengths for tight fits)
- Imperial and Metric sockets, extensions, and ratchet
- Imperial and Metric Allen wrenches
- Flat and Philips screwdrivers
- Torx drivers
- 1/4” nut driver
- 2mm Allen wrench
- Metal hack saw
- Side cutters
- Step ladder, 10 ft (3 m)
- Tape measure, 13 ft (4 m) minimum

The installer is also assumed to have the following supplies and additional tools to complete the installation:

- Alcohol pads or other cleaning solution to verify oil and dirt is removed from surfaces prior to gluing them
Vehicle Requirements

Prior to installing the AutoSteer system, verify the following items on the vehicle:

• If the vehicle is equipped with a factory installed steering system (ex. AutoTrac Ready\(^1\), AccuGuide Ready\(^2\), IntelliSteer Ready\(^3\), AutoGuide\(^2\) Ready\(^4\), VarioGuide Ready\(^5\), Agrosky Ready\(^6\)), verify with the vehicle manufacture’s service representative that the factory installed components (ex. Steering Valve, Steering Wheel Encoder, Wheel Angle Sensor, etc.) have been installed on the vehicle.

**Note:** Verify that the factory supplied components have been calibrated and set up by the vehicle manufacture’s service provider prior to installing the AutoSteer System.

• The vehicle’s steering system is in good working order. Drive the vehicle to verify this prior to beginning the installation. There should be no play in the steering and the vehicle should turn proportionally the ECU\(e\) to the left and right.

• The vehicle’s electrical system and battery must be in good working order.

• The vehicle should be fully cleaned before installing the AutoSteer system. A clean vehicle will improve the overall installation and cable routing and will also reduce the chance for oil contamination if the hydraulic connections are opened. If installing any hydraulic components, it is important to clean the area around the steering unit (Orbitrol), under the cab, behind the rear cab cover, and all the hydraulic connection points.

If any issues are discovered with the vehicle, they must be repaired prior to beginning the AutoSteer installation by a qualified service person for the vehicle.

**Note:** This installation manual, vehicle specific installation manuals, and sub-kit manuals contains valuable information for servicing the AutoSteer system. After the installation is complete, store all of these manuals in a safe place for future reference.

**Note:** After the installation is completed, be sure to complete the Final Hardware Installation Checklist and save this sheet with the installation manuals. The values recorded on these sheets can be referred to in the future when servicing the system.

Technical Support

Refer to your Display Operator’s Manual for technical support information.

Contact Information

Refer to your Display Operator’s Manual for contact information.

\(^1\) AutoTrac is a registered trademark of John Deere

\(^2\) AccuGuide is a registered trademark of Case IH

\(^3\) IntelliSteer is a registered trademark of New Holland

\(^4\) AutoGuide\(^2\) is a registered trademark of AGCO

\(^5\) VarioGuide is a registered trademark of Fendt

\(^6\) Agrosky is a registered trademark of Same Deutz Fahr
Vehicle Inspection

Prior to installing the AutoSteer system, confirm that the vehicle and the vehicle’s steering system are in good working order by driving it around. In addition, verify the following items:

- Verify that you can turn the steered wheels from lock to lock.
- Record the time it takes to turn the vehicle’s steering mechanism (ex. steering axle, articulation point) from full left to full right and then record the time to go from full right to full left as fast as you can manually. This will be used later to ensure steering performance is okay.
- Verify the vehicle steers straight and does not pull to one side when driving in a straight line.
- Verify that there are no oil leaks.
- Check for loose or worn steering components.

If any part of the vehicle is not in working order, have the system serviced by a qualified technician prior to beginning the AutoSteer installation procedure.
Installation Overview

Supported Models

These instructions provide the suggested procedure for installing the AutoSteer system on qualified vehicles for the easiest installation and best performance. The vehicles covered by this manual are the John Deere MFWD tractors with the factory installed AutoTrac steering components installed.

The AutoSteer installation kit PN: 186-0002-01 is used on the following vehicle series:

- John Deere 7X30 Series MFWD (7630, 7730, 7830, and 7930) model year start 2007
- John Deere 8X30 Series MFWD (8130, 8230, 8330, 8430, and 8530) model year start 2007

The AutoSteer installation kit PN: 186-0002-02 is used on the following vehicle series:

- John Deere 8X20-ILS (Independent Link Suspension) Series (8120, 8220, 8320, 8420, and 8520) model year start 2003
- John Deere 8X30-ILS (Independent Link Suspension) Series (8130, 8230, 8330, 8430, and 8530) model year start 2007

The AutoSteer installation kit PN: 186-0002-03 is used on the following vehicle series:

- John Deere 8X20 Series MFWD (8120, 8220, 8320, 8420, and 8520) model year start 2003

The AutoSteer installation kit PN: 186-0002-04 is used on the following vehicle series:

- John Deere 7X20 Series MFWD (7720, 7820, and 7920) model year start 2004

Note: The installer can install the AutoSteer system differently than how the manufacturer suggests; however the components that are called out in this manual may not fit properly or the lengths of cables and hoses may not be long enough with alternative mounting solutions. If the installer modifies the installation procedure, it is the responsibility of the installer to ensure all the components will work and that any component with specific orientation and mounting requirements are met.

The kits are basically the same for the standard MFWD front axle and ILS front axle models however the ILS versions and the older 7x20 and 8x20 series require the installation of a Wheel Angle Sensor kit. The factory solution of a Flow Sensor for measuring the wheel angle cannot be used. It is important to identify the vehicle model and the front axle of the vehicle prior to performing the installation to verify that the proper kit is being installed. Refer to Figure 1-1 and Figure 1-2 to determine which front axle the vehicle has.

The instructions for connecting to the vehicle are different depending on if the vehicle uses a factory Kingpin sensor or factory Flow Sensor for the steering axle sensor. Changes in the installation procedure due to this difference will be called on in the manual. Refer to the sections that correspond to the type of installation the system is being installed on.
The ILS version of the vehicle has a factory installed Flow Sensor to detect front axle wheel motion. The 7820 and 8X20 AutoTrac Ready models with a standard front axles also used the Flow Sensor. The newer 7X30 and 8X30 standard axle came from the factory with a Kingpin Sensor on top of the left front axle king pin shown in Figure 1-3.
If the Kingpin sensor is not present on a standard front axle 7X20 or 8X20 vehicle, verify that the vehicle has a Flow Sensor installed on it. The Flow Sensor is under the rear, left side of the engine compartment on a 7X20 as shown in or right below the air cleaner on a 8X20 as shown in Figure 1-6.

If the vehicle is a non ILS and has a Flow Sensor instead of a Kingpin sensor, a Wheel Angle Sensor kit will need to be provided with the kit. Refer to the parts list provided in this manual to identify the appropriate wheel angle sensor for your vehicle model.
Figure 1-4  Flow Sensor Location on 7X20

Figure 1-5  Flow Sensor on 7X20
Kit Overview

The sub-kits that are required for the installation of the AutoSteer system are provided in this section. Use this section to verify that all the sub-kits and parts required for the installation are available.

Note: All part numbers provided in this manual are subject to change without notice. They are provided as a reference at the time of this writing. Always verify that the part numbers are still valid from your AutoSteer dealer if spare parts need to be ordered.

GPS Receiver with Antenna

The following parts are assumed to be available for the installation from an AutoSteer System Kit that has been purchased separately and are not part of the AutoSteer Specific Kit. This information is provided here for reference only.

A GPS receiver and a matching antenna provide the longitude and latitude position of the vehicle.

Steering Control (Electronic Control Unit or ECU)

The steering controller uses the position information from the GPS receiver and steers the vehicle on the desired path using terrain compensation and additional sensors for higher steering accuracy.

Display Kit

The AutoSteer system is compatible with multiple models of Displays. The Display power and communication cables are supplied with the Display Kit. The AutoSteer system gets its power and activation signal from these cables as well. It is assumed that these parts are available for the installation.

Note: If the Display Kit components have been installed on another vehicle and this kit is being installed as a switch kit, an additional Display Harness and Display Power Harness should be ordered in addition to the Vehicle Specific Kit so they can be left on the vehicle to allow easier switching of components from vehicle to vehicle.

Vehicle Install Kit

The AutoSteer Vehicle Install Kit provides all the components required to install an AutoSteer system on the vehicle. The Vehicle Kit is separated into individual sub-kits. This manual provides the parts list and instructions for installing the components from the AutoSteer Vehicle Specific Kit. The additional sub-kits referenced provide their own parts list and installation instructions that should be referenced when installing those components. This manual will indicate when to refer to those sub-kits during the installation overview.

<table>
<thead>
<tr>
<th>Item</th>
<th>Sub-Kit Identification</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>AutoSteer Vehicle Specific Kit</td>
<td>186-0002-01</td>
</tr>
</tbody>
</table>

Note: The above kit connects to the factory kingpin wheel angle sensor and does not require the installation of an additional wheel angle sensor.
## Table 1-2  Vehicle Install Kit Sub-Kits for 186-0002-02

<table>
<thead>
<tr>
<th>Item</th>
<th>Sub-Kit Identification</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>AutoSteer Vehicle Specific Kit</td>
<td>186-0002-01</td>
</tr>
<tr>
<td>2.</td>
<td>Wheel Angle Sensor Kit JD-8x20 ILS</td>
<td>200-0624-01</td>
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## Table 1-3  Vehicle Install Kit Sub-Kits for 186-0002-03

<table>
<thead>
<tr>
<th>Item</th>
<th>Sub-Kit Identification</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>AutoSteer Vehicle Specific Kit</td>
<td>186-0002-01</td>
</tr>
<tr>
<td>2.</td>
<td>Wheel Angle Sensor Kit JD-8000 MFWD</td>
<td>200-0623-01</td>
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</table>

## Table 1-4  Vehicle Install Kit Sub-Kits for 186-0002-04

<table>
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<th>Item</th>
<th>Sub-Kit Identification</th>
<th>Part Number</th>
</tr>
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<tbody>
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<td>1.</td>
<td>AutoSteer Vehicle Specific Kit</td>
<td>186-0002-01</td>
</tr>
<tr>
<td>2.</td>
<td>Wheel Angle Sensor Kit JD-7X20</td>
<td>200-0096-03</td>
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</table>
AutoSteer Vehicle Specific Kit

Figure 1-7  AutoSteer Vehicle Specific Kit Components

Table 1-5  AutoSteer Vehicle Specific Kit Components Descriptions

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Assembly, Common Components</td>
<td>200-0647-03</td>
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<tr>
<td>2.</td>
<td>Harness, ECU to AutoTrac</td>
<td>201-0513-02</td>
</tr>
<tr>
<td>3.</td>
<td>Install Guide</td>
<td>602-0404-02</td>
</tr>
<tr>
<td>4.</td>
<td>Termination Kit, AutoTrac</td>
<td>200-0313-03</td>
</tr>
<tr>
<td>5.</td>
<td>Assy. ECU Mounting Bracket JD</td>
<td>200-0678-03</td>
</tr>
</tbody>
</table>
Cable Connection Diagram with AutoTrac Adapter Harness (Kingpin Sensor)

- Foot Switch (PN 201-0376-01) is an optional accessory.
- Remote Engage Harness (PN 201-0563-01) is a optional accessory to allow an external engage switch to be connected to the AutoSteer Control Unit.
- Refer to the Display Operator’s Manual for more detailed instructions on how to connect the AutoSteer to the Display data and power ports.
- Component definitions
  - DISPLAY – The Display that is connected to the AutoSteer system (not shown)
  - BATTERY – The battery terminals for the power source for the AutoSteer system and Display (not shown)
  - AUTOSTEER CONTROL UNIT – The AutoSteer Control Unit
  - GPS ANTENNA – The GPS antenna and optional cell modem and/or radio kits mounted on the roof (not shown)
  - FOOT SWITCH* – The optional Foot Switch that can be used for Remote Engage (not required for installation).

Figure 1-8  AutoSteer to AutoTrac with Kingpin Sensor Cable Connections
Cable Connection Diagram with AutoTrac Adapter Harness (Flow Sensor)

• Foot Switch (PN 201-0376-01) is an optional accessory.
• Remote Engage Harness (PN 201-0563-01) is a optional accessory to allow an external engage switch to be connected to the AutoSteer Control Unit.
• Refer to the Display Operator’s Manual for more detailed instructions on how to connect the AutoSteer to the Display data and power ports.
• Component definitions
  • DISPLAY – The Display that is connected to the AutoSteer system (not shown)
  • BATTERY – The battery terminals for the power source for the AutoSteer system and Display (not shown)
  • AUTOSTEER CONTROL UNIT – The AutoSteer Control Unit
  • GPS ANTENNA – The GPS antenna and optional cell modem antenna and/or radio modem kits mounted on the roof
  • FOOT SWITCH* – The optional Foot Switch that can be used for Remote Engage (not required for installation)

Figure 1-9  AutoSteer to AutoTrac with Flow Meter Cable Connections
Installation Procedure Overview

This section provides an overview of all the steps that are required to complete the AutoSteer system installation. For more detailed instructions of each step, follow the procedures provided in the subsequent chapters of this installation manual or instructions provided with the referred to. Install the components in the order provided in this section for best results.

1. Kit Verification – Verify that the installation kit ordered matches the vehicle that it is being installed on and that all the parts have been shipped.

2. Wheel Angle Sensor (If Required) – Follow the instructions provided in the Wheel Angle Sensor Installation Manual provided with the Wheel Angle Sensor Kit.
   a. Install the Wheel Angle Sensor Brackets
   b. Install the Wheel Angle Sensor.

3. GPS antenna – Install the GPS antenna Mounting Bracket and GPS antenna on top of the vehicle’s cab roof. See the Install GPS antenna Mounting Bracket chapter in this manual.

4. Display RAM Mount – Install the Display RAM Mount inside the cab. See the Install Display Mounting Bracket chapter in this manual.

5. Display – Follow the instructions provided with Display Operator’s and Installation Manual that comes with the Display Kit.
   a. Install the Display using the RAM Mount.
   b. Install the Display Harness.
   c. Install the Power Harness for the Display.

Note: AutoSteer can be matched with multiple Display options. Follow the instructions that come with your Display for the procedures to install the Display and to connect the Display Harnesses to vehicle for power and the AutoSteer system.

   a. Install the Display using the RAM Mount.
   b. Install the Display Harness.
   c. Install the Power Harness for the Display.

Note: Refer to the Install AutoSteer Harnesses chapter in this manual for information about locating and accessing the battery or other power source.

6. AutoSteer Control Unit – Follow the instructions provided in the ECU Mounting Bracket Install Kit.

Note: The AutoSteer Control Unit must be mounted in a place that is solid to the frame or cab of the vehicle. It must not move independently of the vehicle (cannot be sitting on the floor of the cab loose). The mounting point must be vibration free. Use the bracket(s) provided with the installation kit to mount the AutoSteer Control Unit when provided.

7. AutoSteer Main Harness – See the Install AutoSteer Harnesses chapter in this manual. Route the harness connections between the AutoSteer Control Unit’s left connector to each of the following:
   a. The Display and/or Display Harnesses (see Display Operator’s Manual for instructions)
   b. The Power Activation connection (see Display Operator’s Manual for instructions)
   c. Power Supply (see Display Operator’s Manual for instructions)
Installation Procedure Overview

8. **AutoSteer Vehicle-Specific Harness** – See the *Install AutoSteer Harnesses* chapter in this manual.
   a. Install spacers at Flow Sensor (If required).
   b. Attach the Wheel Angle Sensor connector.
   c. Attach the AutoTrac Valve connector.
   d. Attach the Steering Wheel Encoder connector and termination.

9. **GPS antenna Cables** – Route the following cables from the AutoSteer Control Unit to the GPS antenna.

   Note: Depending on options ordered, not all of the following connections are required for all installations.

   a. GPS Coax Cable (if required)
   b. Cell Modem Coax Cable (if required)
   c. Radio Modem Data/Power Harnesses (if required)
   d. Serial NMEA cable (if required)

10. **Final Hardware Verification** – Verify that all the bolts have been tightened, electrical and hydraulic connections are securely connected, and that all hoses and cables have been routed safely and secured to the frame of the vehicle away from moving parts with cable ties.

   a. Fill out the *Vehicle Profile Worksheet* provided at the end of this manual.
   b. Power ON the AutoSteer system.
   c. Create a new vehicle profile.

11. **Final Vehicle Set Up** – See *Post-Installation Procedures and Information* chapter.

   a. Calibrate the vehicle.
   b. If necessary, tune the vehicle to improve performance.
   c. Verify the system has been installed properly and operates satisfactorily.

12. **Vehicle Checklist** – Fill out the *Installation Checklist* at the end of this manual.
Install GPS antenna Mounting Bracket

⚠️ WARNING

Verify that you are in a stable position on the vehicle’s platform or stairs when installing or removing the GPS antenna so you do not fall. If the vehicle does not provide a safe platform, use a ladder to safely access the vehicle’s roof.

Overview

The GPS antenna is the removable assembly that includes the GPS antenna and, if the installation requires, cell modem antenna that is mounted on top of the roof of the vehicle. The GPS antenna assembly is also the location where the optional radio modem antenna and radio modem or OmniSTAR demodulator accessory kits are installed. The GPS antenna is attached magnetically to a GPS antenna Mounting Plate that is permanently attached to the roof of the vehicle. This allows the GPS antenna to be quickly removed and reattached in the same location on the vehicle.

Installation Procedure

This GPS antenna Mounting Plate is designed to fit any vehicle installation using the tape on the bottom of the bracket. Predrilled holes are also provided to allow the installer to bolt the bracket to existing structures on the vehicle. The GPS antenna Mounting Plate needs to be mounted flat, on the top of the vehicle in a stable location.
1. Remove the GPS antenna Mounting Plate from the installation kit.

   **Note:** Notice the three tabs on the GPS antenna Mounting Plate. They are used to center the GPS antenna when it is attached to the plate.

   The two tabs should always be on the left side of the vehicle.

2. Locate a flat area at least 10 inches by 20 inches (25 cm by 50 cm) along the center line of the cab roof.

   **Note:** It may be necessary to build a mounting bracket to allow the GPS antenna Mounting Plate to be mounted firmly. The plate has mounting holes for securing it to the vehicle or another bracket if necessary.

3. Thoroughly clean the area on the roof with soap and water to remove ALL dirt.

   **Note:** Cabs with a great deal of oxidation or texture may require more abrasive cleaning methods to achieve a clean surface. When necessary, use a scour pad such as Scotch-Brite™ to thoroughly clean the surface until it is smooth and free of contaminants.
4. Use alcohol wipes provided to finish cleaning the area to verify that all oil and grease is removed.

5. Let the area dry.

**Note:** It is very important that all dirt and oil have been removed from the mounting point on the cab so that the high bond strips will hold the GPS antenna Mounting Plate to the roof.

6. Use fixed points on the roof and a tape measure to find the exact centerline of the vehicle and mark that position on the area that has been cleaned with a marking device.

**Note:** On some vehicles the center of the cab may not be the center of the vehicle as the cab could be offset. Always verify that the centerline marked is the centerline of the vehicle not just the cab.

7. Remove the four adhesive backings on the GPS antenna Mounting Plate.
8. Use the two notches on the GPS antenna Mounting Plate to center it over the marks that show the centerline of the vehicle. Carefully place the GPS antenna Mounting Plate on the clean area.

**Note:** The GPS antenna Mounting Plate is orientation dependent. Verify that the two tabs are on the left side of the vehicle and the single tab is on the right side.

The front of the GPS antenna Mounting Plate is marked **FRONT** and should be oriented towards the front of the vehicle.

**Note:** Verify that the GPS antenna Mounting Plate is square with the vehicle prior to letting the adhesive stick to the roof.

**Note:** The ideal temperature for applying the mounting plate using high bond tape is 70°F to 100°F (21°C to 38°C). Do not apply the high bond tape at temperatures below 60°F (15°C).

9. Once the GPS antenna Mounting Plate is in the proper location, firmly press the adhesive areas to ensure a good contact is made with the roof. Apply pressure for a few seconds to all four corners of the plate.

**Note:** The high bond tape uses a permanent adhesive. Verify and confirm the correct position and orientation of the mounting plate before applying it to the vehicle roof.

10. Refer to your *AutoSteer Operator’s Manual* for instructions on installing and removing your GPS antenna.
Install Display Mounting Bracket

Overview

This guide provides instructions for installing the Display Mounting Bracket. These instructions assume a RAM Ball will be used for the final mounting solution. However it is possible to attach the Display with some other Display mounting solutions if desired.

Note: Refer to your Display Operator’s Manual for instructions on installing the Display itself.

Installation Procedure

The installation kit provides a Flat Plate RAM mount ball that can be bolted to any flat surface. Locate a position in the cab that will allow the RAM mount ball to be attached. The location should allow the Display to be positioned close enough for the driver to comfortably press the AutoSteer Engage button on the screen comfortably (the lower, right hand corner). It should also be positioned so that the Display does not block the operator’s field of view.

Figure 3-1 Flat Plate RAM Mount Ball

Once the RAM mount has been installed, follow the instructions in the Display Operator’s Manual to install the Display in the vehicle.
Install AutoSteer Harnesses

Overview

The final step of the hardware installation is to connect all the components installed with the various harnesses that come with the system. Refer to the **Cable Diagram** on Page 17, which shows all the necessary cable connections on the vehicle. Also refer to the **Display Operator’s Manual** for additional instructions on how to connect the AutoSteer system to the Display.

*Note:* When routing harnesses, verify that all harnesses are routed away from moving parts and sharp objects. Secure the harnesses with cable ties to ensure they are not damaged.

Locate Cab Cable Access Point

The AutoSteer system has components installed both inside and outside the cab. To connect these components, some cables need to be run between the inside and outside areas. To make this easy, there is a Cab Cable Access Point that allows cables to be passed in and out of the cab. This section provides the location of this Cab Cable Access Point and the procedure for opening the ports. Use this point to run any cables in and out of the cab for the installation.

*Note:* It is the responsibility of the installer to ensure that the Cab Cable Access Point is sealed properly after the final installation has been completed. If required, use a sealant to verify that the hole has been completely sealed.

Locate Cab Cable Access Point

1. Locate the Cab Cable Access Point at the rear of the cab on the lower, right part of the back window.
2. Locate Cable Cab Access Point inside the cab at the lower, right side of the rear window.

3. Open the rear window by releasing the latch and then pushing the window out.

4. Locate the rubber insert at the lower, right side of the cab.

5. Pull the rubber insert up and out. Pass cables in and out of one of the slot shown.

   Note: The rubber insert will need to be sliced with a knife to allow cables to be passed through it when it is reinstalled after the cables have been routed.

---

### Attach Harnesses to AutoSteer Control Unit

The AutoSteer Control Unit has two main connectors. These connectors are keyed so that the connector can be attached in the proper port and orientation. The connectors on the AutoSteer Control Unit and the cables also have a colored dot to aid attaching the cables properly. The AutoSteer Main Cable Harness is represented by a Yellow dot and the Vehicle Specific ECU Harness is represented by a White dot. Always verify that the colored dots match before attaching the Harnesses.

Note: Never force the connectors, the connectors should easily slide into place. Forcing the connector may damage the system.
Attach Harnesses to AutoSteer Control Unit

Figure 4-1  AutoSteer Control Unit Cable Identifying Dots

Vehicle-Specific ECU Harness

The installation kit comes with a AutoTrac Ready ECU Harness that is used to connect the vehicle components to the AutoSteer Control Unit. Attach the 30-pin connector of the harness to the right side connector on the AutoSteer Control Unit with a 1/4” nut driver. The cable connector is keyed and has a white dot that needs to be matched to the port on the AutoSteer Control Unit.

Note: Never force the connector.

Figure 4-2  AutoSteer Control Unit Vehicle-Specific ECU Harness Connector

The AutoTrac Ready ECU Harness has three cables that are connected to the Wheel Angle Sensor, Steering Valve, and Steering Encoder. This harness also provides a 4 pin connector to attach to the optional remote engage foot switch. Carefully route these cables from the AutoSteer Control Unit to each of the components making sure that the cables will not be damaged by moving parts or sharp edges. After the cables have been run, secure them with cable ties.

The procedure for connecting the AutoTrac ECU Harness cable to the various sensors and controllers on the vehicle is different. Refer to the correction section for the vehicle that the installation is taking place on.
Access Engine Compartment

In order to connect the cables, the engine compartment must be accessed. Depending on the vehicle the system is being installed on, follow the instructions in the corresponding sections to gain access to the engine compartment. At the conclusion of the installation verify that all cables have been neatly secured, replace all panels that were removed and close the hood.

7X20 and 7X30 Series

<table>
<thead>
<tr>
<th>Access Engine Compartment - 7X20 and 7X30</th>
</tr>
</thead>
</table>

1. Locate the hood latch at the front of the hood on the left side.

2. Pull the hood lock out and then lift the hood up.
3. Locate the battery cover under the front, left side of the cab.

4. Unscrew the knob near the top and then pull the cover off.

5. Remove the two bolts at the top of the side cover with a 13mm socket and ratchet.

6. Remove the side cover.
1. Locate the hood latch on the left side of the hood near the front top.

2. Press the latch down and the pull up on the hood to open it.

3. Locate the battery cover under the front, left side of the cab.

4. Unscrew the knob near the top and then pull the cover off.
### Access Engine Compartment - 8X20

5. Remove the two bolts on the left side of the side cover with a 5mm Allen wrench.

6. Remove the side cover.

### 8X30 (Both standard and ILS Axles)

### Access Engine Compartment - 8X30

1. Locate the hood latch at the front of the hood on the left side.
2. Press the latch down and the pull up on the hood to open it.

3. Locate the battery cover under the front, left side of the cab.
4. Grab the handle and pull the cover forward and then up to remove it.

5. Remove the three bolts on the left side of the side cover with a 13mm socket and ratchet.
6. Remove the side cover.
Attach Harnesses to AutoSteer Control Unit

Disable Flow Meter

The 7X20, 8X20, and all ILS 8X20 and 8X30 models used a Flow Meter to determine if the steering axle was moving instead of a Kingpin wheel angle Sensor. For these installations, this Flow Meter Sensor must be disabled so that the vehicle does not give any error codes to the driver. Depending on the vehicle the system is being installed on, follow the instructions in the corresponding sections to gain access disable the Flow Meter if necessary for the installation.

7X20 Series

<table>
<thead>
<tr>
<th>Disable Flow Meter - 7X20</th>
</tr>
</thead>
</table>

1. Locate the flow meter under the frame on the left side of the tractor behind the front wheel.

2. Remove the two Alan screws holding the sensor body to the flow meter with a 4mm Allen wrench.
3. Pull the sensor body from the flow meter.

4. Replace the existing Allen screws with the two longer ones from the install kit and place the two spacers so they will between the sensor body and flow meter.

5. Tighten the Allen screws with a 4mm Allen wrench.
Attach Harnesses to AutoSteer Control Unit

8X20 and 8X20 ILS Series

Disable Flow Meter - 8X20 and 8X20 ILS

1. Locate the flow meter on the left side of the engine compartment just below and to the front of the air cleaner.

2. Remove the two Alan screws holding the sensor body to the flow meter with a 4mm Allen wrench.

3. Pull the sensor body from the flow meter.

4. Replace the existing Allen screws with the two longer ones from the install kit and place the two spacers so they will between the sensor body and flow meter.
5. Tighten the Allen screws with a 4mm Allen wrench.

6. Locate the flow meter on the left side of the engine compartment just behind the air cleaner.

7. Verify the area around the flow meter is clean.
8. Remove the air filter cover as shown.
9. The hydraulic connections on the flow meter will need to be disconnected. Cover the area below these connections to prevent oil from coming in contact of the vehicle or floor.

10. Loosen the nut on the steel steer line with a 15/16” wrench.

11. Carefully remove the nut and disconnect the steel line from the flow meter.

   **Note:** Ensure that the connector stays clean and that no foreign objects are allowed into the line.

12. Loosen the nut on the line from the Orbitrol with a 15/16” wrench.

13. Carefully remove the nut and disconnect the metal line from the flow meter.

   **Note:** Ensure that the connector stays clean and that no foreign objects are allowed into the line.
14. Loosen the bolts holding the flow sensor to the frame of the tractor with a 13 mm wrench.

15. Remove the bolts and release the flow meter from the frame.

16. Carefully pull the flow sensor from the mounting location.

**Note:** Ensure the vehicle’s harness is not damaged as it is removed.

**Note:** Oil will leak from the flow meter as it is removed. Protect the floor and vehicle from the leaking oil before removing.
17. Hold the flow sensor as shown. Do not damage the cable or drop the flow meter.

18. Remove the two bolts holding the sensor to the back of the flow sensor housing with a 4 mm Allen wrench.

19. Disconnect the sensor from the flow sensor housing.

20. Place the spacers over the flow sensor bolt holes as shown in the picture.
21. Reattach the sensor to the flow sensor housing with the longer bolts provided in the kit.

   **Note:** Verify the spacers are kept positioned so that bolts go through them and the sensor is kept away from the flow sensor housing.

22. Tighten the Allen screws with a 4mm Allen wrench.

23. Carefully replace the flow sensor back into the proper position.

   **Note:** Use care to not damage the wiring harness.

24. Reattach the bolts that hold the flow sensor to the frame.

   **Note:** Do not fully tighten these bolts yet.
25. Reattach the hose to the right connector on the flow meter.

*Note:* The hose adaptor on the flow meter has a rubber O-ring. Verify the O-ring is still attached and undamaged before re-connecting the hose.

26. Reattach the steel line to the left connector on the flow meter.

*Note:* The hose adaptor on the flow meter has a rubber O-ring. Verify the O-ring is still attached and undamaged before re-connecting the hose.

27. Tighten the two bolts holding the flow meter to the frame of the vehicle with a 13mm wrench.

28. Replace the air filter cover.
Wheel Angle Sensor Connection

The AutoTrac Ready ECU Harness has a three pin connector that needs to be connected to a Wheel Angle Sensor. Depending on the installation, this cable will be connected to the add-on Wheel Angle Sensor installed or to the factory supplied Kingpin Sensor if available. Depending on the vehicle the system is being installed on, follow the instructions in the corresponding sections to gain access disable the Flow Meter if necessary for the installation.

7X20 Series

Add on Wheel Angle Sensor - 7X20

29. Route the Wheel Angle Sensor cable to the front axle where the Wheel Angle Sensor is located following existing cables and oil lines.

30. Connect the three pin connector to the Wheel Angle Sensor connector

31. Secure the cables to the bracket using a cable tie.

Note: The Wheel Angle Sensor harness should be attached to the vehicle or bracket as close to the connector with a cable tie as possible to reduce strain on the connector.

32. Secure the cable to the vehicle along the route to prevent it from being damaged.

Note: Be sure to allow the cable to not be damaged when the axle moves up and down.

8X20 Series

Add on Wheel Angle Sensor - 8X20

33. Route the Wheel Angle Sensor cable to the front axle where the Wheel Angle Sensor is located following existing cables and oil lines.

34. Connect the three pin connector to the Wheel Angle Sensor connector

35. Secure the cables to the bracket using a cable tie.

Note: The Wheel Angle Sensor harness should be attached to the vehicle or bracket as close to the connector with a cable tie as possible to reduce strain on the connector.

36. Secure the cable to the vehicle along the route to prevent it from being damaged.

Note: Be sure to allow the cable to not be damaged when the axle moves up and down.
Attach Harnesses to AutoSteer Control Unit

8X20 ILS and 8X30 ILS Series

Add on Wheel Angle Sensor - 8X20 ILS, 8X30 ILS

37. Route the Wheel Angle Sensor cable to the front axle where the Wheel Angle Sensor is located following existing cables and oil lines.

38. Connect the three pin connector to the Wheel Angle Sensor connector.

39. Secure the cables to the bracket using a cable tie.

Note: The Wheel Angle Sensor harness should be attached to the vehicle or bracket as close to the connector with a cable tie as possible to reduce strain on the connector.

40. Secure the cable to the vehicle along the route to prevent it from being damaged.

Note: Be sure to allow the cable to not be damaged when the axle moves up and down.

7X30 Series

Kingpin Sensor - 7X30

Note: Even if using the add on Wheel Angle Sensor instead of the Kingpin Sensor, the Terminator in this part of the procedure must be installed to prevent the vehicle system from throwing codes to the user. Use the Adapter Harness to protect the Kingpin sensor connector from dirt. If using the add on Wheel Angle Sensor, after installing the terminator follow the instructions provided for the 7X20 Series.

41. Locate the factory installed Wheel Angle Sensor wire that runs towards the front axle along the side of the engine.
42. Locate the connector just below and to the rear of the air cleaner.

43. Disconnect this connector.

44. Attach the Wheel Angle Sensor Terminator to the end of the factory harness going back to the tractor.

45. Attach the Adapter Cable to the end of the factory harness going to the Kingpin Sensor.
46. Route the Wheel Angle Sensor cable from the ECU to where the adapter cable is located following existing cables and oil lines.

47. Attach the Wheel Angle Sensor connector from the ECU to the Adaptable Cable connected to the Kingpin Sensor.

48. Secure the cable to the vehicle along the route to prevent it from being damaged.

---

**8X30 Series**

49. Locate the factory installed Wheel Angle Sensor wire that runs towards the front axle along the inside of the tractor frame.

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Note: Even if using the add on Wheel Angle Sensor instead of the Kingpin Sensor, the Terminator in this part of the procedure must be installed to prevent the vehicle system from throwing codes to the user. Use the Adapter Harness to protect the Kingpin sensor connector from dirt. If using the add on Wheel Angle Sensor, after installing the terminator follow the instructions provided for the 7X20 Series.
50. Locate the connector just ahead of the oil fill port.

51. Disconnect this connector.

52. Route the Wheel Angle Sensor cable from the ECU to where the connector is located following existing cables and oil lines.

53. Attach the Wheel Angle Sensor connector from the ECU to the Adaptable Cable.

54. Attach the Adapter Cable to the end of the factory harness going to the Kingpin Sensor.
55. Attach the Wheel Angle Sensor Terminator to the end of the factory harness going back to the tractor.

56. Secure the cable to the vehicle along the route to prevent it from being damaged.
Steering Valve

The AutoTrac Ready ECU Harness has a connector that needs to be connected to one of the AutoTrac Steering Valve. The Steering Valve sends oil to turn the steering axle left and right. Depending on the vehicle the system is being installed on, follow the instructions in the corresponding sections to gain access disable the Flow Meter if necessary for the installation.

### 7X20 and 7X30, 8X20, 8X30, 8X20 ILS, and 8X30-ILS Series

#### Steering Valve Connection - 7X20 and 7X30

57. Locate the small tank along the left rear, left side of the engine compartment.

58. Remove the two bolts holding the tank and move it to the side with a 13mm socket and ratchet.

59. Locate the Steering Valve behind the cables and hoses under the front of the cab.
60. Locate the connector going to the Steering Valve.
61. Remove the connector from the Steering Valve.

62. Attach the Steering Valve connector from the ECU to the Steering Valve.

63. Attach the Dummy connector to the end of the factory harness going back to the tractor to protect it from dirt.
64. Secure the cables to the vehicle along the route to prevent it from being damaged.
65. Locate the Steering Valve behind the cables and hoses under the front of the cab.

66. Locate the connector going to the Steering Valve.

67. Remove the connector from the Steering Valve.

68. Attach the Steering Valve connector from the ECU to the Steering Valve.
Attach Harnesses to AutoSteer Control Unit

**Steering Valve Connection - 8X20, 8X30, 8X20 ILS, and 8X30 ILS**

69. Attach the Dummy connector to the end of the factory harness going back to the tractor to protect it from dirt.

70. Secure the cables to the vehicle along the route to prevent it from being damaged.

---

### Steering Wheel Encoder

The AutoTrac Ready ECU Harness has a connector that needs to be connected to one of the AutoTrac Steering Wheel Encoders. The Steering Wheel Encoder provides a signal to the system that tells it the driver has taken control of the vehicle manually. This procedure also installs terminators to the connectors on the factory supplied harness to prevent the vehicle from displaying error codes to the driver.

**7X20, 7X30, 8X20, 8X30, 8X20 ILS, and 8X30-ILS Series**

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### Steering Wheel Encoder

71. Lift the floor mat up at the front of the tractor on both sides of the steering column. Hold the mat by tucking them under the foot pedals.
72. Remove the two screws from the left side of the steering console cover with a #2 Phillips Screwdriver.

73. Remove the two screws from the right side of the steering console cover with a #2 Phillips Screwdriver.

74. Remove the two screws from the front side of the steering console cover with a #1 Phillips Screwdriver.
Attach Harnesses to AutoSteer Control Unit

**Steering Wheel Encoder**

75. Remove the top steering wheel console cover by lifting up and away.

   **Note:** The steering wheel may need to be repositioned to get the cover off.

76. If present, remove the climate control dial from the front of the steering console by pulling it off.

77. Remove the bottom steering wheel console cover by lifting up and away.
78. Locate the two Steering Encoder harness connectors on the right side of the steering console near the glass.

79. Disconnect both of connectors.

80. Plug the Steering Encoder cable from the ECU into one of the two connectors going to the Steering Encoder.

81. Connect the dummy connector to the other connector to protect it from dirt.

*Note:* It does not matter which connector is used. The Steering system will get a signal from either one that it can use.
82. Attach the “Steering Encoder Terminators (High)” to one of the existing AutoTrac harness connectors and the “Steering Encoder Terminators (Low)” to the other AutoTrac harness connector.

**Note:** It does not matter which connector the High or Low Steering Encoder Terminators are connected to. Just plug one terminator into one connector and the other into the other connector.

83. Secure the cables to the vehicle along the route to prevent it from being damaged.

84. Replace all the console covers.

---

**Other AutoSteer Harnesses**

Refer to the manuals and documentation provided with the other components of your AutoSteer system to complete all necessary cable connections. Typically a display and a steering controller are required to complete the AutoSteer installation and they will have their own specific cables and installation instructions.

---

**Routing Cables from the Top of Cab**

85. Route the cables from the top of the roof to the back of the right, rear of the cab.

86. Attach the cables to the top of the cab using a wire clip and one of the existing bolts. Use an 8mm socket and ratchet to loosen and tighten the bolts.
Routing Cables from the Top of Cab

87. Route the cables down the right, rear cab column and secure them to the vehicle with metal clips using the bolts holding the side window bracket on. Use a 10mm socket and ratchet to loosen and tighten the bolts.

88. Route the cables into the Cab Cable Access Point.

Power Supply for AutoSteer System

The AutoSteer Control Unit must be connected to a 12 volt uninterrupted power supply. In most situations, the Display kit will provide a harness that provides power directly from the battery to the Display and AutoSteer system. The AutoSteer Control Unit must also be connected to a power activation signal from the Display. This connector provides a signal to the AutoSteer Control Unit to command it to power up when the Display is powered up. Refer to your Display Operator’s Manual for instructions on connecting the AutoSteer system to power and the power activation signal. Figure 4-3 shows an example of a typical power connection scenario.

Figure 4-3  Typical Battery Cable Connection Diagram

Accessing Vehicle Battery

The AutoSteer system and Display should get their power directly from the vehicle’s battery. Use this information to access the battery location. Refer to the proper section for the vehicle model the system is being installed on.
89. Locate the battery compartment on the left side of the vehicle under the front of the cab.

90. Rotate the knob to disconnect and then pull the plastic panel forward and then up to remove.

91. Attach the Display power cable to the positive and negative terminals of the battery and route harness into the cab.
8X20 and 8X20 ILS Series

Access Vehicle Battery

92. Locate the battery compartment on the left side of the vehicle under the front of the cab.

93. Rotate the knob to disconnect and then pull the plastic panel forward and then up to remove.

94. Attach the Display power cable to the positive and negative terminals of the battery and route harness into the cab.
95. Locate the battery compartment on the left side of the vehicle under the front of the cab.

96. Pull the handle forward and then up to remove the battery cover.

97. Attach the Display power cable to the positive and negative terminals of the battery and route harness into the cab.
**Cab 12 Volt Accessory Port**

Some installations may allow the use of the Cab 12 Volt Accessory Port to provide power. Use this port only if the *Display Operator’s Manual* directs you to do this.

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**Cab Accessory Port**

98. The Cab Accessory Port is located on the rear side of the right side console.

99. Cab Accessory Port shown.

*Note:* Use this port only if the *Display Operator’s Manual* directs you to connect here.
Post-Installation Procedures and Information

Once the entire AutoSteer system, including the Display and Display Harnesses, has been installed on the vehicle, the procedures and notes provided in this chapter must be followed to complete the installation and prepare the vehicle for full AutoSteer capabilities.

Install Warning Label

Install the Warning Label on the cab window in a position that is easy to read and does not obstruct the driver’s view of the road or surrounding obstacles.

Note: Install the Warning Label with the language that best matches the operator’s language. If necessary, install labels in multiple languages. Warning labels are provided in the following languages: English, French, German, and Spanish.
Verify Vehicle's AutoTrac Ready System is Ready

The AutoSteer system performance and functionality depends on the factory installed AutoTrac Ready system being installed correctly and setup and calibrated by a factory rep. Failure to verify the above may cause the system to not to perform properly in the field while AutoSteering. Before setting the vehicle up in the AutoSteer system, verify the following:

- AutoTrac Ready components have been installed
- AutoTrac Ready components have been calibrated by vehicle service rep

AutoTrac Ready Installed on Vehicle

The AutoTrac Ready must have the Steering Valve and all the sensors (Wheel Angle Sensor, Steering Wheel Encoder, etc.) installed on the vehicle from the factory. This must be confirmed by the vehicle manufacturer service rep. If any of the components are missing, the vehicle manufacturer service rep will have to have them installed prior to continuing with the AutoSteer setup.

AutoTrac Ready System Calibrated

The AutoTrac Ready system on the vehicle itself must be calibrated by a vehicle manufacturer service rep. This should have been performed at the factory. However it may be necessary for the vehicle manufacturer service rep to repeat this process to ensure adequate performance. It is always best to verify these steps have been performed before continuing with the AutoSteer setup.

Create New Vehicle

The operator must first create a new vehicle profile. This configures the Steering System hardware so the Display can properly communicate with the various sensors and components on the vehicle. Enter all the appropriate information for setting up the vehicle.

1. Verify that the vehicle is in Park and/or the park brake is set to prevent the vehicle from moving.
2. Verify the vehicle is off. Do not start the vehicle yet.
3. Power up the AutoSteer system (turn the key to the Run position if necessary but do not start the engine).
4. Follow the instructions provided in the Display Operator’s Manual to create a new vehicle using the Setup Wizard.

**Note:** Select AutoTrac Ready as the controller for the specific vehicle model when setting up your vehicle on the AutoSteer system Display

5. When the system reaches the Auto Calibrate screen, press the Exit Screen Arrow to exit the procedure and save the vehicle information.
6. Power down the AutoSteer System.
Calibration and Tuning Guidelines

Note: For optimal steering performance, the AutoSteer system must be fully calibrated and then tuned.

7. Start the vehicle and move it to an open area.
8. Power up the AutoSteer system.
9. Follow the instructions in the Display Operator’s Manual to navigate to the Vehicle tab from the AutoSteer Setup screen. The current vehicle should have already been set up and selected during the Create New Vehicle section, if not, select the current vehicle profile in the Manage Vehicle screen.
10. From the Vehicle tab of the AutoSteer Setup screen, press the Auto Calibrate button. Follow the on screen procedure to calibrate the vehicle.
11. If additional performance is required, follow the instructions provided by the Display Operator’s Manual to Tune the vehicle after the calibration has completed. Under normal circumstances this should not be necessary.
# Vehicle Profile Worksheet

<table>
<thead>
<tr>
<th>Wheel Base</th>
<th>Length</th>
<th>Units Used</th>
</tr>
</thead>
</table>
| ![Vehicle Illustration](image1.png) | ![Length Measurement](image2.png) | □ Inches  
□ Feet  
□ Centimeters  
□ Meters |

<table>
<thead>
<tr>
<th>GPS Antenna Location</th>
<th>Fore/Aft</th>
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<tbody>
<tr>
<td><img src="image3.png" alt="GPS Antenna Illustration" /></td>
<td><img src="image4.png" alt="Fore/Aft Measurement" /></td>
<td><img src="image5.png" alt="Left/Right Measurement" /></td>
<td><img src="image6.png" alt="Height Measurement" /></td>
</tr>
</tbody>
</table>

**Measurements:**

- □ Fore  
□ Aft  
□ Left  
□ Right

<table>
<thead>
<tr>
<th>AutoSteer Control Unit Location</th>
<th>Fore/Aft</th>
<th>Left/Right</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image7.png" alt="AutoSteer Control Unit Illustration" /></td>
<td><img src="image8.png" alt="Fore/Aft Measurement" /></td>
<td><img src="image9.png" alt="Left/Right Measurement" /></td>
<td><img src="image10.png" alt="Height Measurement" /></td>
</tr>
</tbody>
</table>

**Measurements:**

- □ Fore  
□ Aft  
□ Left  
□ Right

<table>
<thead>
<tr>
<th>AutoSteer Control Unit Orientation</th>
<th>X Axis</th>
<th>Y Axis</th>
<th>Z Axis</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image11.png" alt="Orientation Illustration" /></td>
<td><img src="image12.png" alt="X Axis" /></td>
<td><img src="image13.png" alt="Y Axis" /></td>
<td><img src="image14.png" alt="Z Axis" /></td>
</tr>
</tbody>
</table>

**Draw Orientation of AutoSteer Control Unit for all Three Directions and Angle Measured**

| Measured Angle (Degrees): | |
|---------------------------||

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Hardware Installation Guide 67
Final Hardware Installation Checklist

After the completion of the AutoSteer installation, fill out this Final Hardware Installation Checklist. The checklist allows the installer to verify that all the steps have been performed and allows a place to record important system information for future reference.

Machine Model: ___________________________ Year: _________ Serial #: ___________________________

Customer Name: ____________________________________________________________

Location/Address: __________________________________________________________________

AutoSteer Installation Kit Part Number: ____________________________________________

NOTES
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
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________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________
________________________________________________________________________________

Name of Installer: ___________________________ Date: ____________________________
Final Hardware Installation Checklist

1. Display Bracket and Display installed and all fasteners are tight. □
2. GPS antenna is installed. □
3. AutoSteer Control Unit is installed firmly to frame and all fasteners are tight. □
4. All cable ends and terminations are connected. □
5. All cables are secured with cable ties. □

AutoSteer Performance Checklist

1. Verified manual steering speed from lock to lock is satisfactory. □ Value __________ Sec
2. Verified AutoSteer steering speed from lock to lock is satisfactory. □ Value __________ Sec
3. Verified that manual kick-out is working when turn the steering wheel. □
4. Completed the AutoSteer system calibration. □
5. Completed the AutoSteer system tuning (if necessary). □
6. Verified Line Acquisition steering performance is satisfactory. □
7. Verified On-Line steering performance is satisfactory. □