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

**AutoGuide² Ready Installation**

**Supported Models.**

<table>
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<th>AGCO</th>
<th>Challenger</th>
<th>Massy Ferguson</th>
</tr>
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</tr>
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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 an AutoSteerequipped 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.
Safety Information

⚠️ WARNING

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.

⚠️ 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.

⚠️ WARNING

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.

⚠️ WARNING

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

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.

- **CAUTION**
  - 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.

- **CAUTION**
  - 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.

- **CAUTION**
  - 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

CAUTION

The GPS Antenna must always be firmly secured to the mounting plate via the magnet whenever the vehicle is in operation to prevent the GPS Antenna from releasing from its bracket and falling and to ensure the GPS Antenna is placed at the same point every time.

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
- T20 Torx driver
- 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:

- Cleaning rags, abrasive cleaning pads and brushes
- Alcohol pads or other cleaning solution to verify oil and dirt is removed from surfaces prior to gluing them
- Oil pan or bucket when working with hydraulic lines
- Floor Dry to contain any spills
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 same 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 DeutzFahr
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 AutoStear system on qualified vehicles for the easiest installation and best performance. The vehicles covered by this manual are the AGCO, Challenger, and Massey Ferguson MFWD tractors with the factory installed AutoGuide steering system installed.

The AutoSteer installation kit PN: 186-0011-01 is used on the following vehicle series:

- AGCO DT-2XXB Series (DT205B, DT225B, DT250B, and DT275B) model year start 2009
- Challenger MT6X5C Series (MT645C, MT655C, MT665C, and MT675C) model year start 2009
- Challenger MT6X5D Series (MT645D, MT655D, MT665C, MT675D, and MT685D) model year start 2012
- Massey Ferguson 86XX Series (8650, 8660, 8670, 8680, and 8690) model year start 2009

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.
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 Vehicle 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>186-0011-01</td>
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</table>
AutoSteer Vehicle-Specific Kit

Figure 1-1  AutoSteer Vehicle-Specific Kit Components (186-0011-01)

Table 1-2  AutoSteer Vehicle-Specific Kit Components Descriptions

<table>
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<tr>
<th>Item</th>
<th>Component</th>
<th>Part Number</th>
</tr>
</thead>
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<td>Bracket, GPS Antenna</td>
<td>200-0612-01</td>
</tr>
<tr>
<td>2.</td>
<td>Cable Routing Hardware</td>
<td>200-0076-01</td>
</tr>
<tr>
<td>3.</td>
<td>Bracket, ECU Mounting Kit</td>
<td>200-0679-02</td>
</tr>
<tr>
<td>4.</td>
<td>Warning Labels</td>
<td>603-0074-01</td>
</tr>
<tr>
<td>5.</td>
<td>RAM Mount, U-Bolt</td>
<td>207-0010-01</td>
</tr>
<tr>
<td>6.</td>
<td>Harness, ECU to CAN</td>
<td>201-0620-01</td>
</tr>
<tr>
<td>7.</td>
<td>Install Guide</td>
<td>602-0377-02</td>
</tr>
<tr>
<td>8.</td>
<td>ECU Dummy Connector</td>
<td>201-0566-01</td>
</tr>
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</table>
Cable Connection Diagram with AutoGuide² Adapter Harness

- Foot Switch (PN 201-0376-01) is an optional accessory.
- Remote Engage Harness (PN 201-0563-01) is an optional accessory to allow an external engage switch to be connected to the AutoSteer Control Unit.
- Vehicle Port Dummy Connector (PN 201-0566-01) must be installed if not using the optional Remote Engage Harness (PN 201-0563-01) to protect the Vehicle Port of 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 radio modem kits mounted on the roof (not shown)
- FOOT SWITCH* – The optional Foot Switch that can be used for Remote Engage (not required for installation)
- REMOTE ENGAGE HARNESS* - The optional harness that can be used to connect a Remote Engage Switch to a CAN steered vehicle using the Vehicle port on the AutoSteer Control Unit.
- CAN BUS – The CAN Bus on the vehicle that communicates to the factory installed steering system.

Figure 1-2  AutoSteer Valve 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. **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.

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

4. **Display** – Follow the instructions provided with *Display Operator’s and Installation Manual* that comes with the Display Kit.

   **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.

5. **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.

6. **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)

7. **AutoSteer Vehicle-Specific Harness** – See the *Install AutoSteer Harnesses* chapter in this manual.
   a. Install the Vehicle Port Dummy Connector (PN 201-0566-01) to protect unused port on the AutoSteer Control Unit.
Installation Procedure Overview

8. **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
   b. Cell Modem Coax Cable (if required)
   c. Radio Modem Data/Power Harnesses (if required)
   d. Serial NMEA cable (if required)

9. **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.

10. **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.

11. **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 Omni STAR 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.

Note: The GPS antenna mounting plate can vary, depending upon the exact model of GPS antenna used. Although this annual shows one particular model of mounting plate, the same general procedure applies to all mounting plates that use adhesive tape to secure the antenna to the cab roof. If your GPS antenna was provided with specific mounting plate installation instructions, follow those instructions.
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 side to side by 20 inches front to back (25 cm by 50 cm) along the center line of the vehicle. This may not be in the center of the cab roof if the cab is offset.

   **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 necessarily the centerline of 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 U-bolt RAM mount ball that can be attached to a round bar or a Flat Plate RAM mount ball that can be bolted to a 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 (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  U-Bolt RAM Mount Ball

Note: If necessary, the U-Bolts can be trimmed with a hacksaw to shorten them. This may allow more mounting positions for the RAM arm.

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 in this manual, 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.

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

---

**Figure 4-1  AutoSteer Control Unit Cable Identifying Dots**

- ECU Main Harness - Yellow
- Vehicle Port Dummy Connector - White
Attach Harnesses to AutoSteer Control Unit

**Vehicle Port Dummy Connector**

This installation connects to the CAN Bus of the vehicle and thus the Vehicle Specific ECU Harness is not used. The installation kit comes with a Vehicle Port Dummy Connector (PN 201-0566-XX) that is used to protect the terminals on the AutoSteer Control Unit. Attach the 30-pin dummy connector to the right side connector on the AutoSteer Control Unit with a 1/4” nut driver. The dummy 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 Port Dummy Connector**

**Note:** The optional Remote Engage Harness (PN 201-0563-XX) can be connected to this port instead of the dummy connector in the event the user wishes to attach the optional Foot Switch (PN 201-0376-XX) or some other remote engage switch.

**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, and they each have their own specific cables and installation instructions.

**CAN Connections**

For this installation the AutoSteer is connected to the vehicle's CAN Bus system and sends steering commands directly to the vehicle. The vehicle then takes this information to control the steering of the vehicle. The AutoSteer system does not communicate directly with the vehicle's steering valve or Wheel Angle Sensor in this installation. Follow the instructions below to connect the CAN adapter cable between the ECU main harness and the vehicle CAN connector.
**Connect CAN Connections**

1. Attach the CAN Adapter Cable to the CAN connection on the AutoSteer Main Harness. It is a 4-pin connector as shown.

   **Note:** Refer to the cable diagram provided for details about this connection.

2. Identify the cab rear right pillar where the vehicle CAN connector is located behind the corner panel.

3. Identify three torx screws on both sides around the base of the plastic corner cover. These screws secure the plastic corner cover.

4. Remove the three small screws using a **T20** torx driver.
5. Remove the three small screws using a T20 torx driver.

6. Loosen the two screws securing the top of the plastic cover. You do not need to remove these screws.

7. Pull the plastic cover away from the corner post as shown.

8. Hold the cover as necessary to avoid excessive stress on any cables and connectors.
9. Identify the black 12-pin connector shown.

10. The connector will usually be identified as “X282”
11. Press on the two side latches and open the connector.

12. Connect the AutoSteer CAN adapter cable to the lower connector to complete the CAN connection to the vehicle. The top connector on the vehicle will not be used for this installation and can remain unplugged.

13. Rout the CAN adapter cable towards the ECU in a protected position and secure with cable ties.

14. Replace the plastic cover on the corner post and tighten all the screws.
Route Cables to Top of Cab

1. Route the cables up the right, rear cab column and secure them to the vehicle with cable ties to the side door hinges.
2. Secure the cables with cable ties to the rear light.
3. Route the cables along the top of the cab.

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

Access 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.
Access Vehicle Battery

1. Locate the battery compartment on the right side of the cab between the wheels.

2. Use the vehicle's ignition key to unlock the panel door and then remove the cover.
3. Attach the Display power cable to the positive (RED) and negative (BLACK) terminals of the battery and route harness into the cab.

Challenger MT6X5D Series

1. Locate the battery compartment on the right side of the cab between the wheels on top of the fuel tank.
2. Remove the three knobs holding the battery cover in place.

3. Attach the Display power cable to the positive and negative terminals of the battery and route harness into the cab.
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.

1. The Cab Accessory Port is located on the front side of the right console.

2. 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.

Figure 5-1 AutoSteer Warning Label
Verify Vehicle's AutoGuide\textsuperscript{2} System is Ready

The AutoSteer system performance and functionality depends on the factory installed AutoGuide\textsuperscript{2} system being installed correctly, setup and calibrated by a factory rep, and being manually activated. Failure to verify all of the above may cause the system to not communicate or perform properly in the field while AutoSteering. Before setting the vehicle up in the AutoSteer system, verify the following:

- AutoGuide\textsuperscript{2} components have been installed
- AutoGuide\textsuperscript{2} components have been calibrated by vehicle service rep
- AutoGuide\textsuperscript{2} has been activated

AutoGuide\textsuperscript{2} Installed on Vehicle

The AutoGuide\textsuperscript{2} 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.

AutoGuide\textsuperscript{2} System Calibrated

The AutoGuide\textsuperscript{2} system on the vehicle itself must be calibrated by a the 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.

Activate AutoGuide\textsuperscript{2} on Vehicle

AutoGuide\textsuperscript{2} equipped vehicles have a three way rocker switch or two push buttons that override any commands sent from the AutoSteer system. These need to be enabled manually to activate the Steering Valve and other AutoGuide\textsuperscript{2} components. The rocker switch or push buttons are located on the top, rear part of the side console. The controls are different depending on which model of vehicle the AutoGuide\textsuperscript{2} system is installed on. Refer to the section the corresponds to the vehicle the system has been installed on.

AGCO DT-2XXB Series, Challenger MT6X5C Series, and Massey Ferguson 86XX Series

These models use a three way rocker switch to enable the AutoGuide\textsuperscript{2} system. The location of the switch is on the side console shown, however the exact location in the switch area may change depending on the vehicle. Look for the switch with the correct symbols on it.
Before the AutoSteer system can communicate to the AutoGuide², the rocker switch must be put into **Engaged Position**. The rocker switch position functions are as follows:

- **Off Position** (OFF flush with panel) - Shuts down all power to AutoGuide² system. No CAN communication from the AutoGuide² and the AutoSteer systems will be detected on the AutoSteer system.

- **Power AutoGuide² System Position** (rocker switch in the middle position) - This position turns power on to GPS port on top of the cab and the rest of the AutoGuide² system components. When in this position, it enables CAN messages to be communicated between the AutoGuide² and the AutoSteer systems. However AutoSteering commands will be ignored until the rocker switch has been moved to the **Activate Steering** position.

- **Activate Steering Position** (Steering Wheel icon flush with panel) - This button enables or disables whether the AutoGuide² system will accept steering commands. When the switch is in this position, the AutoGuide² system will accepts steering commands from the AutoSteer system.
Verify Vehicle's AutoGuide2 System is Ready

**Note:** The rocker switch must be in the **Power AutoGuide² System** or **Activate Steering** position to power AutoSteer systems that get their power from the GPS port on the roof which is not used for this installation.

**Note:** The rocker switch must be in the **Activate Steering** position to be activated for the system to AutoSteer.

Refer to your *Vehicle Owner's Manual* for a more complete explanation of the AutoGuide² switch operational features.

**Note:** To avoid the accidental engagement of AutoSteer, always put the AutoGuide² rocker switch in the **OFF Position** when driving on public roads.

### Challenger MT6X5D Series

These models use two push buttons to enable the AutoGuide² system. The location of the buttons is on the side console shown.

**Figure 5-4 Locate AutoGuide² Push Button Switches**
Before the AutoSteer system can communicate to the AutoGuide², the push buttons must be enabled. The buttons functions are as follows:

- **Power AutoGuide² System** - (Button on bottom in Figure 5-5) This button powers up the GPS port on top of the cab and the rest of the AutoGuide² system components. If this LED is not on, there will be no communications between the vehicle and the AutoSteer system. If the LED on this button is lit, the AutoGuide² system is powered up and CAN messages will be communicated to the AutoSteer system. However AutoSteering commands will be ignored until the Activate Steering button has been activated.

- **Activate Steering** - (Button on top in Figure 5-5) This button enables or disables whether the AutoGuide² system will accept steering commands from the AutoSteer system. If the LED on this button is not on, the AutoSteer system cannot send steering commands to the vehicle even though the AutoGuide² and AutoSteer systems are powered up. If the LED on this button is lit, the AutoGuide² system will accept steering commands from the AutoSteer system. Activating this button will automatically activate the Power AutoGuide² System button LED.

**Note:** The Power AutoGuide² System button must be enabled to power AutoSteer systems that get their power from the GPS port on the roof. This installation does not get power from the roof connector.

**Note:** Both buttons need to be activated for the system to AutoSteer.

Refer to your Vehicle Owner’s Manual for a more complete explanation of the AutoGuide² operational features.

**Note:** To avoid the accidental engagement of AutoSteer, always put the AutoGuide² Activate Steering button in the OFF Position when driving on public roads.
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 Auto-Guide\(^2\) 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.

1. Start the vehicle and move it to an open area.
2. Power up the AutoSteer system.
3. 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.
4. From the Vehicle tab of the AutoSteer Setup screen, press the Auto Calibrate button. Follow the on screen procedure to calibrate the vehicle.
5. 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

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<tr>
<th>Wheel Base</th>
<th>Length</th>
<th>Units Used</th>
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| ![Wheel Base](image) | ![Length](image) | □ Inches  
□ Feet  
□ Centimeters  
□ Meters |

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<thead>
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<th>GPS Antenna Location</th>
<th>Fore/Aft</th>
<th>Left/Right</th>
<th>Height</th>
</tr>
</thead>
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<td><img src="image" alt="GPS Antenna Location" /></td>
<td><img src="image" alt="Fore/Aft" /></td>
<td><img src="image" alt="Left/Right" /></td>
<td><img src="image" alt="Height" /></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>
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</thead>
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<td><img src="image" alt="Fore/Aft" /></td>
<td><img src="image" alt="Left/Right" /></td>
<td><img src="image" alt="Height" /></td>
</tr>
</tbody>
</table>

**Measurements:**  
□ Fore  □ Aft  □ Left  □ Right

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<th>Direction of Arrows (Front, Back, Left, Right, Up, Down)</th>
<th>X Arrow</th>
<th>Y Arrow</th>
</tr>
</thead>
</table>

<table>
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<th>Y Axis</th>
<th>Z Axis</th>
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<td><img src="image" alt="Y Axis" /></td>
<td><img src="image" alt="Z Axis" /></td>
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</table>

<table>
<thead>
<tr>
<th>Draw Orientation of AutoSteer Control Unit for all Three Directions and Angle Measured</th>
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</thead>
<tbody>
<tr>
<td><img src="image" alt="Draw Orientation of AutoSteer Control Unit" /></td>
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</table>

<table>
<thead>
<tr>
<th>Measured Angle (Degrees):</th>
</tr>
</thead>
</table>
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: _____________________________
Calibration and Tuning Guidelines

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. ☐