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

**AccuGuide and IntelliSteer Ready Installation**

**Supported Models.**

**Case Combines (2WD and 4WD)**

- 7240
- 8240
- 9240

**New Holland Combines (2WD & 4WD)**

- CR-6.80 CR-6.90
- CR-7.90 CR-8.90
- CR-9.90 CR-10.90
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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 the 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.
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.
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.
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

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:

- 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

Special Tool Requirements

Some special additional tools may be required for this vehicle installation:

- Drill
- Silicone sealant
Technical Support

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 Ready¹, AccuGuide Ready², IntelliSteer Ready³, AutoGuide² Ready⁴, VarioGuide Ready⁵, Agrosky Ready⁶), 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 of 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 contain 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 AutoGuide² 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, 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 correct.
• Verify that 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 Case and New Holland combines with the factory installed AccuGuide or IntelliSteer Ready steering system installed.

The AutoSteer installation kits PN: 186-0107-01 and 186-0107-02 are used on the following vehicle series:

• CNH CASE 7240, 8240, 9240 2WD and 4WD


Note: The words AccuGuide and IntelliSteer can be used interchangeably in this manual to refer to the steer ready components installed at the factory on either the Case or New Holland machines.

Note: The installation on Case and New Holland machines is the same except for the valve cable connections because the Case machines use a 4 pin valve connector while the New Holland machine use a 6 pin valve connector. Your kit includes valve adapter cables to handle both types of installations.

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 that all the components work and that any component’s 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.

AutoSteer System Kit

The following parts are assumed to be available for the installation from a 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 a 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. These Case and New Holland combine models are supported by the same kits but the kits have two variations to cover both 2WD and 4WD models that require a different wheel angle sensor to fit the rear axle.

<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>151-0062-02</td>
</tr>
<tr>
<td>2.</td>
<td>Wheel Angle Sensor Kit 2WD</td>
<td>200-0549-01</td>
</tr>
</tbody>
</table>
Table 1-2  Vehicle Install Kit Sub-Kits for 186-0107-02 (4WD)

<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>151-0062-02</td>
</tr>
<tr>
<td>2.</td>
<td>Wheel Angle Sensor Kit 4WD</td>
<td>200-0169-02</td>
</tr>
</tbody>
</table>

**AutoSteer Vehicle Specific Kit**

Figure 1-1  AutoSteer Vehicle Specific Kit Components  (151-0062-02)

Table 1-3  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>Kit Common Parts</td>
<td>200-0647-03</td>
</tr>
<tr>
<td>2.</td>
<td>Harness Case 9230</td>
<td>201-0591-01</td>
</tr>
<tr>
<td>3.</td>
<td>Bracket ECU Mounting Kit</td>
<td>200-0651-02</td>
</tr>
<tr>
<td>4.</td>
<td>Kit Termination CNH Combines</td>
<td>200-0808-01</td>
</tr>
<tr>
<td>5.</td>
<td>Grommet, 1-3/4 OD 1-1/2 ID</td>
<td>508-0001-01</td>
</tr>
<tr>
<td>6.</td>
<td>Hole Saw, 1-3/4&quot;</td>
<td>808-0041-01</td>
</tr>
<tr>
<td>7.</td>
<td>Drill Bit, 1/4&quot;</td>
<td>500-0338-01</td>
</tr>
<tr>
<td>8.</td>
<td>Installation Manual</td>
<td>602-0392-03</td>
</tr>
</tbody>
</table>
Table 1-4  Cable Termination Kit

<table>
<thead>
<tr>
<th>Item</th>
<th>Component</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>HARNESS TERMINATION VALVE</td>
<td>201-0639-01</td>
</tr>
<tr>
<td>2.</td>
<td>CABLE ADAPTER VALVE 4-6 PIN</td>
<td>201-0640-01</td>
</tr>
<tr>
<td>3.</td>
<td>CABLE ADAPTER TERMINATION 6-4 PIN</td>
<td>201-0641-01</td>
</tr>
<tr>
<td>4.</td>
<td>TERMINATION ENCODER CASE 9240</td>
<td>201-0628-01</td>
</tr>
<tr>
<td>5.</td>
<td>COIL 12V</td>
<td>500-0428-01</td>
</tr>
<tr>
<td>6.</td>
<td>BOLT HEX M12X1.75X70</td>
<td>513-0027-01</td>
</tr>
<tr>
<td>7.</td>
<td>BOLT HEX M12X1.75X110</td>
<td>513-0063-01</td>
</tr>
<tr>
<td>8.</td>
<td>WASHER FLAT M12</td>
<td>517-0003-01</td>
</tr>
<tr>
<td>9.</td>
<td>LOCKNUT M12X1.75</td>
<td>519-0034-01</td>
</tr>
</tbody>
</table>
Cable Connection Diagrams with AccuGuide Adapter Harness

- Foot Switch (PN 201-0376-01) is an optional accessory.
- 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)
  - ACCUGUIDE STEERING VALVE – The factory supplied steering valve.
  - STEERING ENCODER - Encoder on steering wheel that allows system to detect when user turns steering wheel manually.
  - WHEEL ANGLE SENSOR - The factory Wheel Angle Sensor is not used for this installation. A secondary one is added and connected to the AutoSteer system while the factory one is left connected to vehicle Accuguide harness.
  - VEHICLE FACTORY HARNESS - This is the factory supplied harness that runs among the various factory installed AutoSteer components.

Figure 1-3 AutoSteer Cable Connections Overview, CASE X240 Accuguide
Figure 1-4  AutoSteer Cable Connections Overview, New Holland CR 6.80 – CR 10.90  IntelliSteer

Note: The New Holland CR cable installation shown above is identical to the Case installation shown in Figure 1-3 except for the fact that it requires two additional adapter cables to connect the valve harness that uses a 6-pin connector instead of a 4-pin connector.
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** – 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.

   **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 (it 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.
Installation Procedure Overview

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. Connect to the Display and/or Display Harnesses (see *Display Operator’s Manual* for instructions).
   b. Connect to the Power Activation connection (see *Display Operator’s Manual* for instructions).
   c. Connect to the Power Supply (see *Display Operator’s Manual* for instructions).

8. **AutoSteer Vehicle-Specific Harness** – See the *Install AutoSteer Harnesses* chapter in this manual.
   a. Install the AccuGuide Vehicle ECU Harness (PN 201-0591-01).
   b. Connect the AccuGuide Vehicle ECU Harness (PN 201-0591-01) to the Wheel Angle Sensor.
   c. Connect the AccuGuide Vehicle ECU Harness (PN 201-0591-01) to the factory Steering Wheel Encoder.
   d. Install the termination on the vehicle encoder harness that was unplugged.
   e. Connect the AccuGuide Vehicle ECU Harness (PN 201-0591-01) to the factory Steering Valve.
   f. Install the termination solenoid coils and adapter cable to the vehicle valve harness that was unplugged.

9. **GPS Antenna Cables** – Route the following cables from the AutoSteer Control Unit to the GPS Antenna.
   - a. Attach the GPS Coax Cable. (if required)
   - b. Attach the Cell Modem Coax Cable (if required).
   - c. Attach the Radio Modem Data/Power Harnesses (if required).
   - d. Attach a 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.

Note: The GPS antenna mounting plate can vary, depending on the exact model of GPS antenna used. Although this manual 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.
Installation Procedure

Install GPS Antenna Mounting Plate

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 the center line 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 center line 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 some cabs are offset.

   Always verify that the center line used is the center line of the vehicle, not necessarily the cab roof.

7. Remove the four adhesive backings on the GPS Antenna Mounting Plate.
Installation Procedure

Install GPS Antenna Mounting Plate

8. Use the two notches on the GPS Antenna Mounting Plate to center it over the marks that show the center line 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 (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 Diagrams, which show 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

11. If your machine does not have a differential lock pedal, you can use the pedal access hole for routing cable into the cab. The hole has a plastic cover that can be moved or reworked by removing a corner to allow cable access.
Attach Harnesses to AutoSteer Control Unit

Locate Cab Cable Access Point

12. If the differential lock hole is not available, locate a suitable flat panel on the cab floor or cab wall where a hole can be drilled for a cable access point. The area just to the left of the differential lock is a possible location for drilling an access hole.

13. Confirm that the hole area is free of components and cables on both sides of the panel.

14. Drill a 1-3/4” hole using the hole saw and drill bit provided in your kit.

**Note:** Verify that the drill bit will not damage anything on either side of the plate.

15. Deburr the hole to eliminate sharp edges.

16. Install the rubber grommet provided.

17. Pass all cables and harnesses that need to go between the inside and outside of the cab through this port.

18. Seal the hole with sealant to avoid air leakage and rodents.

**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.
Attach Harnesses to AutoSteer Control Unit

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

Vehicle-Specific ECU Harness

The installation kit comes with a AccuGuide 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 AccuGuide ECU Harness has three cables that need to be connected to the Wheel Angle Sensor, Steering Valve, and Steering Wheel 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.
Attach Harnesses to AutoSteer Control Unit

Wheel Angle Sensor Connection

**Note:** The Case AccuGuide system comes equipped with a factory installed Wheel Angle Sensor. This Wheel Angle Sensor is used by other Case systems on the vehicle and therefore cannot be disconnected. Do not disconnect or attempt to use the factory Wheel Angle Sensor with the AutoSteer system.

### Wheel Angle Sensor

1. Route the Wheel Angle Sensor cable towards the back of the vehicle where the Wheel Angle Sensor is located on the axle.

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

   **NOTE:** The exact wheel angle sensor setup will look different depending if it is a 2WD or 4WD rear axle.

3. Secure the cables to the bracket using a cable tie so that the connector is NOT being stressed.

4. Route the cable in a protected position on the axle and provide sufficient cable loops between the axle and frame to allow axle movement. Secure the cable with cable ties.

**Note:** The Wheel Angle Sensor harness should be attached to the vehicle or bracket as close to the connector as possible with a cable tie to reduce strain on the connector.
Steering Valve – Case X240

1. Route the Steering Valve cable towards the bottom of the cab where the factory Steering Valve is located.

2. Refer to the cable diagram on page 13 for an overview on the valve cable connection.

3. Locate the 4-pin valve connector shown. It may be hidden near the valve block.

4. Separate this connector and connect the 4-pin connector from the AccuGuide ECU harness to the factory valve harness. This connection will provide the right and left steering commands plus the enable solenoid activation.

   Note: The CASE machines use a 4-pin valve connector and can be connected directly to the AccuGuide ECU harness without any adapter cables. Refer to the cable diagrams for details.

5. Connect the 4-pin connector from the factory valve harness to the solenoid adapter cable (PN 201-0639-01) provided with your kit.

6. Connect this solenoid adapter cable to the three solenoid coils provided with your kit as shown here. Refer to the Case cable diagram for details.
7. Mount two solenoids to the long M12 bolt provided. Use a flat spacer washer between the two coils plus one flat washer at each end as shown.

8. Mount one solenoid coil to the short M12 bolt. Install a flat washer at each end of the coil as shown.

9. Attach the two M12 bolts with coils to the vehicle using existing factory holes on the vehicle. If holes are not available, drill either 12mm or ½” holes to a nonstructural part of the vehicle for attaching the two bolts with coils.

10. Tighten the two bolts and locknuts to secure the coils to the vehicle. Do not exceed 4-6 ft-lb (5-8 Nm) torque when tightening.

Note: To avoid damage to the coils, do not overtighten.


12. Confirm that all connectors are connected or covered with protective caps.
1. Route the Steering Valve cable towards the bottom of the cab where the factory Steering Valve is located.

2. Refer to the cable diagram on page 14 for an overview of the valve cable connection.

   **Note:** The steering valve on your machine might look different to the valve shown here.

3. Locate the 6-pin valve connector shown. It may be hidden near the valve block.

4. Separate this connector and connect the 4-pin connector from the AccuGuide ECU harness to the factory valve harness using the adapter harness provided (PN 201-0640-01). This connection will provide the right and left steering commands plus the enable solenoid activation.

   **Note:** The New Holland machines use a 6-pin valve connector and require an adapter cable to connect to the AutoSteer vehicle harness. Refer to the cable diagrams for details.

5. Connect the 6-pin valve connector from the factory harness to the 4-pin solenoid adapter cable (PN 201-0639-01) provided with your kit. Use the 4 to 6 pin adapter harness provided (PN 201-0641-01) to complete this connection. Refer to the cable diagram for details.

6. Connect the solenoid adapter cable to the three solenoid coils provided with your kit.
7. Mount two solenoids on the long M12 bolt provided. Use a flat spacer washer between the two coils plus one flat washer at each end as shown.

8. Mount one solenoid coil on the short M12 bolt. Install a flat washer at each end of the coil as shown.

9. Attach the two M12 bolts with coils to the vehicle using existing factory holes on the vehicle. If holes are not available, drill either 12mm or ½” holes to a nonstructural part of the vehicle for attaching the two bolts with coils.

10. Tighten the two bolts and locknuts to secure the coils to the vehicle. Do not exceed 4-6 ft-lb (5-8 Nm) torque when tightening.

Note: To avoid damage to the coils, do not overtighten.


12. Confirm that all connectors are connected or covered with protective caps.
Steering Wheel Encoder

1. The ECU Accuguide harness must be connected to an encoder under the steering wheel to provide manual kickout when the driver turns the steering wheel. A termination must also be installed on the factory harness to prevent error codes on the vehicle.

2. Locate the factory Encoder Harness connector in the cab under the mat at the bottom of the steering column. It is a 3-pin connector as shown.

3. Separate the encoder connectors.
4. Connect the 3-pin connector from the ECU AccuGuide harness to the connector that goes to the encoder under the steering wheel.

5. Protect the unused connector on the factory harness with the 3-pin termination (PN 201-0628-01) provided with your termination kit. Connect the termination to the factory cable as shown.

6. Place this termination in a protected position under the floor mat where it cannot be damaged or compressed by heavy objects or stepping.

**Note:** The blank dummy connector provided with the ECU AccuGuide harness is not required for this installation because it has been replaced by the termination provided with the termination kit.

**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 each have their own specific cables and installation instructions.
**Route Cables to Top of Cab**

1. Route the coax cable(s) and Radio Power/Data (if applicable) out of the cab through the Cab Cable Access Point.
2. Route the cables up the back side of the cab towards the GPS antenna on the cab roof.
3. Secure the cable with cable ties to existing structures after the cable has been run the entire distance.

---

**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*
1. Locate the vehicle battery on the left side of the machine.

2. Identify the two power terminals on the outside of the battery box. These will be used for connecting your power cable.

3. Remove the rubber boots covering the terminals.

4. Connect the positive (red) terminal of the display power harness to the positive (red) battery terminal.

5. Connect the ground terminal (black) from the display power harness to the negative (black) battery terminal.

NOTE: To avoid a short and possible fire hazard, follow electrical safety procedures when disconnecting the battery terminals. Do not allow tools to short between the positive terminal and the machine frame (ground).
6. Tighten the nuts on the battery terminals.
7. Rout the power harness towards the cab in a protected position and secure with cable ties.

**Alternative Power Connection**

This vehicle has power junction posts that can simplify connecting auxiliary power cables. These posts will allow enough current to be supplied to the AutoSteer system, however it is not fused near the battery. If these connectors are used, the installer must disconnect battery power to the supply cables prior to connecting the AutoSteer battery supply cable to the terminals.

**Note:** Failure to disconnect the battery prior to connecting the AutoSteer battery supply cable may cause a short and damage to the vehicle if a live wire touches a ground when the nuts are removed from the terminal. Always disconnect the battery connection prior connecting the battery cable.

1. Open the fuse panel access door in the cab.
2. Identify the heavy duty positive and negative power terminals towards the bottom.

3. Connect the positive (red) terminal from the display power harness to the positive terminal on the machine.
4. Connect the negative (black) end of the display power harness to the negative terminal screw on the machine frame.

5. Tighten all nuts and screws.

6. Connect the battery cables that were previously disconnected.

---

**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.

**Figure 4-4 Accessory Port Example**

![Accessory Port Example](image)

If this option is required and the vehicle does not have a 3-pin 12V power outlet in the cab, a Battery Power Adapter Kit (PN 201-0156-01) will need to be ordered and installed. Route the cable from the battery source to the Cab through the Cab Cable Access Point.

**Note:** Verify the fuse supplied with the kit is spliced between the end of the harness’s Red and White wires and battery source. This provides power to pins 1 and 2 at the connector. The fuse protects the vehicle from a short should something damage the power cable. Failure to add the fuse may cause damage to the vehicle.

This solution is only necessary if your *Display Operator’s Manual* directs you to connect to the Accessory Port.
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 AccuGuide Ready System is Ready

The AutoSteer system performance and functionality depends on the factory installed AccuGuide Ready or Intellisteer 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:
Create New Vehicle

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

**AccuGuide Ready Installed on Vehicle**

The AccuGuide Ready system 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.

**AccuGuide Ready System Calibrated**

The AccuGuide Ready system on the vehicle itself must be calibrated by 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.

**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 **AccuGuide 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.

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

<table>
<thead>
<tr>
<th>Wheel Base</th>
<th>Length</th>
<th>Units Used</th>
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</thead>
<tbody>
<tr>
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<td><img src="image2.png" alt="Length Image" /></td>
<td>Inches, Feet, Centimeters, Meters</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>GPS Antenna Location</th>
<th>Fore/Aft</th>
<th>Left/Right</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image3.png" alt="GPS Antenna Location Image" /></td>
<td><img src="image4.png" alt="Fore/Aft Image" /></td>
<td><img src="image5.png" alt="Left/Right Image" /></td>
<td><img src="image6.png" alt="Height Image" /></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 Location Image" /></td>
<td><img src="image8.png" alt="Fore/Aft Image" /></td>
<td><img src="image9.png" alt="Left/Right Image" /></td>
<td><img src="image10.png" alt="Height Image" /></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="AutoSteer Control Unit Orientation Image" /></td>
<td><img src="image12.png" alt="X Axis Image" /></td>
<td><img src="image13.png" alt="Y Axis Image" /></td>
<td><img src="image14.png" alt="Z Axis Image" /></td>
</tr>
</tbody>
</table>

**Direction of Arrows** (Front, Back, Left, Right, Up, Down)

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

**Measured Angle (Degrees):**

---

Hardware Installation Guide 45
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. Wheel Angle Sensor installed and all fasteners and rods are tight. □
2. Display Bracket and Display installed and all fasteners are tight. □
3. GPS Antenna is installed. □
4. AutoSteer Control Unit is installed firmly to frame and all fasteners are tight. □
5. All cable ends and terminations are connected. □
6. 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. Checked the total Wheel Angle Sensor Counts. □ Left ______
   Center ______
   Right ______
4. Verified that manual kick-out is working when the steering wheel is turned. □
5. Completed the AutoSteer system calibration. □
6. Completed the AutoSteer system tuning (if necessary). □
7. Verified Line Acquisition steering performance is satisfactory. □
8. Verified On-Line steering performance is satisfactory. □

Print per Specification #953-0001-01