INSTALLATION INSTRUCTIONS

Autopilot

automated steering system

Gleaner Combines S9 Super Series (Auto Guidance Ready)

- S96
- S97
- S98

Fendt IDEAL Combines (Auto Guidance Ready)

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PTx Trimble

Version 10.00
Revision A
April 2025
P/N 54038-6085-E10

Legal Notices

Agriculture Business Area

PTx Trimble LLC
10368 Westmoor Drive
Westminster, CO 80021-2712
USA
ptxtrimble.com

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This is the April 2025 release (Revision A) of the *Autopilot Automated Steering System Installation Instructions*, part number 54038-6085-E10. It applies to Version 10.00 and later of the Autopilot automated steering system.

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Safety Information

Always follow the instructions that accompany a Warning or Caution. The information they provide is intended to minimize the risk of personal injury and/or damage to property. In particular, observe safety instructions that are presented in the following format:

DANGER! ALERTS YOU TO A SITUATION THAT IS LIKELY TO RESULT IN DEATH OR SERIOUS INJURY.

WARNING – This alert warns of a potential hazard, which, if not avoided, can cause severe injury.

CAUTION – This alert warns of a hazard or unsafe practice which, if not avoided, can cause injury or damage.

NOTE – An absence of specific alerts does not mean that there are no safety risks involved.

Warnings

DANGER! WHEN YOU ARE WORKING ON THE VEHICLE'S HYDRAULIC SYSTEMS, VEHICLE ATTACHMENTS THAT ARE SUSPENDED CAN DROP. IF YOU ARE WORKING AROUND THE VEHICLE, YOU COULD SUFFER SERIOUS INJURY IF AN ATTACHMENT DROPPED ON YOU. TO AVOID THIS RISK, LOWER THE BOOM TO THE LOWEST POSITION BEFORE YOU BEGIN WORK.

DANGER! IF SOMEONE ELSE ATTEMPTS TO DRIVE THE VEHICLE WHILE YOU ARE WORKING ON OR UNDER IT, YOU CAN SUFFER SERIOUS OR FATAL INJURIES. TO AVOID THIS POSSIBILITY, INSTALL A LOCKOUT BOX ON THE BATTERY TERMINAL TO PREVENT THE BATTERY FROM BEING RECONNECTED, REMOVE THE KEY FROM THE VEHICLE'S IGNITION SWITCH, AND ATTACH A "DO NOT OPERATE" TAG IN THE CAB.

DANGER! VEHICLE CABS CAN BE QUITE HIGH IN THE AIR. TO AVOID POTENTIALLY SERIOUS INJURY THROUGH FALLING FROM THIS HEIGHT, ALWAYS USE THE STEPS AND HANDRAILS, AND FACE THE VEHICLE, WHEN YOU ENTER OR EXIT IT.

WARNING – Agricultural chemicals can pose serious health risks. If the vehicle has been used to apply agricultural chemicals, steam clean the vehicle to remove any chemical residue from the areas of the vehicle where you will be working.

WARNING – Always wear protective equipment appropriate to the job conditions and the nature of the vehicle. This includes wearing protective glasses when you use pressurized air or water, and correct protective welder's clothing when welding. Avoid wearing loose clothing or jewelry that can catch on machine parts or tools.

WARNING – Parts of the vehicle may be under pressure. To avoid injury from pressurized parts, relieve all pressure in oil, air, and water systems before you disconnect any lines, fittings, or related items. To avoid being sprayed by pressurized liquids, hold a rag over fill caps, breathers, or hose connections when you remove them. Do not use your bare hands to check for hydraulic leaks. Use a board or cardboard instead.

Cautions

CAUTION – Damage will result to the cable if it is not routed correctly. When routing cables be sure to route them free from areas that may result in damage to the cables including pinching, stretching and rubbing.

CAUTION – Do not direct pressurized water at:
- Electronic or electrical components or connectors
- Bearings
- Hydraulic seals
- Fuel injection pumps
- Any other sensitive parts or components



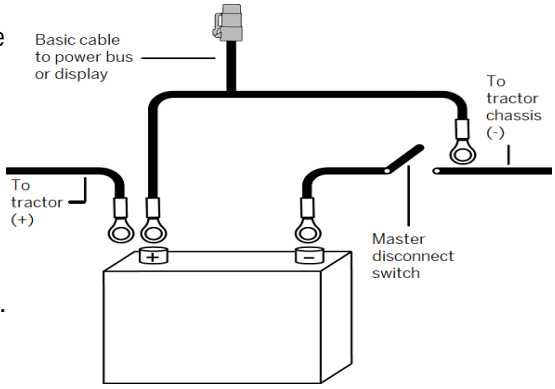
Set the hose pressure as low as practicable, and spray at a 45° to 90° angle. Keep the nozzle of the power washer away from the machine at the distance recommended by the manufacturer.

CAUTION – To prevent damage to the system, make sure that no wires interfere with or catch on any mechanical linkages, or contact any machine parts that get hot.

CAUTION – Before you drill any holes, check behind the drilling surface to ensure that you will not damage any hoses, wires, or other equipment. Failure to do so could result in damage to the vehicle.

CAUTION – If the vehicle has a master electrical disconnect, make sure the basic power cable (P/N 67258/92905) is ***not*** directly attached to the battery terminal that is disconnected by the master switch - the negative pole in this example.

Attach this terminal side just past the main disconnect so that it is as close as possible to the battery but still gets disconnected when the master disconnect is turned off. Failure to do so can result in damage to the display.



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1

Introduction

- Technical assistance
- Manual system upgrade to the Autopilot system
- Preparing the vehicle for installation

This manual describes how to install the platform specific components of the Trimble® Autopilot™ automated steering system.

For installation of the GFX display and NAV-9xx guidance controller please review the separate display and NAV controller installation guide.

Even if you have used another GNSS (Global Navigation Satellite System), such as the United States' GPS (Global Positioning System), before, spend some time reading this manual to learn about the special features of this product. If you are not familiar with GNSS, go to the Trimble website (trimble.com) for an interactive look at Trimble and GNSS.

Technical assistance

Go to the Ag Resource Center for the latest support information, including:

- support notes detailing support issues
- documentation
- the latest files available for download

If you still cannot find the information that you need, contact your Trimble reseller.

Manual system upgrade to the Autopilot system

Displays

Retain
GFX display: P/N 13x000-01 **NAV-960™ guidance controller: P/N 131800-04** Power cable GFX display: P/N 110551 Base power cable: P/N 67258 GFX display to NAV-xxx comms cable: P/N 110540

Required components

Kits required	Special tools
Platform kit: P/N 54038-6085	Standard hand tools

Antenna mounting kits

Kits required
P/N 132731-00: Receiver Mounting Kit, Gleaner, Ideal Combines and JCB, CAN NAV-960

Preparing the vehicle for installation

1. Park the vehicle on a hard, level surface. Block the front and rear wheels.
2. Align the steering straight ahead. On an articulated vehicle, install the articulation locks.
3. Remove all dirt and debris from the areas of the vehicle where the system will be installed.
4. Open all kit boxes and check the contents of the box against the packing list/s. Lay all of the parts out on a clean workbench.

NOTE – The left and right sides of the vehicle are referenced while standing behind the unit, facing the normal direction of travel.

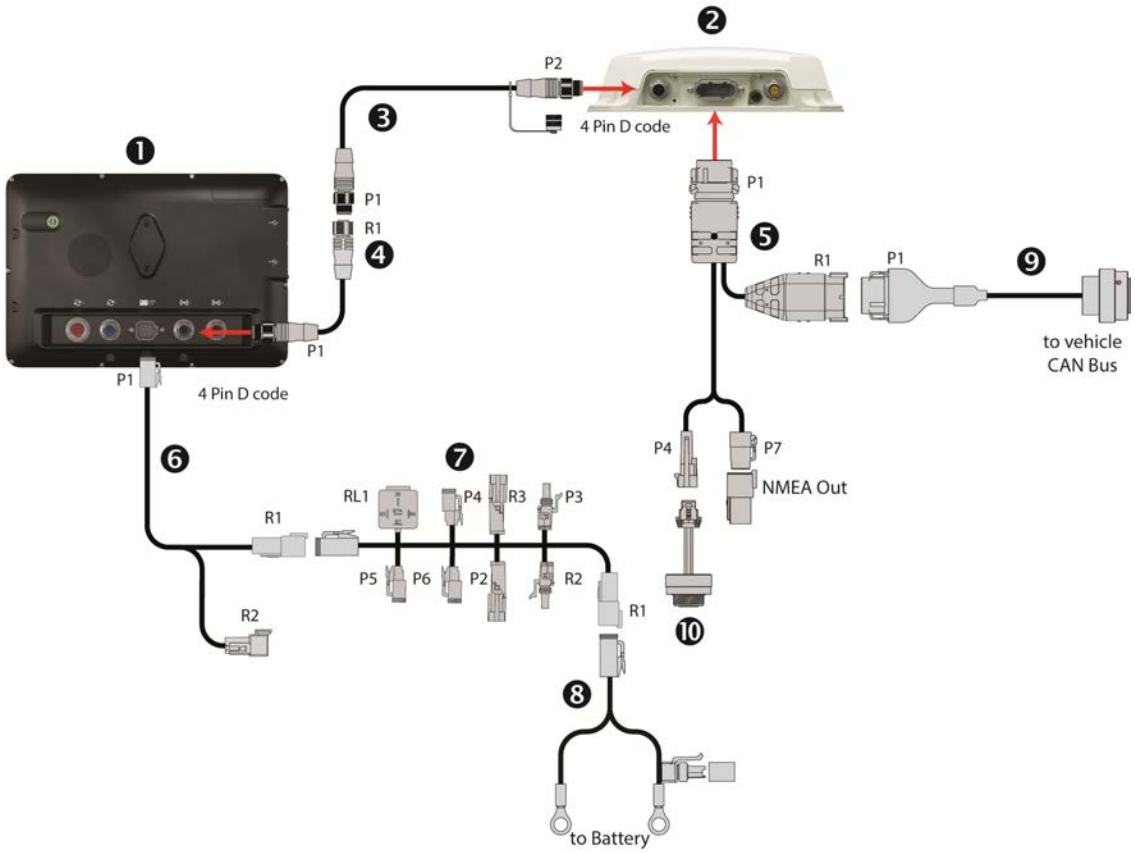
TIP – Read through the steps and make certain you have all the hand tools needed before starting installation.

2

Connecting the NAV-960 controller

- System Components
- Installing the NAV-960 controller using the adapter plate
- Connecting the NAV-960 controller

System Components



Item	Description	P/N
1	GFX display, with PIQ App	13x000-01
2	NAV-960 guidance controller	131800-04
3	Cable Assy, GFX to NAV, Power/Ethernet (BRR), 5 m	110540
4	Cable Assy, GFX/XCN to NAV-500/900, Power/Ethernet (BRR) Extension, 2.5m	112082
5	Cable Assy, NAV, Roof CAN, Sonalert, NMEA	130738
6	Cable Assy, GFX, Power to display, CAN, 2.5 m	110551
7	Cable Assy, GFX, Power with Relay and Switch (Acc)	67259
8	Cable Assy, GFX, Basic Power, 4 m	67258
9	Cable Assy, Autopilot, CAN interface, Gleaner S9, NAV	117324
10	Sonalert	

Installing the NAV-960 controller using the adapter plate

Gleaner S9 series combine

Step 1

Locate the Gleaner S9 GPS bracket on the front of the grain bin extension.

NOTE – Remove the AGCO antenna if there is one present.



Step 2

Locate the NAV-960 mounting plate P/N 133424.

Use the provided hardware to secure the mounting plate to the combine bracket.



Step 3

Secure the NAV-960 mounting plate P/N 132085 to the adapter plate installed in the previous step using the hardware provided.

Place the NAV-960 controller on the three M6 mounting studs on the bracket.

Tighten the three M6 nuts; do not exceed 10 N-m (88.5lb-in) torque.



Step 4

Optional step

For quick release of the NAV-960 controller, you can install the quick release adapter P/N 110308 onto the adapter plate.

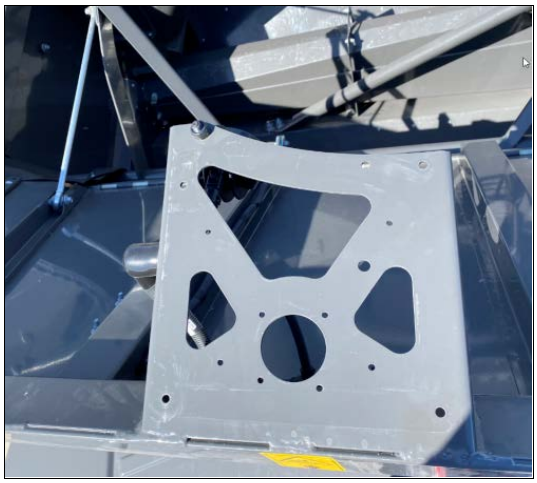


Fendt IDEAL series combine

Step 1

Locate the IDEAL GPS bracket on the front of the grain bin extension.

NOTE – Remove the antenna if there is one present.



Step 2

Locate the NAV-960 mounting plate P/N 133424.

Use the provided hardware to secure the mounting plate to the combine bracket.



Step 3

Secure the NAV-960 mounting plate P/N 132085 to the adapter plate installed in the previous step using the hardware provided.

Place the NAV-960 controller on the three M6 mounting studs on the bracket.

Tighten the three M6 nuts; do not exceed 10 N-m (88.5lb-in) torque.





Step 4

Optional step

For quick release of the NAV-960 controller, you can install the quick release adapter P/N 110308 onto the adapter plate.





Connecting the NAV-960 controller

Gleaner S9 series combine

Step 1

Locate the NAV-960 CAN interface cable P/N 117324.

Connect the P2 connector to the round Deutsch connector located in the grain tank below the antenna mount.



Step 2

Connect the P1 connector on P/N 117324 to the R1 on P/N 130738.

Connect P1 on P/N 130738 to the NAV-960 controller.

Route the remainder of the 130738 cable into the cab.

Connect cable P/N 110540 to the NAV-960 controller.



Step 3

Route the cable P/N 110540 from the NAV-960 controller to the GFX series display in the cab. Follow the existing cables to route the cable P/N 110540 into the cab.

NOTE – Extension cable P/N 112082 may be required to extend the 110540 cable into the cab.



Fendt IDEAL series combine

Step 1

Locate the NAV-960 CAN interface cable P/N 117324.

Connect the P2 connector to the IDEAL connector located in the grain tank below the antenna mount.



Step 2

Connect the P1 connector on P/N 117324 to the R1 on P/N 130738.

Connect P1 on P/N 130738 to the NAV-960 controller.

Route the remainder of the 130738 cable into the cab.

Connect cable P/N 110540 to the NAV-960 controller.

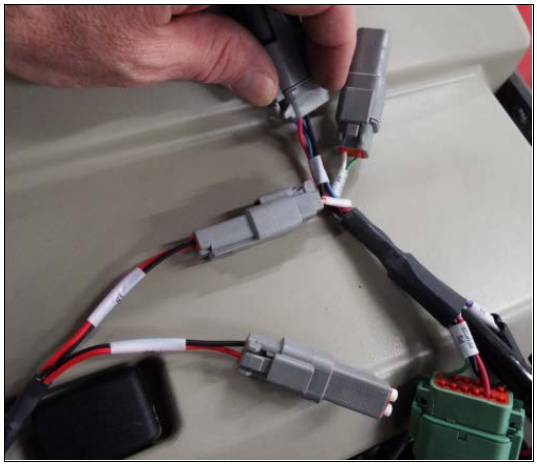


Both models

Connect the Sonalert to the cable once it is inside the cab.



Connect the NMEA output.



3

Final Machine Check

WARNING – To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information chapter.

To perform the final machine check:

1. Connect the battery.
2. Update the Trimble display and the NAV-9x0 controller to the latest firmware from Ag Resource Center.
3. Configure the vehicle using the Trimble display and selecting the correct configuration for the vehicle model being used.
4. Enable the third party guidance (see Enable guidance below).
5. Calibrate the Autopilot system using the Trimble display. Depending on your machine type, the following items must be calibrated before you can use the Autopilot system:
   - NAV-9xx controller mounting orientation
   - Steering sensor calibration – Done with the AGCO EDT tool
   - Valve deadzone – Done with the AGCO EDT tool
   - Autopilot P-gain – Done with the AGCO EDT tool
   - Antenna height/Antenna axle offset, and Roll offset

Enable guidance

Gleaner S9 series combine

The combine requires the third party guidance enabled. Use the steps below to enable guidance.

Step 1

From the home screen, tap the second button down on the right side of the screen.



Step 2

In the **Auto-Guide Main Menu** screen, tap the fourth button down on the right side of the screen.



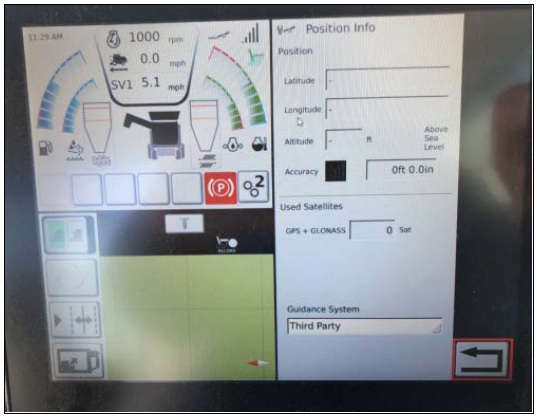
Step 3

Tap the second button down on the right side of the screen.



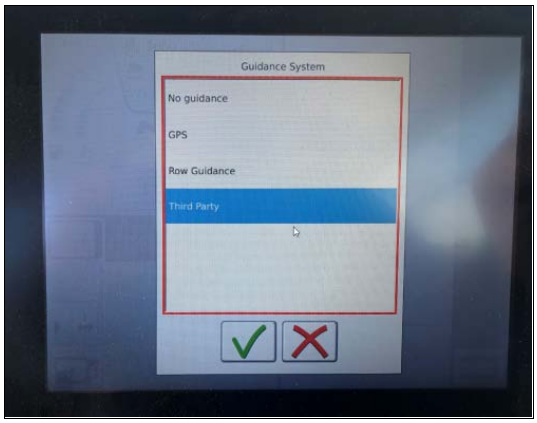
Step 4

Click the **Guidance System** box near the bottom of the screen, to bring up the guidance option screen.



Step 5

Select **Third Party** from the list and then tap the green check button.



Step 6

On the right hand console, push the white steering wheel button to enable autosteer.



Fendt IDEAL series combine

The combine requires the third party guidance enabled. Use the steps below to enable guidance.

Step 1

Use steps 1-5 above to enable the third-party guidance.

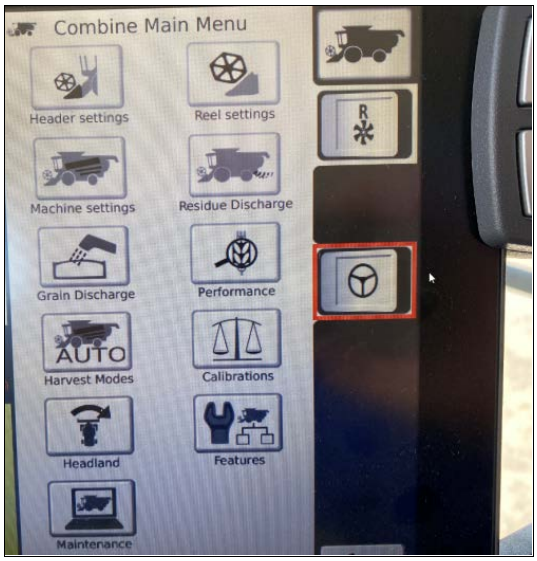
The IDEAL combine does not have an external button to enable guidance.

From the home screen, tap the top button (combine) on the right side of the screen.



Step 2

Locate the steering enable button on right side of the screen.



Step 3

Tap the steering wheel icon to enable the external guidance.




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