INSTALLATION INSTRUCTIONS

Autopilot

automated steering system

Fendt Sprayer (CAN)

- Rogator 900 series: RG932, RG934, RG937
- Rogator 900H series: RG934H, RG937H

PTx Trimble

Version 10.00
Revision A
April 2025
P/N 54037-6049-E10

Legal Notices

Agriculture Business Area

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Release Notice

This is the April 2025 release (Revision A) of the *Autopilot Automated Steering System Installation Instructions*, part number 54037-6049-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



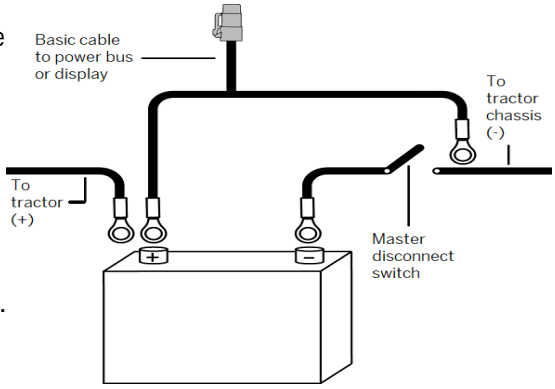
Set the hose pressure as low as practicable, and spray at a 45° to 90° angle. Keep the nozzle of the power washer away from the machine at the distance recommended by the manufacturer.

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 54037-6049	Drill 5/16" and 7/16" drill bits Allen wrench set (metric and SAE) Open ended wrench set (metric and SAE) Deutsch DT pins and crimp tools

Accessory kits

Optional Kits
Remote engage switch assembly – standard Euro: P/N 57227-10 Remote engage switch assembly – full Euro: P/N 57227-20 Remote engage foot pedal: P/N 57259

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.

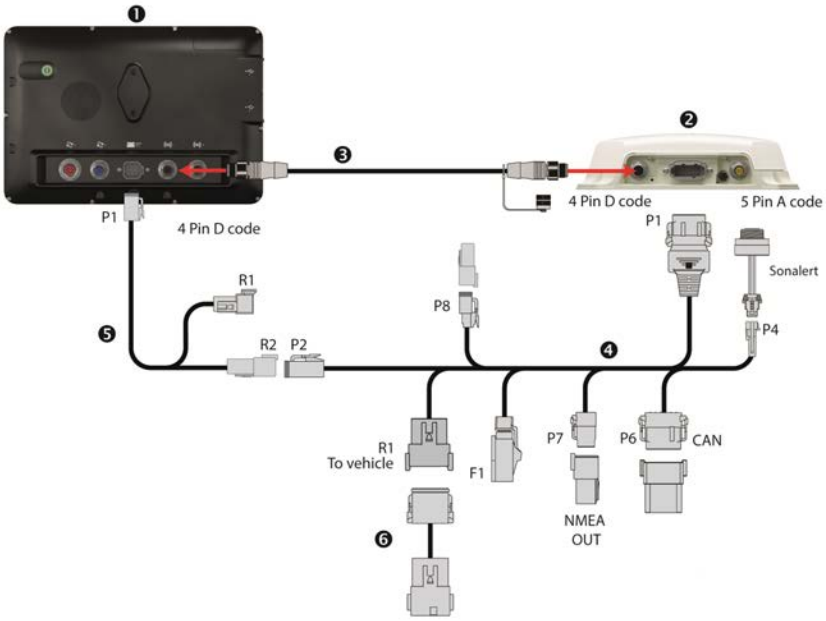
TIP – Read through the steps and make certain you have all the hand tools needed before starting installation.

2

Controller and CAN Interface Cable Installation

- CAN interface cable with the GFX series display
- Installing the NAV-960 guidance controller
- GFX series display: Installing the power harness

CAN interface cable with the GFX series display



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, NAV-9xx, CAN - GUIDANCE, FENDT 300, 500, 700, 800, 900, 1000 AG	113265
5	Cable Assy, GFX, Power to display, CAN, 2.5 m	110551
6	Cable Assy, Fendt Rogator 9xx/9xxH Series AGR, CAN, NAV-9xx	131021

Installing the NAV-960 guidance controller

The NAV-960 controller must be mounted on the roof hatch, located above the driver's seat.



Step 1

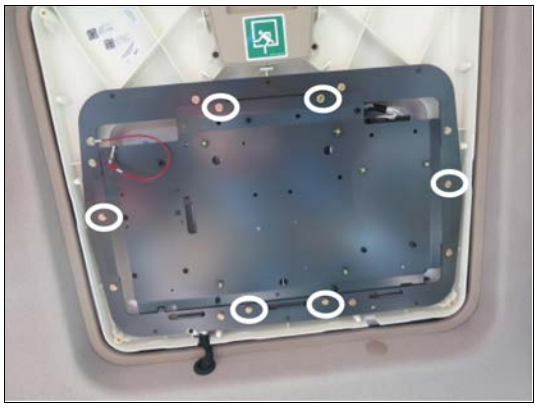
Open the hatch, and then remove the four screws which hold the plastic trim around the perimeter. You may need to apply some force and pry it off using your fingers.

CAUTION – Using hard tools may damage the trim.



Step 2

Close the hatch, then remove the six bolts (circled) which hold the hinged plate in place. The red cable will prevent the plate from falling completely. Exercise caution once the bolts are removed, as the hinges do not hold the plate securely.



Step 3

Temporarily remove any connections and cable retention clips which will prevent the removal of the plate.



Step 4

Undo the clip that attaches the red cable to the plate.

Remove the plate by grabbing it securely, sliding it slightly to the left, and then lifting.



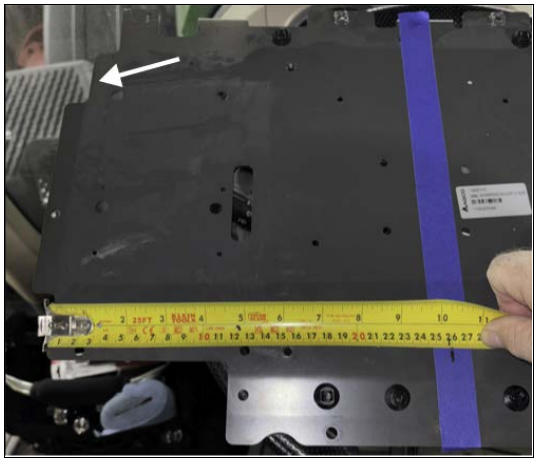
Step 5

Locate the centerline of the bracket for mounting the NAV-960. Measure 26 cm from the left edge of the bracket as shown in the picture to the right.

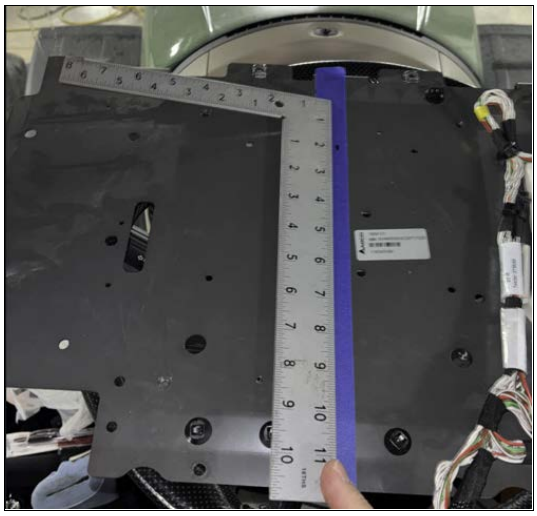
Place a piece of tape across the center of the bracket.

Mark the centerline at the bottom by measuring 26 cm from the left edge.

Next, mark the centerline at the top by measuring 26 cm from the left edge of the bracket where the arrow is located.



Use a straight edge to mark the centerline.



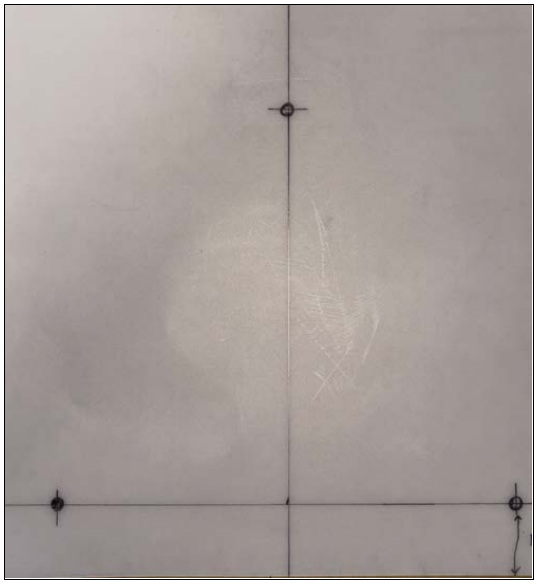
Step 6

Locate a piece of paper or stiff plastic to use as a template. Lay the NAV-960 on top of the material and then mark the holes with a permanent marker.

This will be used as a template to drill the new mounting holes in the Fendt bracket.



After the holes are marked, mark the centerline on the template. The center of the two lower holes is 10.5 cm. This mark should then be used to create the centerline to the top hole.



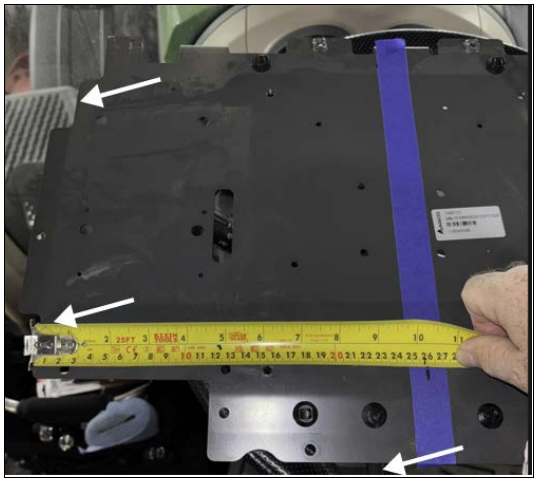
Step 7

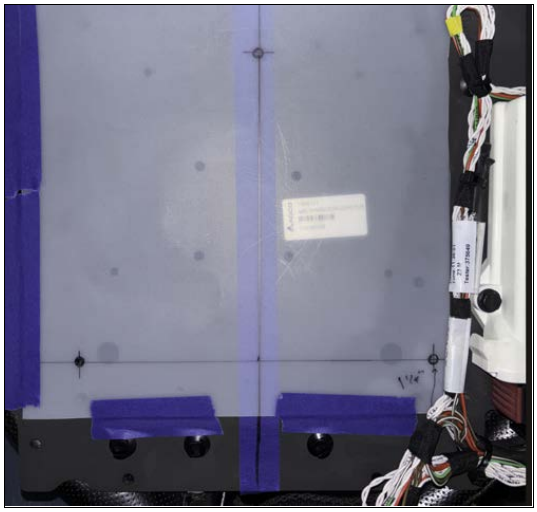
To align the template, measure from the bracket edges shown with the arrows in the picture to the right.

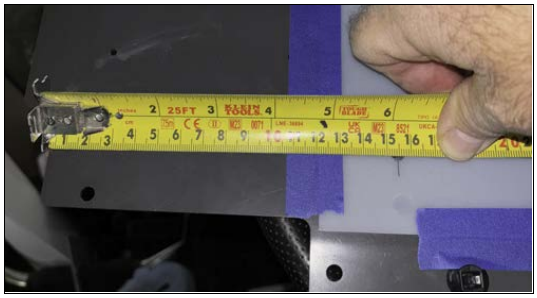
Bottom left hole – 15.5 cm from the left and 8 cm from the bottom.

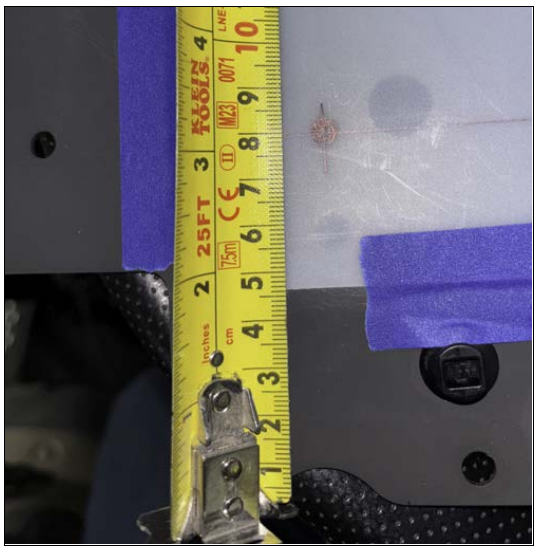
Bottom right hole – 36.5 cm from the left and 8 cm from the bottom.

Top hole – 26 cm from the left and 26.5 cm from the bottom.





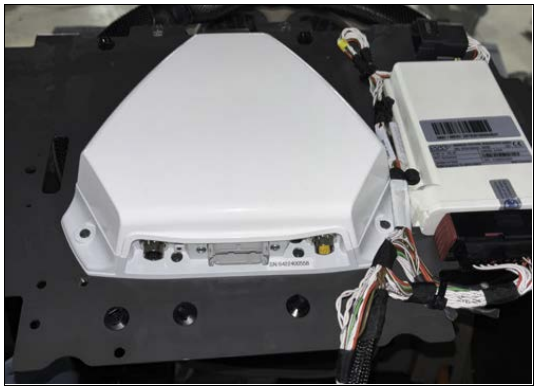

25FT
KLEIN TOOLS


25FT
KLEIN TOOLS

Step 8

Place the NAV-960 controller in place on the bracket.

Use the provided M6 hardware P/N 133375 to secure the NAV-960 controller in place.





Step 9

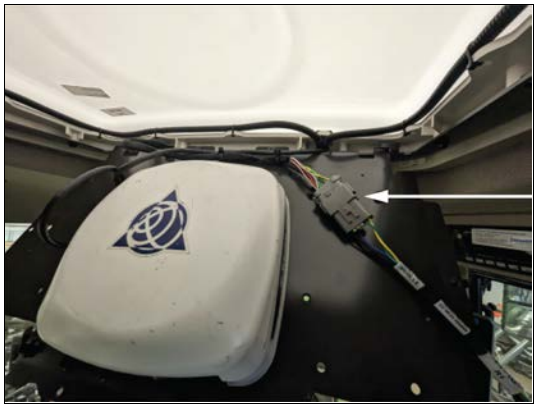
Return the bracket to the original position and secure it in place using the hardware removed in the earlier steps.



Step 10

Locate the Rogator CAN adapter cable P/N 131021 and connect R1 to the 12-pin DT connector located in the front of the roof hatch.

NOTE – NAV-900 controller shown for reference.



Step 11

Connect P1 on cable P/N 131021 to R1 on cable P/N 113265.



Step 12

Connect P1 on cable P/N 113265 to the NAV-9xx controller.



GFX series display: Installing the power harness

The GFX series display requires a nominal 12 volt power source. The P/N 67259 cable has ring terminal leads for connecting to a battery or other cable mount point.

WARNING – If the machine has a master electrical disconnect, ensure that the display/receiver is disconnected from the battery when the master disconnect is used. Failure to do so may result in hardware damage and void warranty. Additionally, it is recommended to use power terminals located within the cab of the vehicle that ground in the same location as the cab components to avoid ground shifts between the display and any vehicle ECUs.

Step 1

To route the GFX/XCN power cable (P/N 110551) and BRR data cable (P/N 110540) from the roof hatch to the display, locate and remove the rubber plug in the roof liner just in front of the hatch.



Step 2

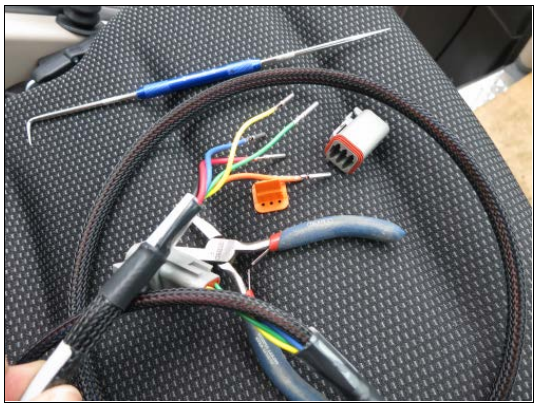
Using a sharp utility knife, cut an “X” across the center of the plug, just large enough to allow the two cables to pass through.



Step 3

Take a photo or otherwise record the pinouts of the 6-pin and 3-pin connections on the GFX display power cable.

Remove the wires from the connectors. This is necessary to fish the cable through the confined space within the roof liner.



Step 4

Feed both cables through the rubber plug.



Step 5

Remove the plastic cubby to the left of the AM/FM radio. It is held in with plastic clips only.



Step 6

Remove the 8 screws which secure the diagnostic and accessory power panel to the roof liner.



Step 7

Remove the white cavity plug from the bottom left corner of the panel. This is where the GFX display's power and data cables will be located in the roof liner.



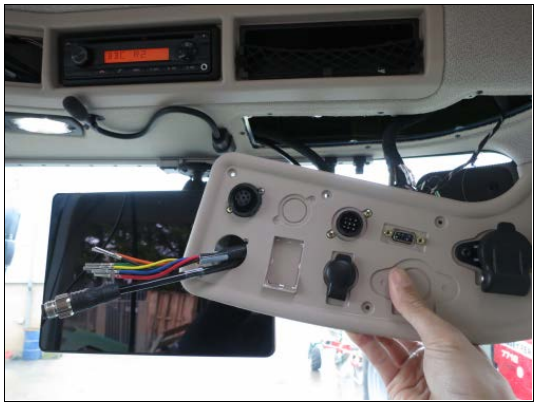
Step 8

Begin routing the cables from the round hole in the roof liner towards the cavity to the left of the AM/FM radio.



Step 9

Continue routing the cables towards the rear of the cab until you reach the accessory panel, then routing them through the now-vacant hole.



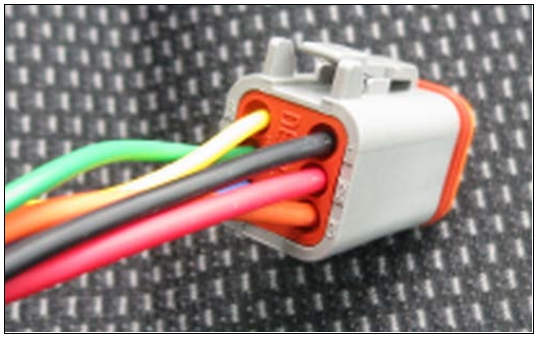
Step 10

Reattach the accessory panel.



Step 11

Insert the wires back into the 6-pin Deutsch connector on the GFX display power cable.



Step 12

Plug in the power and BRR data cables into the back of the GFX display. Replace all of the fasteners, mirror, and plastic trim.



Step 13

Replace the plastic cubby next to the radio.



Step 14

Reinstall the rubber plug back into the roof liner.



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-9xx controller to the latest firmware from Ag Resource Center.
3. Load the correct configuration file into the Autopilot NAV-9xx controller for the vehicle model being used. Download the latest set of configuration files from Ag Resource Center.
4. 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 mounting orientation
   - Antenna height/Antenna axle offset, and Roll offset
5. Make sure the machine steering has been calibrated by the Fendt dealer for the best performance.


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