INSTALLATION INSTRUCTIONS

Autopilot

automated steering system

FendtONE Power and Power+ Tractors

- 300 Vario series AutoGuide Ready: 311, 312, 313, 314
- 500 Vario series AutoGuide Ready: 512, 513, 514, 516
- 700 Vario series AutoGuide Ready: 714, 716, 718, 720, 722, 724

PTx Trimble

Version 10.00
Revision A
March 2025
P/N 54035-6182-E10

Legal Notices

Agriculture Business Area

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

Copyright and Trademarks

© 2025, PTx Trimble LLC.

PTx and associated Logo are trademarks of AGCO Corporation. Trimble and the Globe & Triangle logo are trademarks of Trimble Inc., registered in the United States and in other countries. Autopilot, NAV-960, and Precision-IQ are trademarks of Trimble Inc.

All other trademarks are the property of their respective owners.

Release Notice

This is the March 2025 release (Revision A) of the *Autopilot Automated Steering System Installation Instructions*, part number 54035-6182-E10. It applies to Version 10.00 and later of the Autopilot automated steering system.

Warranty Exclusions and Disclaimer

These warranties shall be applied only in the event and to the extent that (i) the Products and Software are properly and correctly installed, configured, interfaced, maintained, stored, and operated in accordance with PTX Trimble's relevant operator's manual and specifications, and; (ii) the Products and Software are not modified or misused. The preceding warranties shall not apply to, and PTX Trimble shall not be responsible for defects or performance problems resulting from (i) the combination or utilization of the Product or Software with hardware or software products, information, data, systems, interfaces or devices not made, supplied or specified by PTX Trimble; (ii) the operation of the Product or Software under any specification other than, or in addition to, PTX Trimble's standard specifications for its products; (iii) the unauthorized, installation, modification, or use of the Product or Software; (iv) damage caused by accident, lightning or other electrical discharge, fresh or salt water immersion or spray; or (v) normal wear and tear on consumable parts (e.g., batteries). PTX Trimble does not warrant or guarantee the results obtained through the use of the Product.

The warranties above state PTX Trimble's entire liability, and your exclusive remedies, relating to performance of the products and software, except as otherwise expressly provided herein, the products, software, and accompanying documentation and materials are provided “as-is” and without express or implied warranty of any kind by either PTX Trimble or anyone who has been involved in its creation, production, installation, or distribution including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose, title, and non-infringement. The stated express warranties are in lieu of all obligations or liabilities on the part of PTX Trimble arising out of, or in connection with, any products or software. Some states and jurisdictions do not allow limitations on duration or the exclusion of an implied warranty, so the above limitation may not apply to you.

PTX Trimble is not responsible for the operation or failure of operation of GPS satellites or the availability of GPS satellite signals.

Limitation of Liability

PTX Trimble’s entire liability under any provision herein shall be limited to the amount paid by you for the product or software license. To the maximum extent permitted by applicable law, in no event shall PTX Trimble or its suppliers be liable for any

indirect, special, incidental or consequential damages whatsoever under any circumstance or legal theory relating in any way to the products, software and accompanying documentation and materials, (including, without limitation, damages for loss of business profits, business interruption, loss of business information, or any other pecuniary loss), regardless whether PTX Trimble has been advised of the possibility of any such loss and regardless of the course of dealing which develops or has developed between you and PTX Trimble. Because some states and jurisdictions do not allow the exclusion or limitation of liability for consequential or incidental damages, the above limitation may not apply to you.

NOTE – The above limited warranty provisions may not apply to products or software purchased in the European Union. Please contact your PTX Trimble dealer for applicable warranty information.

Notice to Our European Union Customers

For product recycling instructions and more information, please go to:
trimble.com/en/our-commitment/responsible-business/corporate-compliance/environmental-compliance.



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



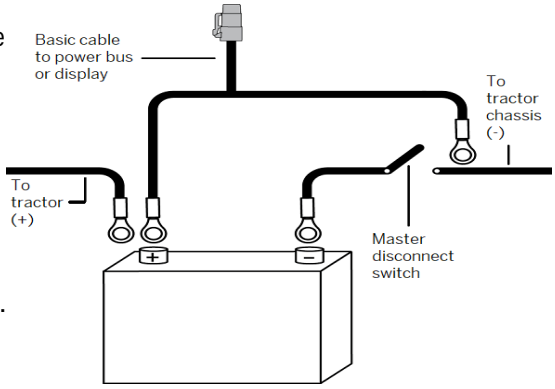
Set the hose pressure as low as practicable, and spray at a 45° to 90° angle. Keep the nozzle of the power washer away from the machine at the distance recommended by the manufacturer.

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.



Contents

Legal Notices **2**

Safety Information **4**

Warnings 4
Cautions 5

Contents **6**

Introduction **7**

Technical assistance 7
Manual system upgrade to the Autopilot system 8
Displays 8
Required components 8
Antenna mounting kits 8
Accessory kits 8
Preparing the vehicle for installation 8

CAN Interface Cable Installation **10**

CAN interface cable with the GFX series display for FendtONE Power or Power+ tractors 11
Installing the interface cable for FendtONE Power and Power+ tractors 12

Controller Installation for Fendt vehicles **18**

Installing the NAV-960 guidance controller 18
GFX series display: Installing the power harness 23

Final Machine Check **27**

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 54035-6182	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 Deutsch DTM pins, sockets, and crimp tools

Antenna mounting kits

Kits required
Antenna mount not required

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.

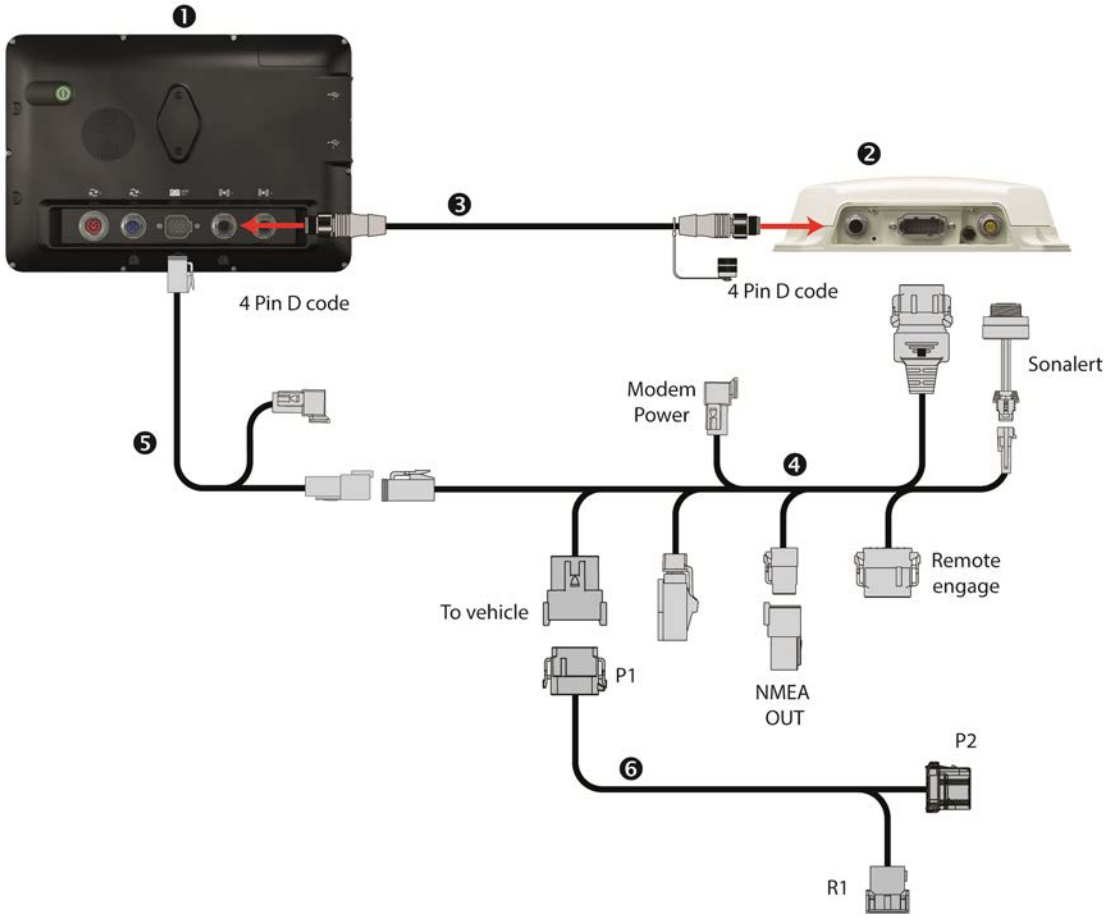
TIP – Read through the steps and make certain you have all the hand tools needed before starting installation.

2

CAN Interface Cable Installation

- CAN interface cable with the GFX series display for FendtONE Power or Power+ tractors
- Installing the interface cable for FendtONE Power and Power+ tractors

CAN interface cable with the GFX series display for FendtONE Power or Power+ tractors



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, FendtONE Power and Power+ models - NAV-9x0	129814

Installing the interface cable for FendtONE Power and Power+ tractors

NOTE – Make sure the AGCO/Fendt Third Party Guidance Unlock (AGCO P/N ACP0595080) is installed on the tractor and the machine steering has been calibrated by the Fendt/Challenger dealer for the best performance.

Step 1

To install the interface cable, access the connector that is behind the panel in the location shown.



Step 2

Remove the cover that is over the fuse panel.



Step 3

Remove the plastic screws near the lower front and side of the cover on the right side console and then pull the cover out of the way, to access the interface cable connection point near the power socket shown in step 1.



Step 4

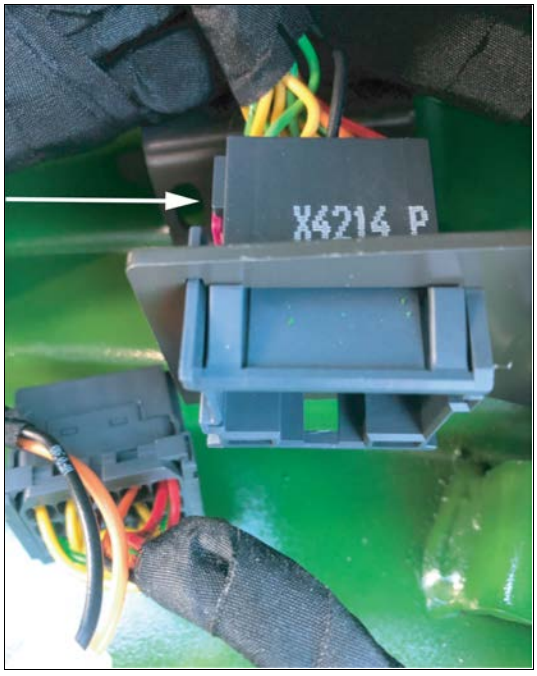
Once the panel is loose, pull it back to access the connectors.





Step 5

Locate the x4214 connector and disconnect the cable.



Step 6

Connect P2 on cable P/N 129814 to the X4214 connector.

Connect R1 on cable P/N 129814 to the cable removed from the X4214 connector.



Step 7

Remove the B post pillar cover and route the opposite end of the cable P/N 129814 up the B pillar towards the ceiling.



Step 8

Route the cable P/N 129814 through the right side of the cab ceiling towards the front of the roof hatch.

NOTE – The compartment covers may need to be removed to allow access.



Step 9

Route the other end of the cable P/N 129814 to the NAV-9x0 mounting location in the top of the cab.



The speaker on the top right side of the cab may need to be removed to allow more access to the headliner.



Step 10

Route the cable from the headliner into the NAV-960 controller mounting area.



You can use the holes at the front of the mounting location or may need to make another hole or cutout to allow the cable to access this area.



Step 11

Once the cable is routed to this location, install the Deutsch sockets into the provided P1 connector. Each socket/wire is labeled with the correct P1 pin location.



Step 12

Connect the P1 connector on cable P/N 129814 to R1 on cable P/N 113265.



Step 13

Connect the P1 connector on cable P/N 113265 to the NAV-960 controller.



3

Controller Installation for Fendt vehicles

- Installing the NAV-960 guidance controller
- GFX series display: Installing the power harness

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

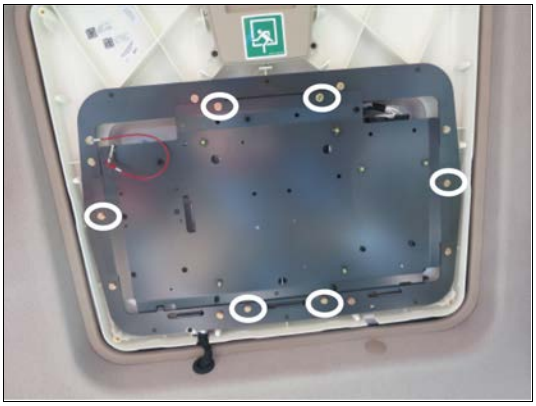
Open the hatch, and then remove the four screws which hold the plastic trim around the perimeter. You may need to apply some force and pry it off using your fingers.



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.



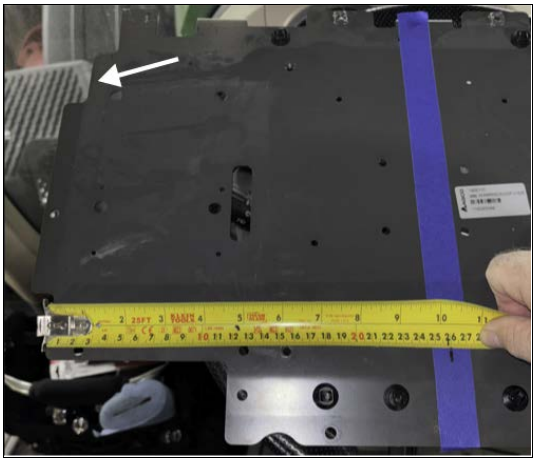
Step 5

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.

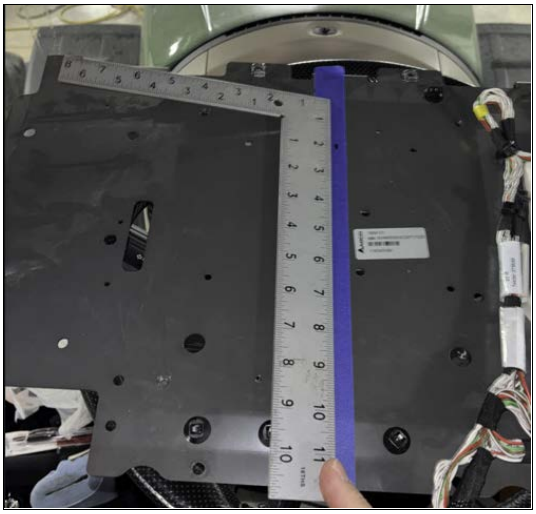
Place a piece of tape across the center of the bracket.

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.



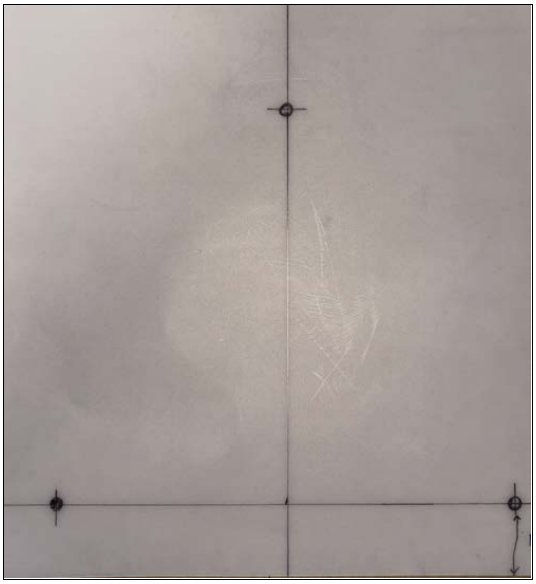
Step 6

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.



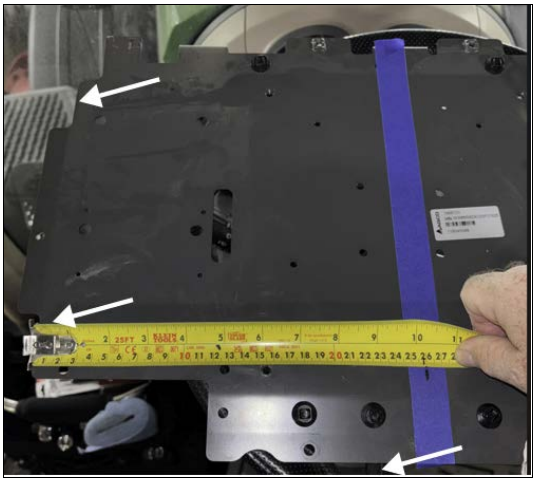
Step 7

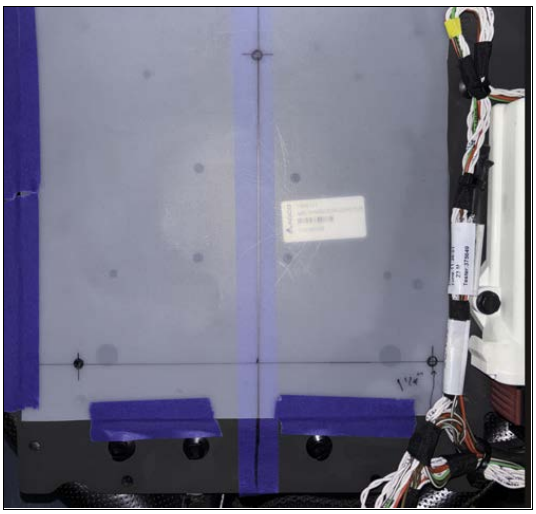
To align the template, measure from the bracket edges shown with the arrows in the picture to the right.

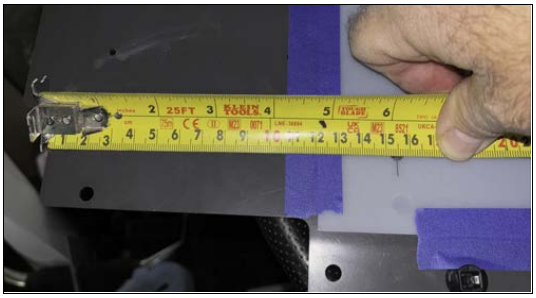
Bottom left hole – 15.5 cm from the left and 8 cm from the bottom.

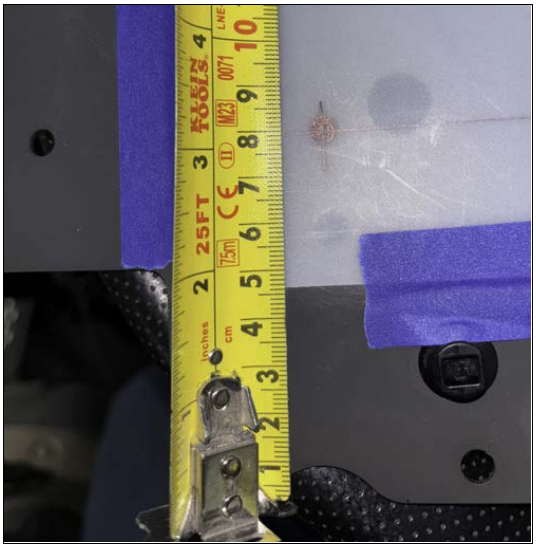
Bottom right hole – 36.5 cm from the left and 8 cm from the bottom.

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





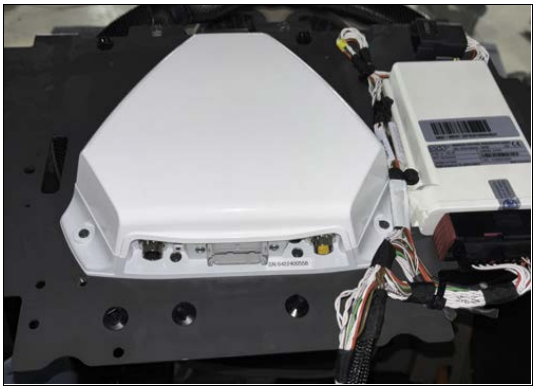




Step 8

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.



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 display 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

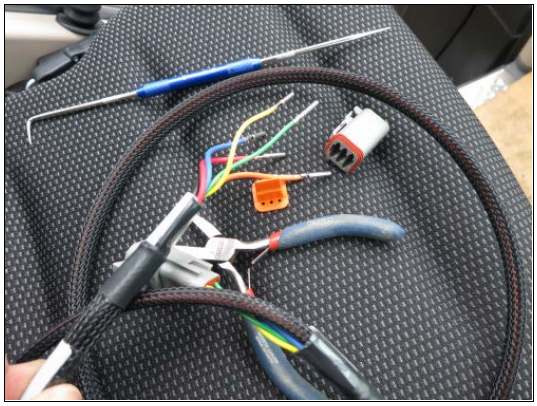
Using a sharp utility knife, cut an “X” across the center of the plug, just large enough to allow the two cables to pass through.



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 simply held in with plastic clips.



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 display power and data cables will be located in the roof liner.



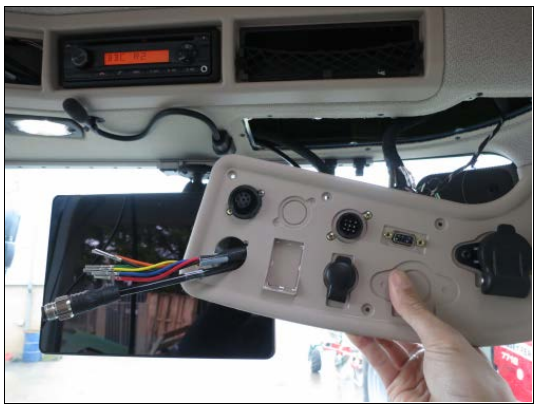
Step 8

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.



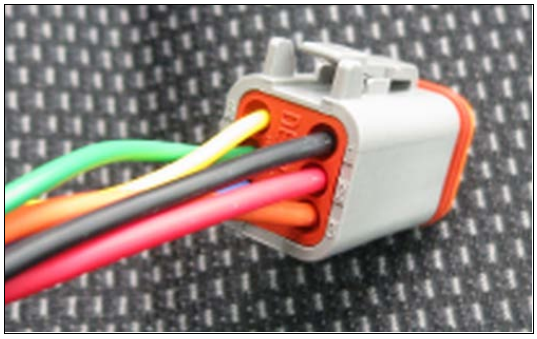
Step 10

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 the power cable and BRR data cable into the back of the GFX display.



Step 13

Replace the plastic cubby next to the radio.



Step 14

Reinstall the rubber plug back into the roof liner.



4

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 AGCO/Fendt Third Party Guidance Unlock (AGCO P/N ACP0595080) is installed on the tractor and the machine steering has been calibrated by the Fendt/Challenger dealer for the best performance.


PTx
Trimble