Autopilot

AUTOMATED STEERING SYSTEM

INSTALLATION INSTRUCTIONS

FendtONE 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



Version 8.00
Revision A
May 2022
P/N 54035-181-E08

Legal Notices

Agriculture Business Area

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This is the May 2022 release (Revision A) of the *Autopilot Automated Steering System Installation Instructions*, part number 54035-181-E08. It applies to version 8.00 of the Autopilot automated steering system.

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Class B Statement – Notice to Users. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Changes and modifications not expressly approved by the manufacturer or registrant of this equipment can void your authority to operate this equipment under Federal Communications Commission rules.

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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:

⚠ **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

⚠ **WARNING –** 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 all vehicle attachments to the ground before you begin work.

⚠ **WARNING –** 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.

⚠ **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 –** 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.

Cautions

⚠ **CAUTION –** When the vehicle has been running, parts of the vehicle, including the engine and exhaust, can become extremely hot and can cause serious burns. To avoid burns, allow hot machine parts to cool before you begin working on them.

⚠ **CAUTION –** The system installation may bring you into contact with chemical substances, such as oil, which can cause poisoning. Wash your hands thoroughly after you finish working on the system.

⚠ **CAUTION –** Battery posts, terminals, and related accessories contain lead and lead compounds, which can cause serious illness. To avoid ingesting lead, wash your hands thoroughly after touching the battery.

⚠ **CAUTION –** 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.

⚠ **CAUTION –** 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.

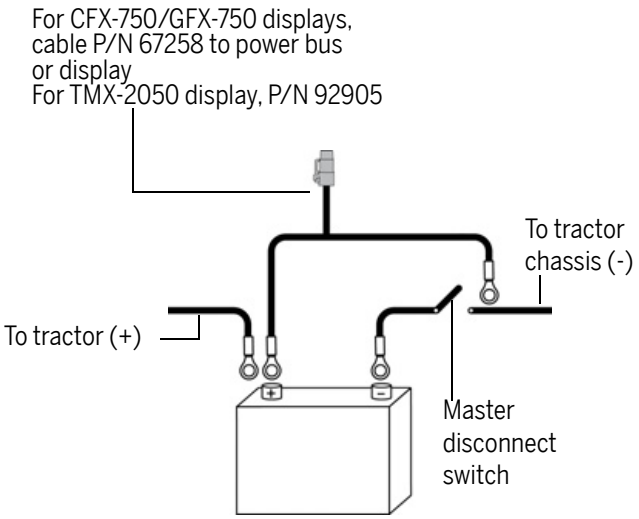
⚠ **CAUTION –** Do not direct pressurized water at:
- electronic or electrical components or connectors
- bearings
- hydraulic seals
- fuel injection pumps
- any other sensitive parts or components



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 or hoses interfere with or catch on any mechanical linkages, or contact any machine parts that get hot.

⚠ **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 damaging the display.



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1

Introduction

- Technical assistance
- Manual system upgrade to Autopilot
- Required components
- Autopilot hardware organization: As shipped
- Preparing the vehicle for installation

This manual describes how to install the Trimble® Autopilot™ automated steering system.

Even if you have used other Global Positioning System (GPS) products before, Trimble recommends that you spend some time reading this manual to learn about the special features of this product. If you are not familiar with GPS, visit the Trimble website (www.trimble.com) for an interactive look at Trimble and GPS.

Technical assistance

If you have a problem and cannot find the information you need in the product documentation, contact Trimble technical support:

1. Log into http://agpartners.trimble.com.
2. Click the **Feedback** link at the right of the screen.
3. Complete the form and then click **Submit Feedback**.

Manual system upgrade to Autopilot

Displays

Retain
TMX-2050™ display: P/N 96700-00
TM-200 Module: P/N 95060-00
TM-200 Module to display cable: P/N 93843
TM-200 Module power I/O cable: P/N 92676
TM-200 Module battery cable: P/N 92905
GFX-750™/XCN-1050: P/N 121000-XX
Power cable GFX-750/XCN-1050: P/N 110551
Base power cable: P/N 67258
NAV-900 guidance controller: P/N 108993-05
GFX-750 to NAV-900 Comms cable: P/N 110540Kits

Required components

Kits required	Special tools
Platform kit: P/N 54035-181	5/16" drill bit and sheet metal cutting tool Allen wrench set (metric and SAE) Deutsch DTM crimp tool Right angle drill or right angle extension #25 Torx driver

Antenna mounting kits

Antenna options
Bracket, GPS - V base plate indexing: P/N 62388-02
Optional spar mounts (must measure application for proper part number): • P/N 64898: Bracket, GPS Spar 16.5"– 28.5" • P/N 55349: Bracket, GPS Spar 27.5"– 37.5" • P/N 53676: Bracket, GPS Spar 36.5"– 46.5" • P/N 55348: Bracket, GPS Spar 45"– 55" • P/N 66774: Bracket, GPS Spar 54"– 64"
NOTE – For quick release mounting of the NAV-900 to a Spar mount, use P/N 110308: Bracket, NAV-900, Spar Quick Release Adapter

Autopilot hardware organization: As shipped

Hardware	Component	See...
Platform kit (P/N 54035-181)	Autopilot harness	Chapter 2
	Bolt kit controller	Chapter 5
Common parts	Controller	Chapter 5
	Controller mounting bracket	
	Cable kit: • Main wiring harness • Auxiliary wiring harness • Sonalert alarm	
GPS receiver	GPS receiver	Chapter 3
	GPS antenna	
	GPS receiver mounting bracket	
	GPS receiver power/data cable	
	RTK radio, cable, and radio antenna	
Display	TMX-2050 display, GFX-750 display	Chapter 4
	Display cable	
	Mounting bracket	
Roof bracket kit:	Roof brackets	Chapter 3
	Bolt kit, roof bracket	

Preparing the vehicle for installation

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

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 Autopilot 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.

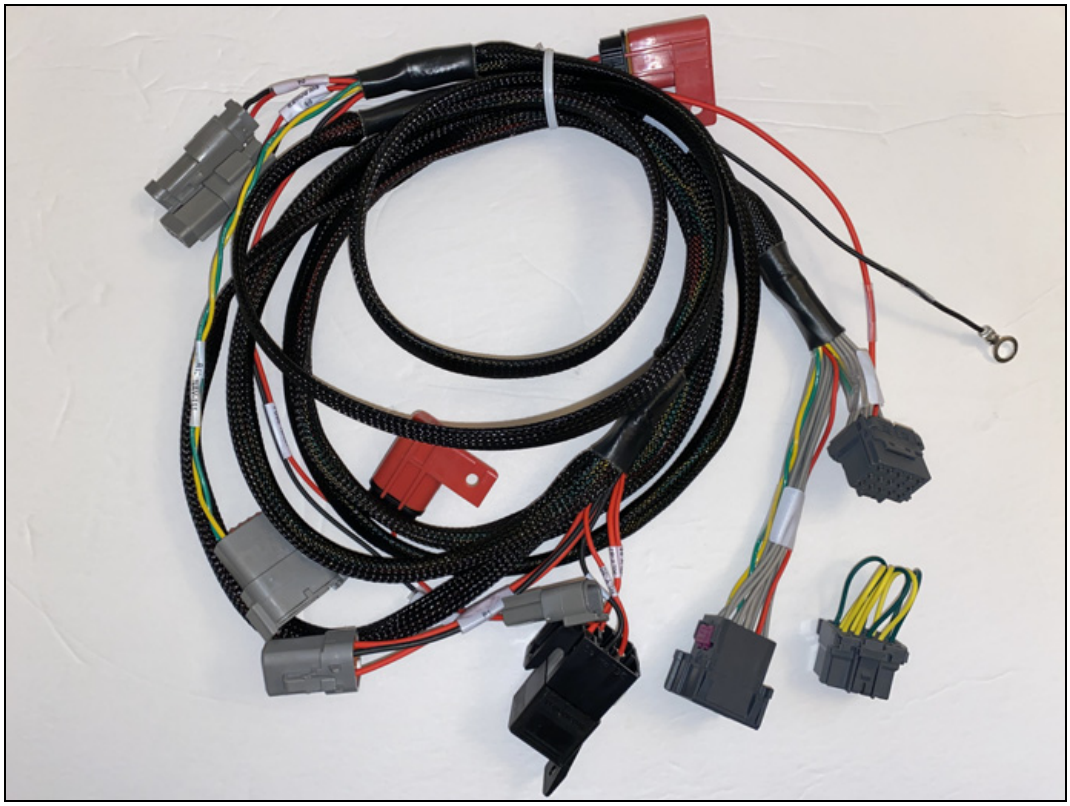
2

Autopilot Interface Cable Installation

- Interface cable: 129396
- Installing the interface cable
- Making the power connection on the CAN interface cable

⚠ **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.

Interface cable: 129396



Installing the interface cable

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

Carefully remove the screws that hold the top of the fuse panel in place. Remove enough screws to enable you to move the panel out of the way, to access the interface cable connection point near the power socket shown in step 1.



Step 4

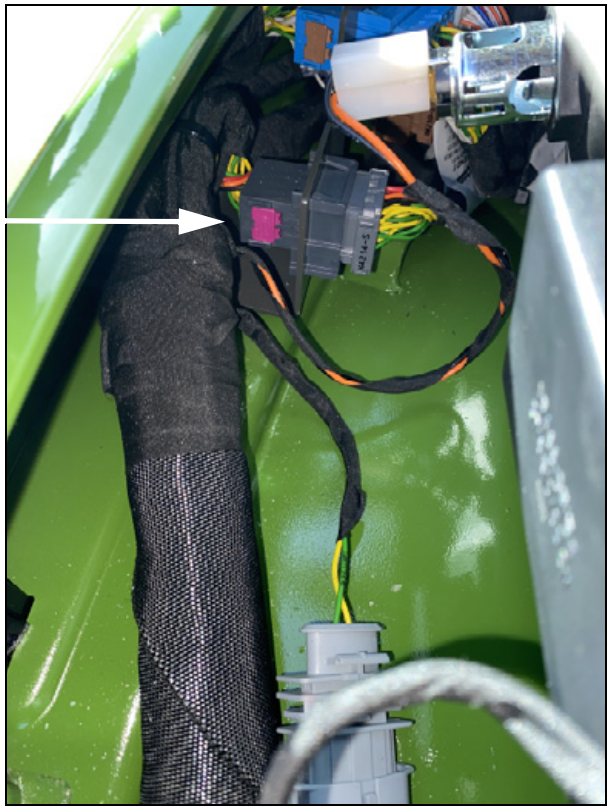
Once the panel is loose, pull it back to access the connectors.





Step 5

Locate and separate the connector shown.



Step 6

Attach the P2 connector on cable P/N 129396 to the connector on the tractor side.

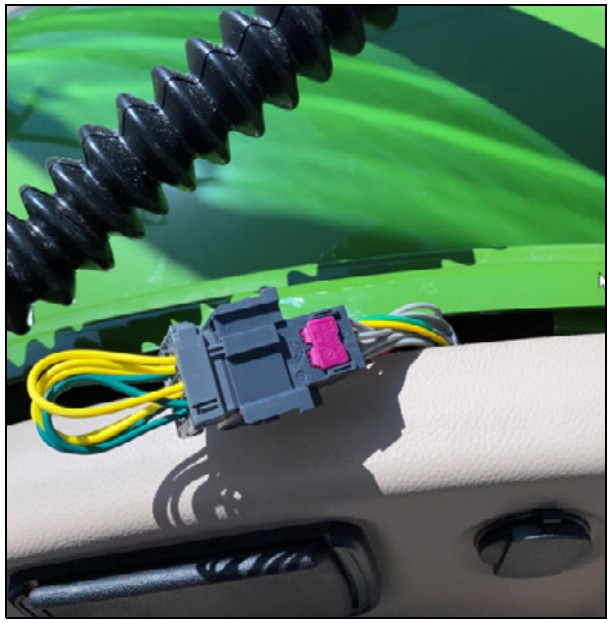


Connect the R3 connector on cable P/N 129396 to the cable connector disconnected from the connector on the tractor side.

Route the cable to the fuse box region (in preparation for making the power connection) and then re-fit the plastic cover to the machine.



NOTE – Connect the P3 connector to the R3 connector on cable P/N 129396 if no tee connection is needed.



Making the power connection on the CAN interface cable

Step 1

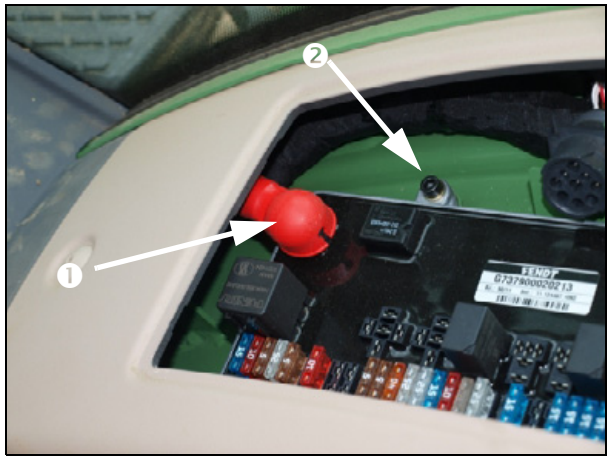
The Autopilot interface cable has a power and ground connector that will be assembled to the machine near the fuse panel.



Step 2

Pull back the red plastic cover over the power connector, remove the nut and attach the power (red) connector to the power terminal on the machine ❶.

Attach the black ground terminal to the bolt ❷.



3

Antenna/Receiver Installation

- Antenna and receiver installation options
- Attaching the plate with VHB adhesive
- Installing the NAV-900 guidance receiver using a spar mount
- Optional: Using the P/N 110308 for quick release mounting of the NAV-900 from the spar
- NAV-900 guidance receiver: Connecting the cables
- NAV-900 guidance receiver: Connecting an external radio (as required)

This chapter describes how to install the required receiver and antenna, and radio module (if used). To install the antenna for the display, see Chapter 4, Display Installation.

Antenna and receiver installation options

There are several options for mounting components (the antenna, radio module, or GNSS receiver) on the cab roof depending on the accuracy required and the antenna type:

- **VHB mount** – Attach a P/N 62034 plate or a V plate directly to the roof with VHB (Very High Bond) adhesive for magnetic mounting. See page 19.
- **Magnetic mounting** – Magnetic mounting for quick release is available for both VHB and spar type mounting.

Possible mounting methods

GNSS receiver	VHB mounted plate	VHB V mounted plate
TM-200 module	✓	✓

NOTE – For WAAS, EGNOS, OmniSTAR VBS, Beacon, and DGPS applications, place either of the plates in a firm location using the VHB.

Attaching the plate with VHB adhesive

⚠ **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.

Standard P/N 62034 plates are provided in most kits. You can use the VHB mounting method to attach either a P/N 62034 plate or a V plate.

- **RTK, OmniSTAR, DGPS, GLONASS applications** – To use this method for high accuracy, the surface must be rigid and free of "oil panning". For RTK or OmniSTAR HP corrections, the spar method is recommended. The V plate provides repeatable positioning of the antenna.
- **WAAS, EGNOS, OmniSTAR VBS, Beacon applications** – Use a P/N 62034 plate for simplified installation in applications where high accuracy is not critical.

Step 1

Clean the antenna location on the roof of the cab with a light solvent to remove oil and dust. Apply force to the roof to find a firm location.

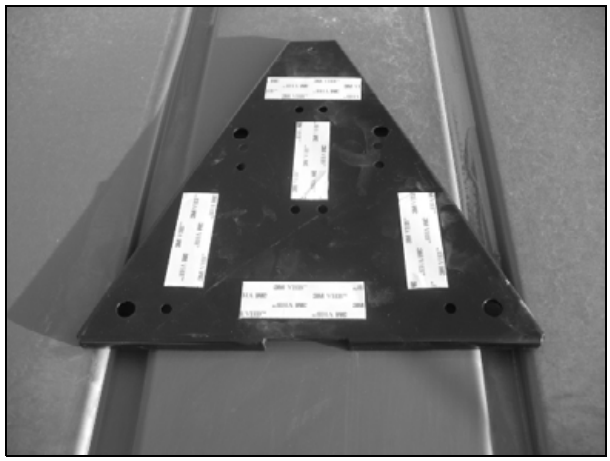


Step 2

V plate only

Remove the backing from one side of the VHB strips provided and then apply the strips to the plate.

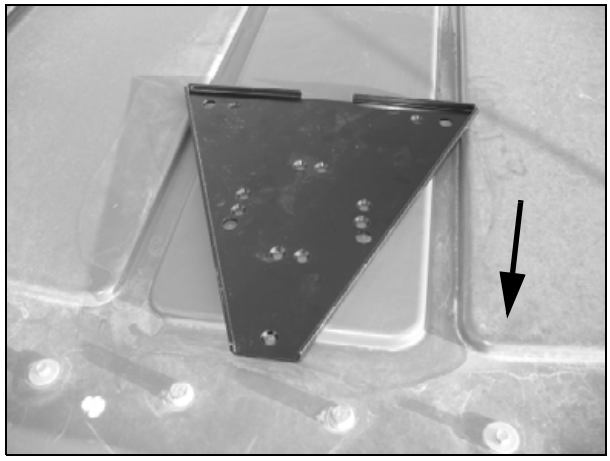
NOTE – The VHB strips are pre-applied to the P/N 62034 plate.



Step 3

Remove the backing from the other side of the VHB strips and then apply the plate to the cab roof. The narrow end of the plate points forward. Ensure that the VHB strips make even contact with the surface. Apply pressure and then leave for approximately 30 minutes to adhere.

NOTE – The arrow points to the front of the vehicle.



V plate



P/N 62034

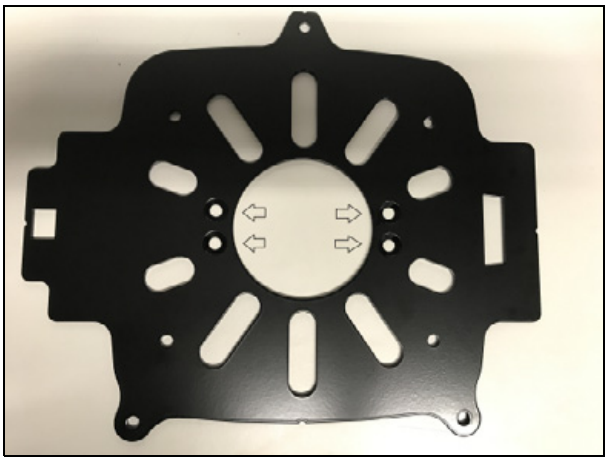
Installing the NAV-900 guidance receiver using a spar mount

For vehicles that do not have factory mounting methods or the factory mounting method is already in use, spar mounts are available to span between rigid bolts on the roof.

Lengths available are:

- P/N 64898: 16.5" – 28.5"
- P/N 55349: 27.5" – 37.5"
- P/N 53676: 36.5" – 46.5"
- P/N 55348: 45" – 55"
- P/N 66774: 54" – 64"

The guidance controller plate has a four-bolt pattern that directly attaches to the spar mounts:



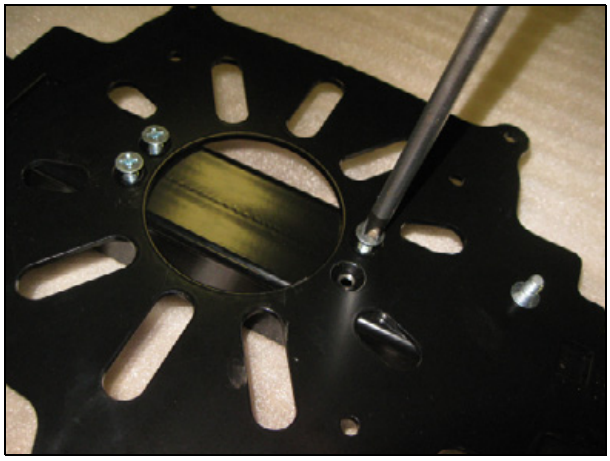
Step 1

Remove the spar from the box and lay out the hardware.



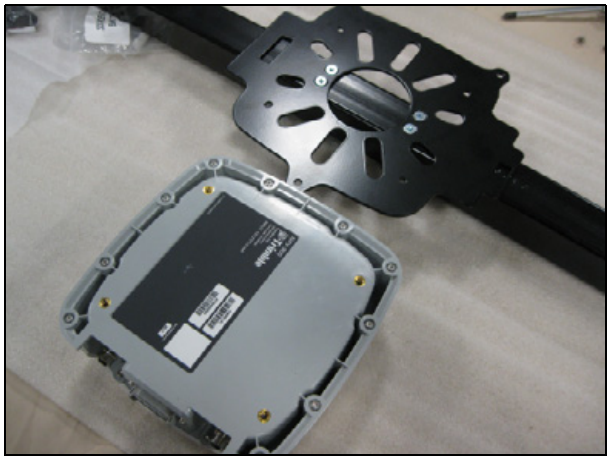
Step 2

Align the four holes on the base mounting plate with the four holes in the spar. Install the supplied ¼-20 × ½" countersunk bolts and tighten appropriately.



Step 3 .

Lay the guidance controller on its top.



Step 4

Lay the mounting plate with spar attached over on top. Attach the plate to the guidance controller with the four 6 mm bolts and lock washers. Tighten the four M6 fasteners to 7.0 ± 0.4ft-lbs (10.0 ± 0.5 N-m). Take care not to over-tighten the bolts as damage may result.







Step 5

Loosen and remove the large bolts on the cab that are to be used to fasten down the spar.



Step 6

Place the supplied spacer on the cab mounting point. The thickness of the spacer will vary by kit.



Step 7

Locate the provided longer bolts to be use for securing the spar. Put both the original washer and the larger provided washer on the bolt.



Step 8

Place the spar on the space and insert the bolt.



Step 9

Insert the bolt on the other side of the cab. Center the spar on the cab using a measuring tape. Then tighten the bolts.



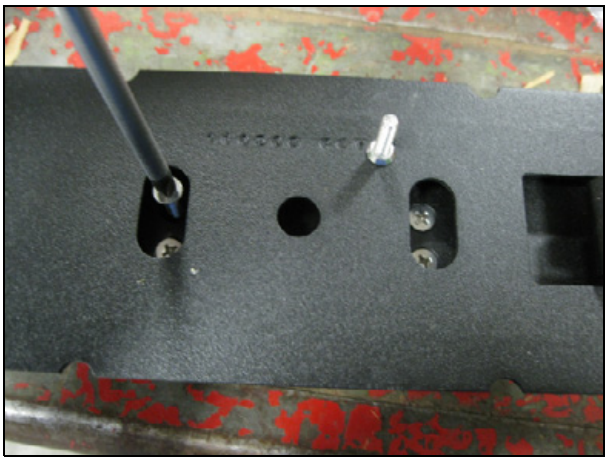




Optional: Using the P/N 110308 for quick release mounting of the NAV-900 from the spar

Step 1

Using the 4 bolts in the GFX-750 display kit, mount the Quick release bracket to the spar.



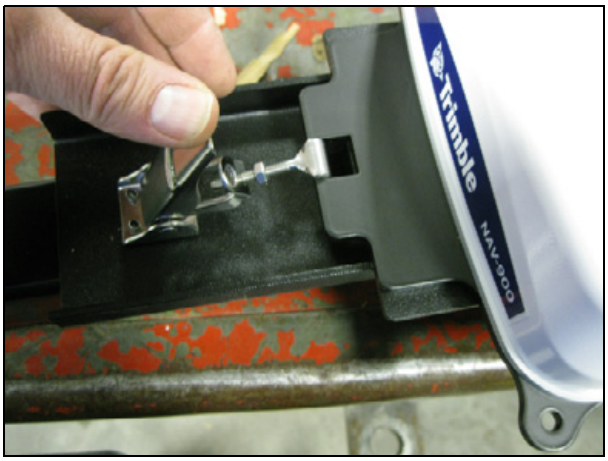
Step 2

Attach the NAV-900 base plate to the NAV-900 controller.

Step 3

Slip the slot of the base plate over the tang on the bracket and then use the latch to secure the receiver.





NAV-900 guidance receiver: Connecting the cables

Step 1

Plug the P1 connector on cable P/N 110547 into the back of the NAV-900 guidance receiver.

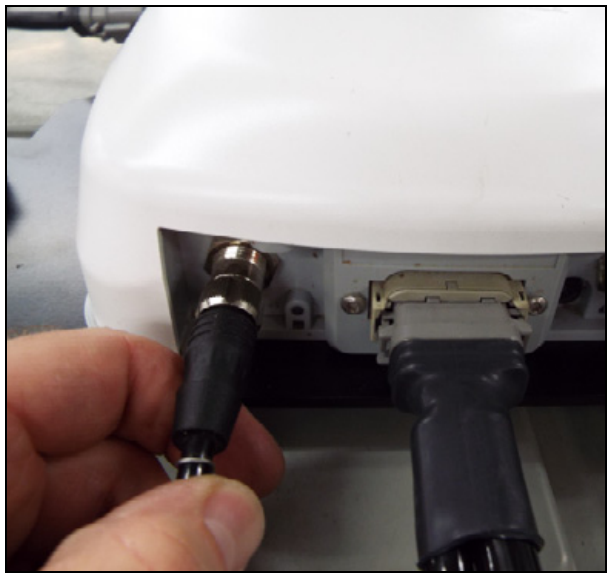
Route the cable into the cab and connect it to the P3 connector on the NavController III harness.



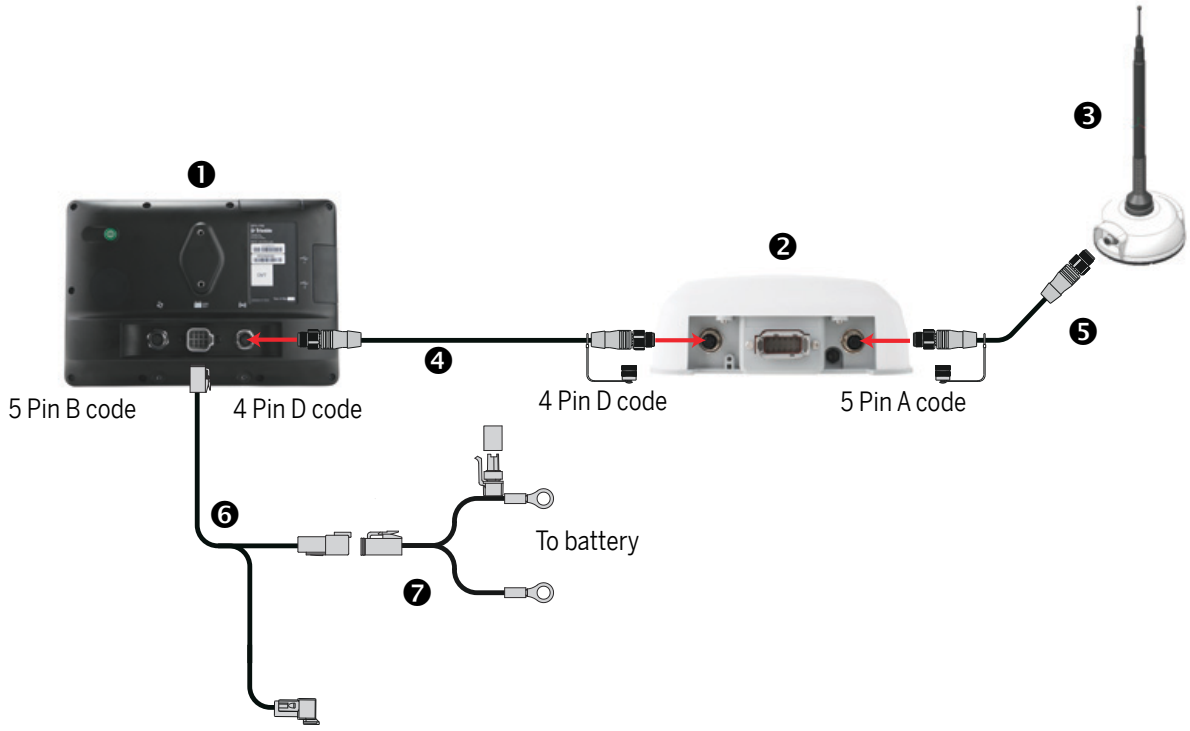


Step 2

Connect P2 of the P/N 110540 cable to the 4-pin M12 connector on the left side of the NAV-900 controller.



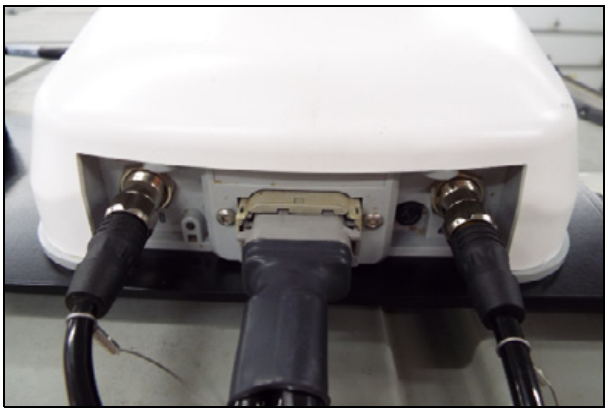
NAV-900 guidance receiver: Connecting an external radio (as required)



Item	Description	Trimble part number
1	GFX-750/XCN-1050 display, with PIQ App	121000-XX
2	NAV-900 Guidance Controller	108993-05
3	Ag-820 radio kit, 430-450 MHz Ag-820 radio kit, 450-470 MHz Ag-820 radio kit, 900 MHz	123500-44 123500-46 123500-90
4	Cable Assy, NAV-900 to in-cab RTK Radio, DTM06, 4.5 m	110540
5	Cable Assy, NAV-900 to Ag-820	113295
6	Cable Assy, GFX-750/XCN-1050, Power to display, CAN, 2.5 m	110551
7	Cable Assy, GFX-750/CFX-750/FM-750/XCN-1050/FmX®/FM-1000 Basic Power, 4 m	67258

Step 1

Connect the radio interface cable (P/N 113295) to the right 5-pin M12 connector on the NAV-900 controller.



Step 2

Attach the radio to the roof or bracket in a secure fashion.



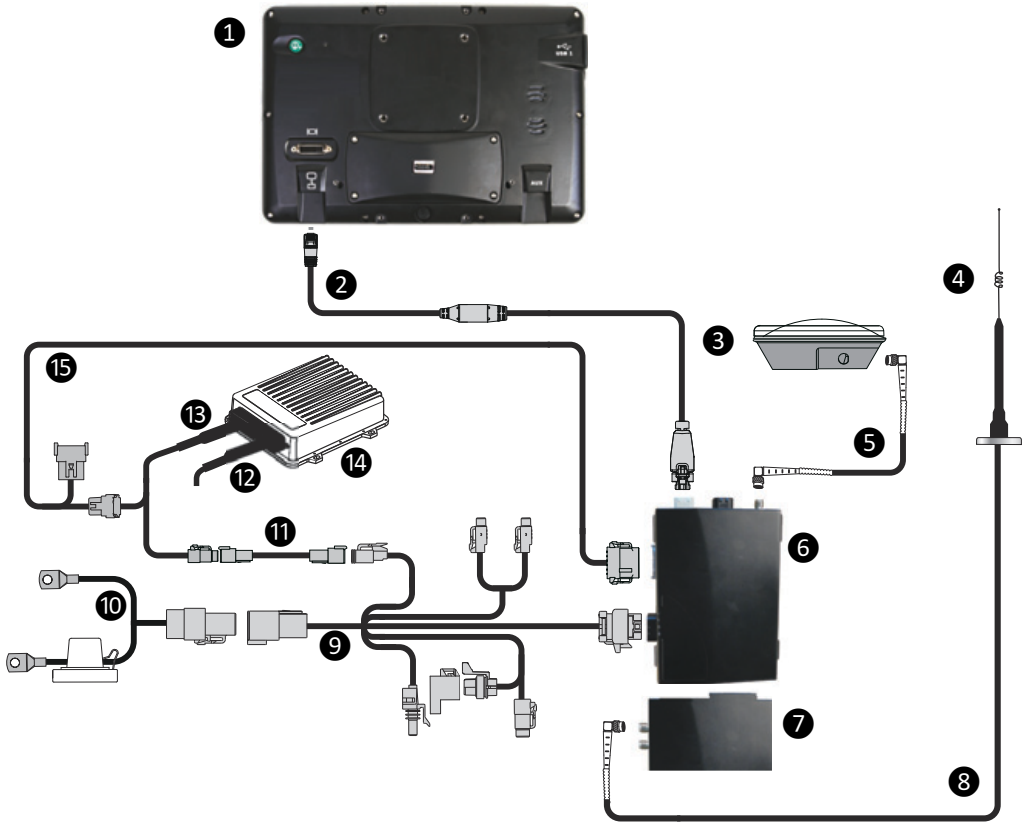
4

Display Installation

- TMX-2050 display: Components
- TMX-2050 display: Preparation
- TMX-2050 display: Installing the wiring harness
- TMX-2050 display: AG-25 GNSS antenna
- TMX-2050 displays: Installing the GNSS antenna and plate
- TMX-2050 displays: Installing the RTK radio antenna
- GFX-750/XCN-1050 display: Components
- GFX-750/XCN-1050 display: Preparation
- GFX-750/XCN-1050 display: Installation
- GFX-750/XCN-1050 display: Installing the wiring harness

TMX-2050 display: Components

This graphic shows how to connect the TM-200 Module and the Autopilot system for after-market installations.



Item	Description	Trimble part number
1	TMX-2050 display	96700-00
2	TM-200 Module to display cable	93843
3	AG-25 GNSS antenna	77038-00
4	900 MHz radio antenna kit	22882-10
5	8 m GNSS TNC/TNC RT angle cable	50449
6	TM-200 Module	95060-00
7	AG-815 radio	
8	NMO-to-TNC 20 ft antenna cable and base	72122
9	TM-200 Module power and I/O cable	92676
10	Cable, battery	92905
11	2-pin DTM to 2-pin DT power adapter cable	67095
12	Cable, NavController diagnostic	54602
13	Main NavController cable	54601
14	NavController	55563-00 55566-00
15	TM-200 Module to NavController cable with port replicator	75741

TMX-2050 display: Preparation

The display mount attaches to a rail in the cab of the vehicle. The TMX-2050 display connects to the display mount.

The TM-200 Module connects to the display with a single cable.

Additional components to install depend on your connection and correction services, and the features you are using.

⚠ **CAUTION –** Make sure the vehicle power is off when you are connecting system components.

Installing the display and mount

Use the mounting hardware supplied in the display kit to mount the display in the vehicle cab.

⚠ **CAUTION –** Make sure the vehicle power is off when you are connecting system components.

Before completing installation steps, select a position in the cab where the bar mount (4) can be attached to a rail. Hold the display in the selected location and make sure that it:

- Is easy to see, but does not block the driver's view.
- Is within the driver's reach so that the USB drive is easy to remove and replace.
- Does not interfere with the driver getting in or out of the cab, or any other activities.

.

Item	Description
1	Mounting plate
2	Zirkona mount
3	Tightening arm
4	Bar mount



Step 1

Locate the TMX-2050 display and the Zircona mount and mounting hardware.



Step 2

Use the provided hardware to attach the Zircona mount to the display as shown





Step 3

Decide where you will mount the display in the vehicle cab and then use the provided bolts to attach the rail mount of the Zircona display mount to the rail of the vehicle.



Step 4

The Zircona mount has a tightening arm ❸. Loosen the arm to let the display move on the mount.

Step 5

Adjust the TMX-2050 display until it is positioned where you want it.

Turn the tightening arm clockwise to tighten the Zircona mount and lock the display in the desired position.

Step 6

Connect the display cable to the display.



Step 7

Route the other end of the display cable to the TM-200 Module and then connect it to the TM-200 Module.



TMX-2050 display: Installing the wiring harness

⚠ **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.

Step 1

Connect the P5 and P2 connectors on the harness, P/N 106111, to the TM-200 Module.

Step 2

On the TM-200 Module locate the display connection point.



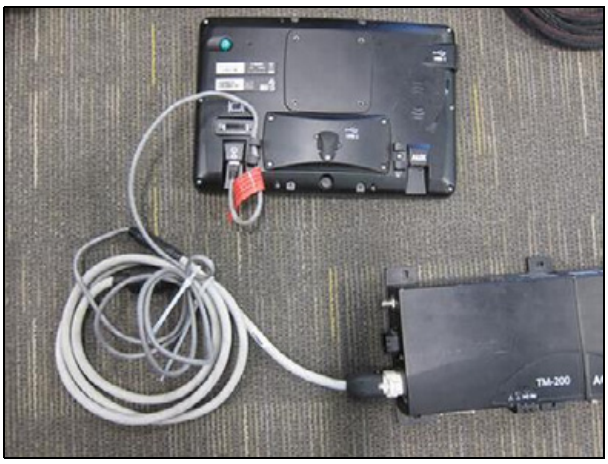
Step 3

Connect the display cable P/N 93843 to the TM-200 Module.



Step 4

Route the cable between the TMX-2050 display and the TM-200 Module.



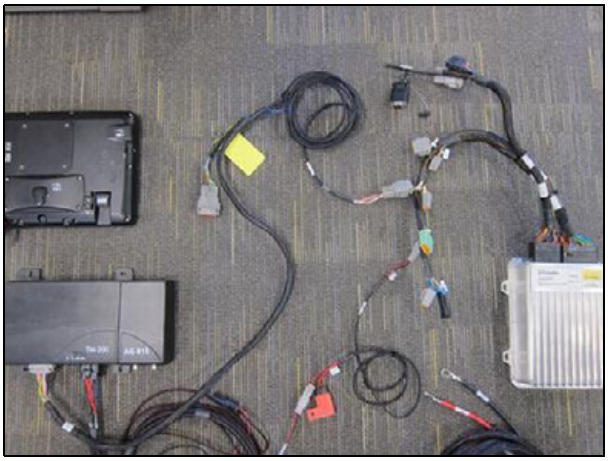
Step 5

Locate the Port labeled **A** on the TM-200 Module and then connect NavController connection cable, P/N 75741.



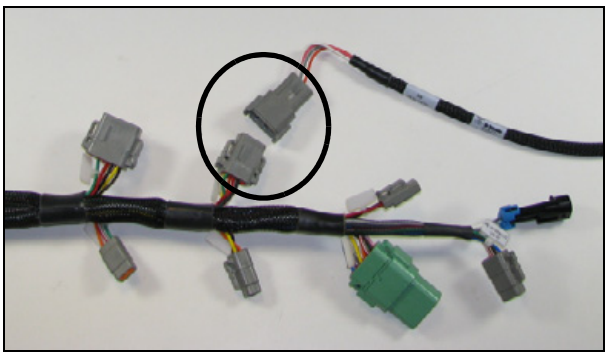
Step 6

Route the other end of the P/N 75741 cable to the plug on the P/N 54601 harness labeled **GPS**.



Step 7

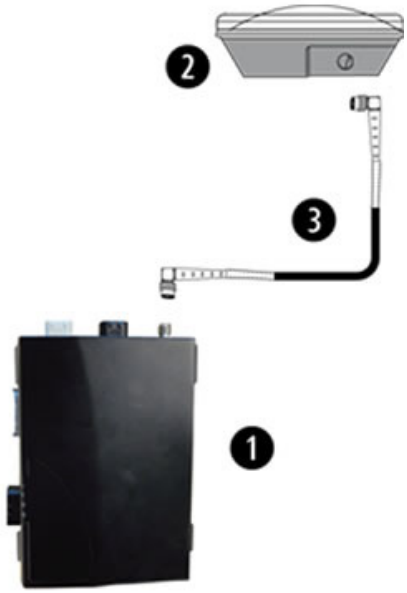
Connect the cable to the P3 connector on the NavController main harness.



TMX-2050 display: AG-25 GNSS antenna

The AG-25 GNSS antenna is required for all correction services. It enables the GNSS receiver in the TM-200 Module to receive GPS / GNSS corrections. The antenna connects to the antenna connector on the TM-200 Module.

⚠ **CAUTION –** Wireless cellular radio and GNSS signals can interfere with each other. For best performance, mount antennas at least 1 meter away from each other.



Item	Description
1	TM-200 Module
2	AG-25 GNSS antenna
3	AG-25 antenna to TM-200 Module cable

The AG-25 GNSS antenna has integrated magnets for easy installation. To attach the antenna to a non-metal surface, use the mounting plate.

NOTE – If you are using the AG-25 GNSS antenna with a steering system, refer to the installation instructions for the steering system to determine the correct location for mounting the antenna.

TMX-2050 displays: Installing the GNSS antenna and plate

⚠ **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.

NOTE – The V plate antenna bracket is available on the Autopilot price list. See Antenna mounting kits, page 10.

Use one of the following methods:

- Spar mount
- VHB adhesive

Spar mount method

Trimble recommends that you use this method for RTK and OmniSTAR operations. For more information, see Antenna and receiver installation options, page 19.

Use a ⅝" bolt to attach the AG-25 antenna to the spar, as shown.

Measure the length between the bolts on the roof of the vehicle and order the appropriate spar:

- Spar 36.5" - 46.5": P/N 53676
- Spar 54" - 64": P/N 66774



VHB adhesive method

Standard 4" x 6" plates are provided in most kits. You can use Very High Bond (VHB) to attach either a 4" x 6" plate or a V plate.

- **GLONASS, RTK, OmniSTAR, DGPS applications** – To use this method for high accuracy, the surface must be rigid and free of "oil panning". For RTK or OmniSTAR HP corrections, the spar method is recommended. The V plate provides repeatable positioning of the antenna.
- **WAAS, EGNOS, OmniSTAR VBS, Beacon applications** – Use a 4" x 6" plate for simplified installation in applications where high accuracy is not critical.

Step 1

Clean the antenna location on the roof of the cab with a light solvent to remove oil and dust.

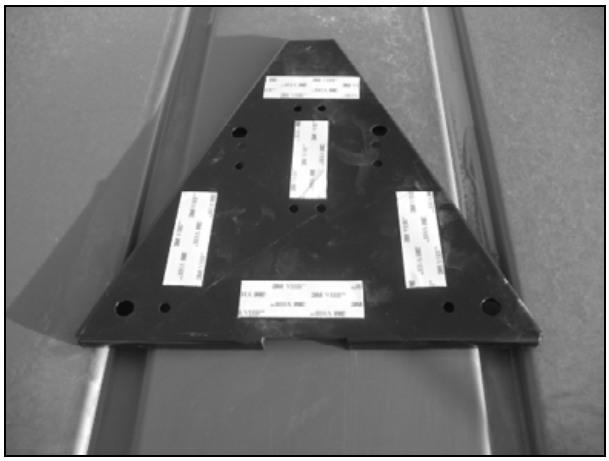


Step 2

V plate only

Remove the backing from one side of the VHB strips provided and then apply the strips to the plate.

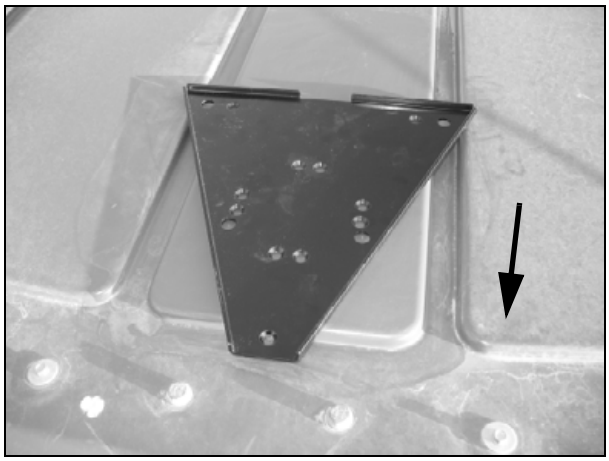
NOTE – The VHB strips are pre-applied to the 4" x 6" plate.



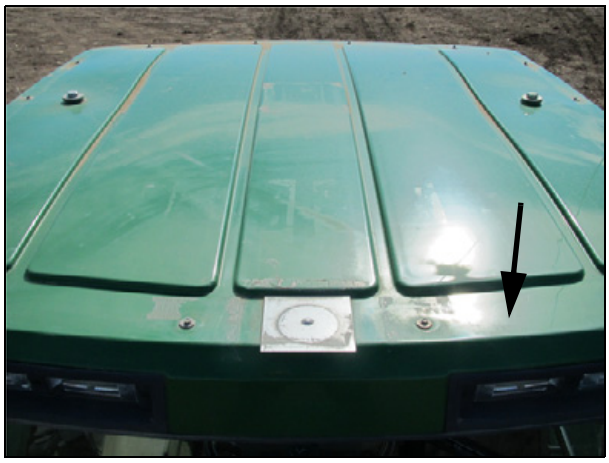
Step 3

Remove the backing from the other side of the VHB strips and then apply the plate to the cab roof. The narrow end points forward. Ensure that the VHB strips make even contact with the surface. Apply pressure and then leave for approximately 30 minutes to adhere.

NOTE – The arrow in this figure points to the front of the vehicle.



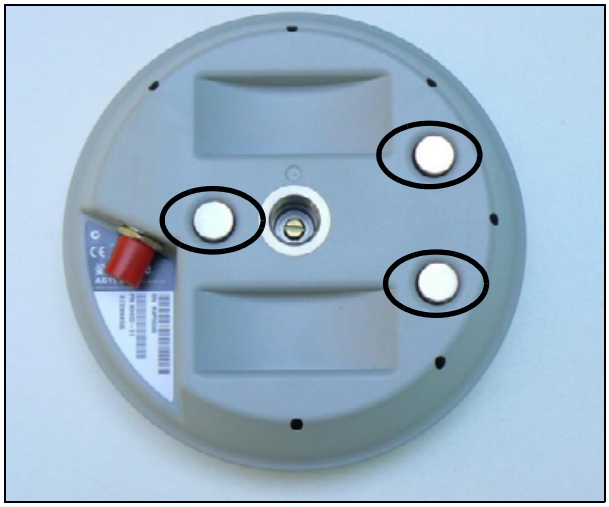
V plate



4" x 6" plate

Step 4

If the antenna has magnets built in, omit this step.



Otherwise, attach the large magnet with a ⅝" stud to the GNSS antenna.



Step 5

GLONASS, RTK, OmniSTAR, DGPS, applications

For repeatable positioning, place the antenna against the lip at the narrow end of the V plate.



WAAS, EGNOS, VBS, Beacon applications

Attach the antenna to the center of the 4" x 6" plate.



Step 6

Both models

Attach the antenna/receiver cable to the antenna and then route the cable into the cab through the rubber grommet at the base of the rear window. Secure the cable along the way.



TMX-2050 displays: Installing the RTK radio antenna

⚠ **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.

Step 1

Connect the radio antenna to the magnetic antenna base.



Step 2

Attach the magnetic radio antenna base to the rear of the V plate on the roof. If the cable does not reach the V plate, use the 4" x 6" plate with the VHB provided to relocate the antenna.



Step 3

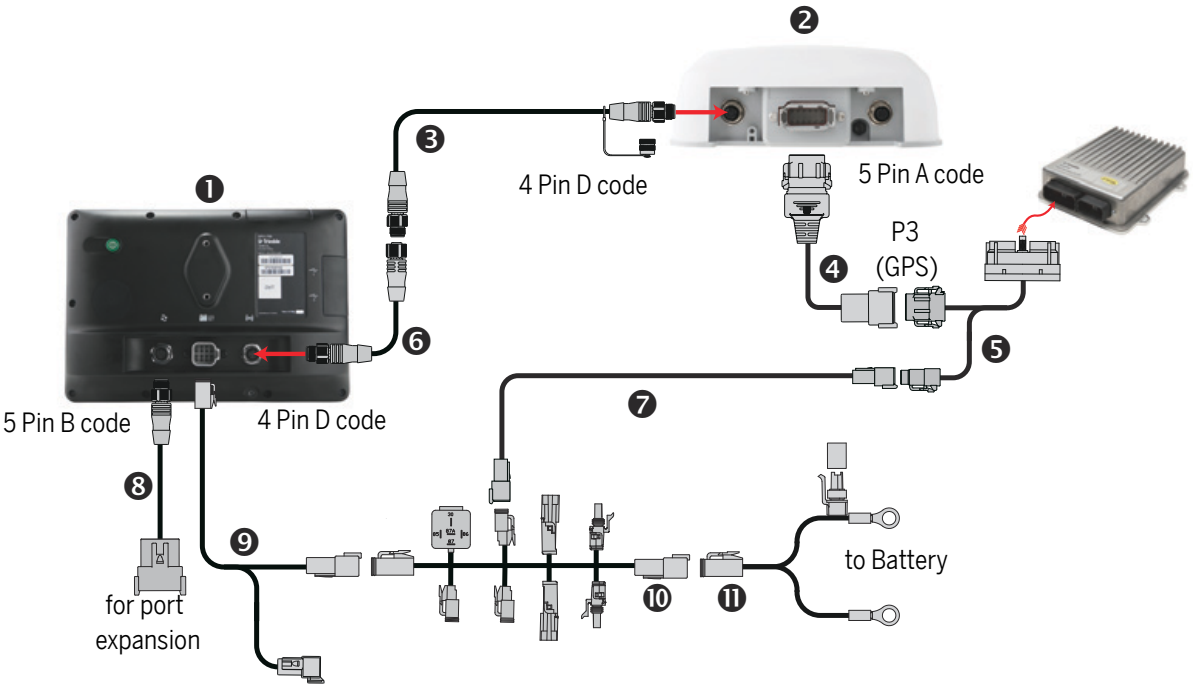
Attach the magnetic radio antenna base to the rear of the V plate on the roof. If the cable does not reach the V plate, use the P/N 62034 plate with the VHB provided to relocate the antenna.

Step 4

Route cable from the vehicle roof into the cab, and connect the radio cable to the display.



GFX-750/XCN-1050 display: Components



Item	Description	Trimble part number
1	GFX-750/XCN-1050 display, with PIQ App	121000-XX
2	NAV-900 Guidance controller	108993-05
3	Cable Assy, GFX-750/XCN-1050 to NAV-900, Power/Ethernet (BRR), 5 m	110540
4	Cable Assy, NAV-900 to Nav II/III, Autopilot	110547
5	Cable, NavController II/III, Main	54601
6	Cable Assy, GFX-750/XCN-1050 to NAV-900, Power/Ethernet (BRR) Extension, 2.5 m. Optional extension for large vehicles	112082
7	Cable Assy, 2 PIN DTM to 2 PIN DT Power Adapter	67095
8	Cable Assy, GFX-750/XCN-1050, Expansion Port Basic, RS-232, Dig I/O, 2.5 m	110545
9	Cable Assy, GFX-750/XCN-1050, Power to display, CAN, 2.5 m	110551
10	Cable Assy, GFX-750/CFX-750/FM-750/XCN-1050/FmX/FM-1000 Power with Relay and Switch (Acc)	67259
11	Cable Assy, GFX-750/CFX-750/FM-750/XCN-1050/FmX/FM-1000 Basic Power, 4 m	67258

GFX-750/XCN-1050 display: Preparation

The GFX-750/XCN-1050 display utilizes the RAM mount system.



Attach the diamond-based ram mount to the back of the display using the provided fasteners.



GFX-750/XCN-1050 display: Installation

Step 1

Use the supplied V bolts or alternate (non-supplied) hardware to affix the RAM base mount to the desired location in the cab. Ideally this position should be readily viewable and within easy reach of the operator.

Alternatively, you can use self tapping screws to attach the base mount to the cab in the desired location.



Step 2

Use the supplied RAM clamp to connect the RAM base mount to the RAM ball attached to the display.



Step 3

Position the display as desired and then tighten the clamp.



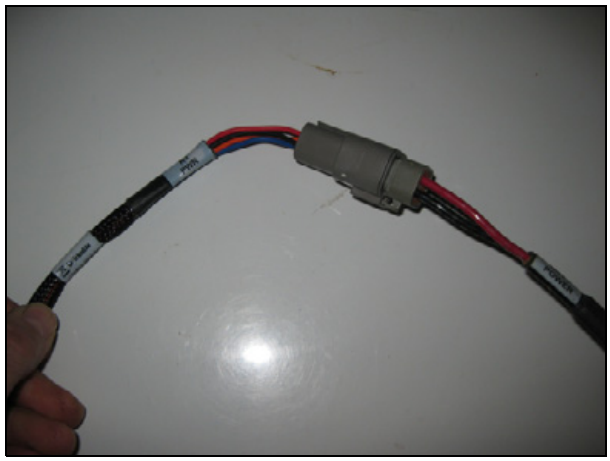
GFX-750/XCN-1050 display: Installing the wiring harness

The GFX-750 display requires a nominal 12 volt power source. The P/N 67258 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 will be 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 suggested to utilize 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

Connect the other 4-pin Deutsch connector of cable P/N 110551 to the P/N 67258 base power cable.



Step 2

Connect the 6-pin DT power/CAN cable P/N 110551 to the middle port of the display.



Step 3

Connect the 4-pin M12 connector to the 4-pin receiver connector. Note the Keying and number of pins.





5

Controller Installation

- Installing the controller
- Controller connections
- Connecting the cables to the controller

Installing the controller

You can use production bracket to install the NavController III, or mount the NavController directly to the floor:

- Use the production bracket mount the NavController between the driver's seat and the buddy seat. Bolt the production bracket to the left vertical face of the driver's seat base; this allows the NavController to sit horizontally, and approximately four inches above the floor mat.
- If you do not use the production bracket, use the plate (P/N 54828), four stand-offs and self-tapping screws to mount the NavController on the floor. If you use this method, you will have to cut away some of the floor mat ridges.

Step 1

Install the NavController III in front of the throttle pedal on the right side of the cab.

We recommend that you run the cabling under the floor mat.



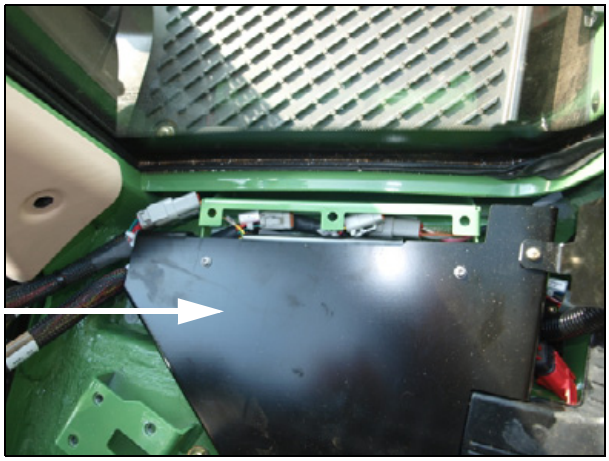
Step 2

Remove the throttle pedal assembly from the floor of the machine.



Step 3

Pull the floor mat back and then remove the black cover.



Step 4

Make all necessary connections on the NavController III harness and then route the harness to the front of the cab to underneath, where the black cover was removed.



Step 5

Re-install the black cover.

Make sure that an adequate amount of cabling is available for connecting the NavController in later steps.



Step 6

Remove the bolts holding the pedal to the floor of the machine.

NOTE – Older models have 4 bolts, newer models have 3 bolts.



Old model



New model

Step 7

Set the small, thicker spacer plate that is part of the P/N 100144 bracket on the mounting surface as shown. Align the holes in the plate with the holes in the floor.



Step 8

Set the thin spacer plate that is part of the P/N 100144 bracket on top of previously aligned plate.



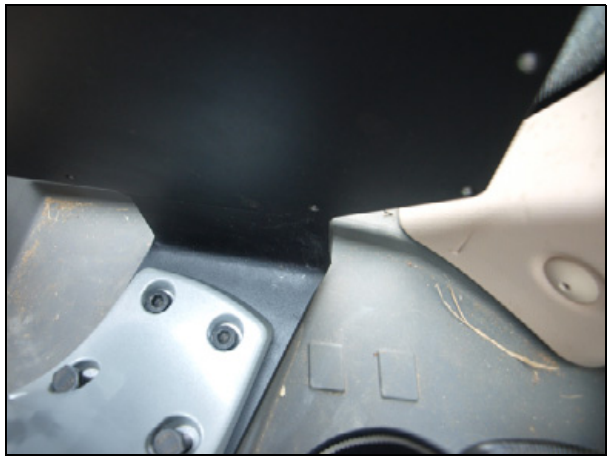
Step 9

Set the controller mounting portion of the P/N 100144 bracket on top of the thin spacer plate as shown.



Step 10

Use the provided hardware to re-assemble the pedal to the floor. The NavController mounting brackets and spacer plates should be sandwiched between the machine floor and the pedal assembly.



Step 11

Before you install the controller, attach the main and auxiliary cable harnesses. Use an Allen wrench to secure the connectors to the controller.

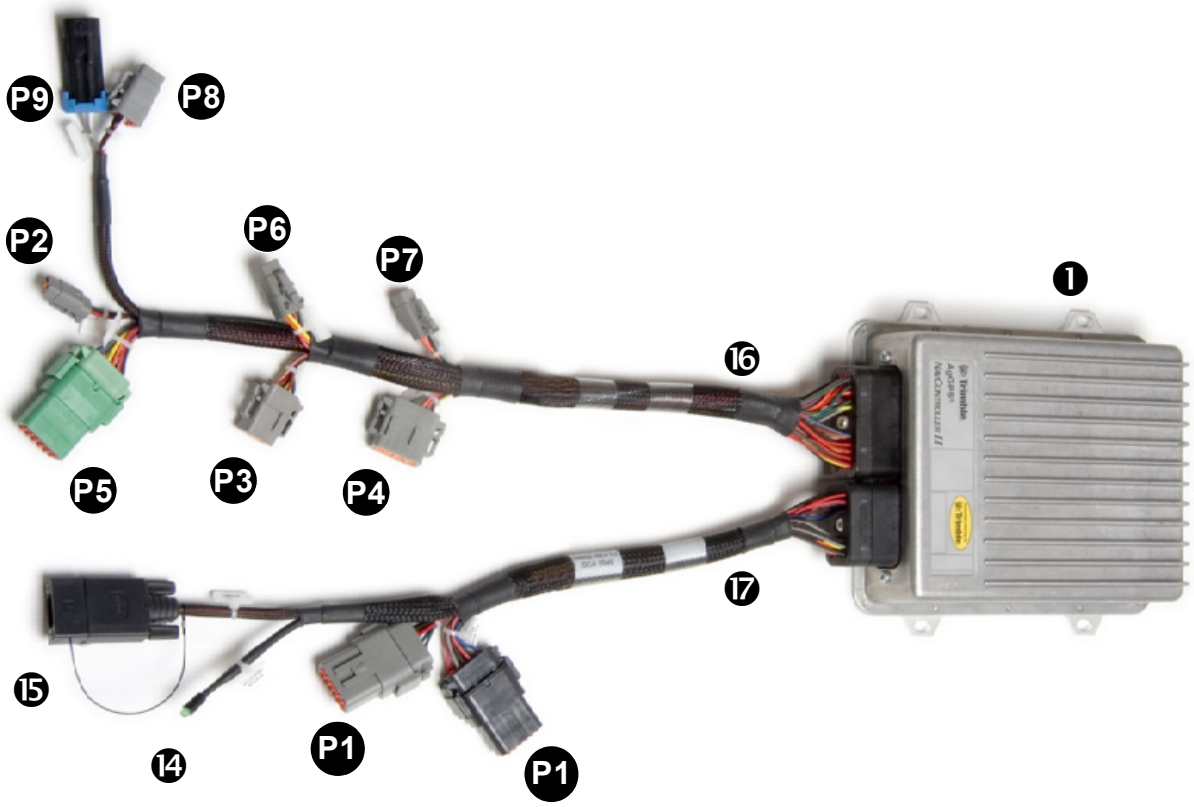
Step 12

Use the provided 10-32 screws to attach the NavController to the mounting bracket.

Connect the NavController harness to the controller.



Controller connections



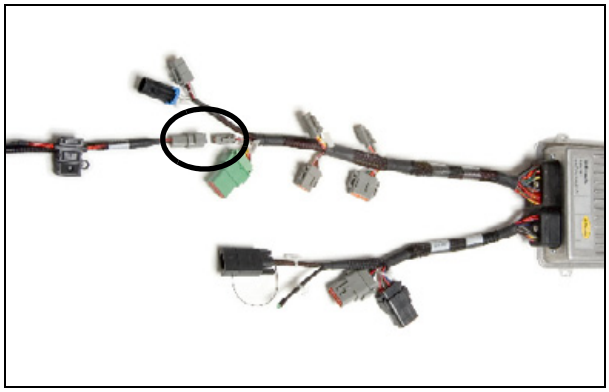
Item	Description	Item	Description
1	NavController III controller	**P9**	Sonalert connector
P2	Power connector	**P12**	Lightbar/spare connector
P3	GPS connector	**P13**	Spare sensors connector
P4	Display connector	**14**	Status indicator
P5	Vehicle sensors connector	**15**	Laptop connector
P6	Steering sensor connector	**16**	Main harness
P7	Manual override connector	**17**	Auxiliary harness
P8	Hydraulic valve connector		

Connecting the cables to the controller

Step 1

Connect the power cable connection to P2, which is labeled **Power**. P2 is located on the main wiring harness.

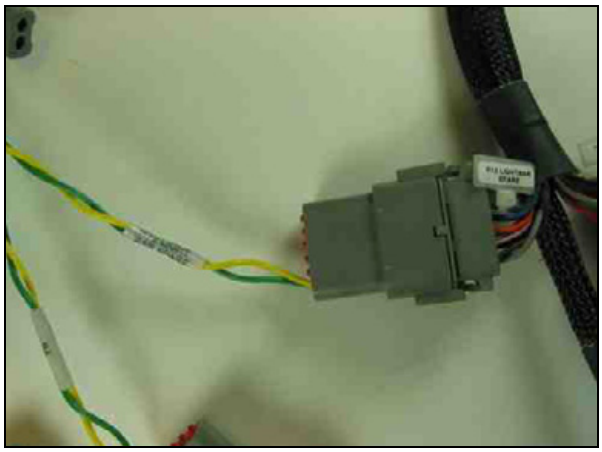
NOTE – The power connection supplies power through the controller to all connected devices, including GNSS and displays.



Step 2

Attach the R12 interface cable connector to P12, which is labeled **Lightbar Spare Connector** on the main wiring harness.

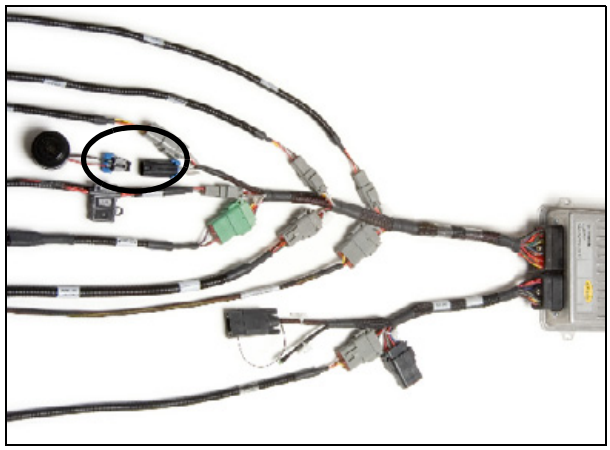
NOTE – Leave P4/R4 unconnected.



Step 3

Connect the Sonalert P9 to the 2-pin Delphi connector on the main wiring harness. Route the cable so the Sonalert warning device is in a position that is audible to the operator.

You can enlarge knockouts in the bottom of the cab under the cab floor mat to accommodate the Sonalert.

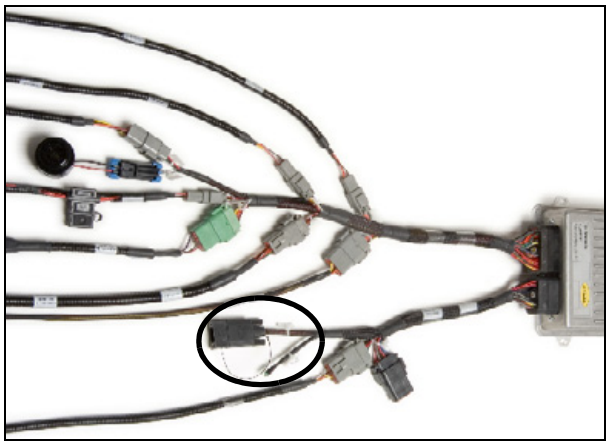


Step 4

Route the LED and laptop lead, which is located on the auxiliary wiring harness, to a location that allows the operator to determine the controller status. See controller LED status for status determination. Six flashes per second indicates a correctly functioning controller.

Step 5

Use the provided sleeving to secure the harness cables with tie wraps. Cover and route the cable bundle to avoid damage to connectors and strain on wire connections.



6

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.

To perform the final machine check:

1. Connect the battery.
2. Update the Trimble display and the Autopilot NavController III to the latest firmware from http://agpartners.trimble.com.

   You can use FlashLoader 200 software version 3.19 to update the Autopilot controller: Download it from http://agpartners.trimble.com.
3. Load the correct configuration file into the Autopilot NavController III for the vehicle model being used.

   Download the latest set of configuration files from http://agpartners.trimble.com.

   You can use Autopilot Toolbox II software version 4.02 or later to load the configuration file into the Autopilot controller. You can download the Autopilot Toolbox II software from http://agpartners.trimble.com.
4. Calibrate the Autopilot system using the Trimble display or Autopilot Toolbox II software version 4.02 or later. Depending on your machine type, the following items must be calibrated before you can use the Autopilot system:
   - NavController 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.

6. Enable guidance by pressing the steering wheel icon #8 on the row of buttons below the joystick.



7. Engage the steering by pressing the Auto button on the joystick.

