INSTALLATION INSTRUCTIONS

Autopilot™ Automated Steering System

Fendt Vario AUTOGUIDE READY
2007-2010 Models

- **712**
- **714**
- **716**
- **718**
- **818**
- **820**

Version 5.00
Revision A
December 2013
Part number 54035-54-E05

Trimble®

Legal Notices

Agriculture Business Area

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This is the December 2013 release (Revision A) of the Autopilot Automated Steering System Installation Instructions, part number 54035-54-E05. It applies to version 5.00 of the Autopilot automated steering system.

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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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Meerheide 45
5521 DZ Eersel, NL

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.

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CHAPTER 1

Introduction

In this chapter:

- 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 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 (www.trimble.com) for an interactive look at Trimble and GNSS.

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. A form appears.
3. Complete the form and then click **Submit Feedback**.

Manual system upgrade to Autopilot

CFX-750 display and FmX integrated display

Retain	Remove
CFX-750™ display: P/N 94000-xx Power cable CFX-750 display: P/N 77282 **FmX® integrated display: P/N 93100-xx** Power cable FmX display: P/N 66694 Antenna for display: P/N 60600-02 (DGPS) or 77038-00 (OmniStar/RTK) Antenna to receiver cable: P/N 50449 Basic cable (both displays): P/N 67258	

Required components

Kits required
Platform kit: P/N 54035-54

Antenna mounting kits

Kits required
One of the following: • V-plate mount kit: P/N 62388-01 • Standard kit: P/N 62034

Autopilot hardware organization: As shipped

Hardware	Component	See...
Platform kit: P/N 54035-54-E05	CAN bus cable	Chapter 2
	Controller mounting bracket	Chapter 5
	Bolt kit controller	
Roof bracket kit: • V-plate mount kit: P/N 62388-01 • Standard kit: P/N 62034	Roof brackets	Chapter 3
	Bolt kit, roof bracket	
GNSS receiver	GNSS receiver	Chapter 3
	GNSS antenna	
	GNSS receiver power/data cable	
	RTK radio, cable, and radio antenna	
Display	CFX-750 display	Chapter 4
	FmX integrated display	
	Display cable	
	Mounting bracket	
Common parts	Controller	Chapter 5
	Controller mounting bracket	
	Cable kit: Main wiring harness Power bus auxiliary wiring harness Sonalert alarm	

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.

CHAPTER 2

Installing the Can Bus Cable

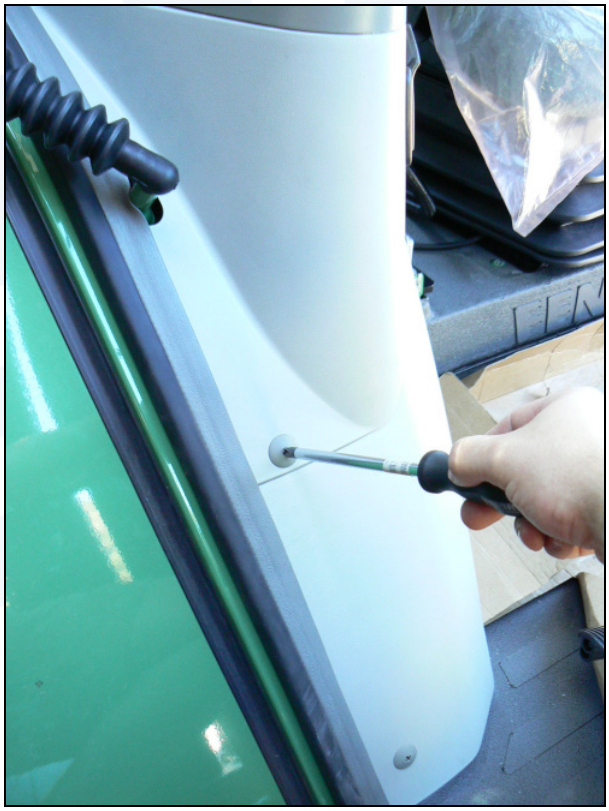
WARNING – To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information.

Step 1

Use a Philips screwdriver to remove all of the plastic panels around the instrument panel at the right-hand side of the driver's seat.



Panel 1



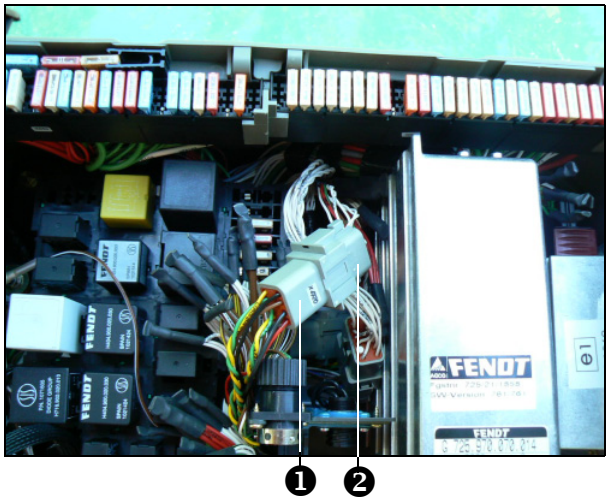
Panel 2



Panel 3

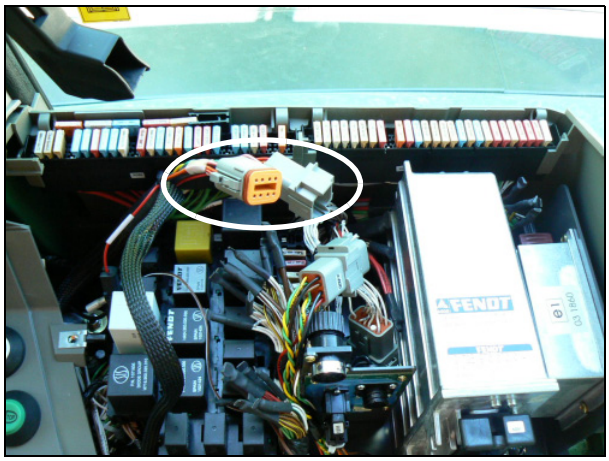
Step 2

Locate the fuse compartment at the rear right of the seat and then locate the CAN bus connectors labelled X1719 ❷ and X1720 ❶.



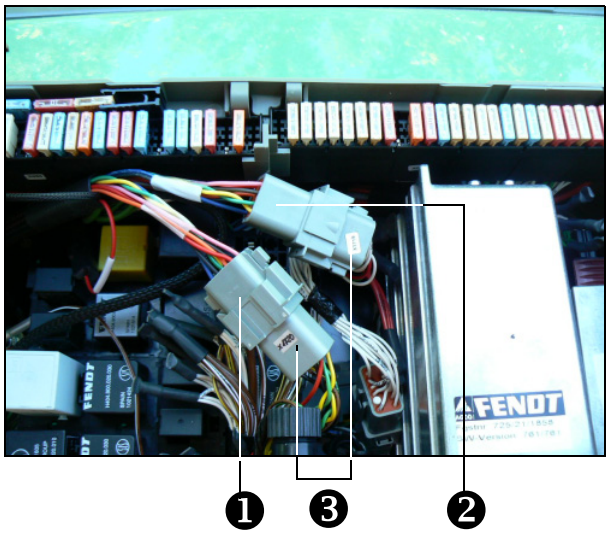
Step 3

Locate the Trimble CAN harness and from inside the cab, route the cable end that has connectors PX1719 and RX1720 towards the fuse compartment.



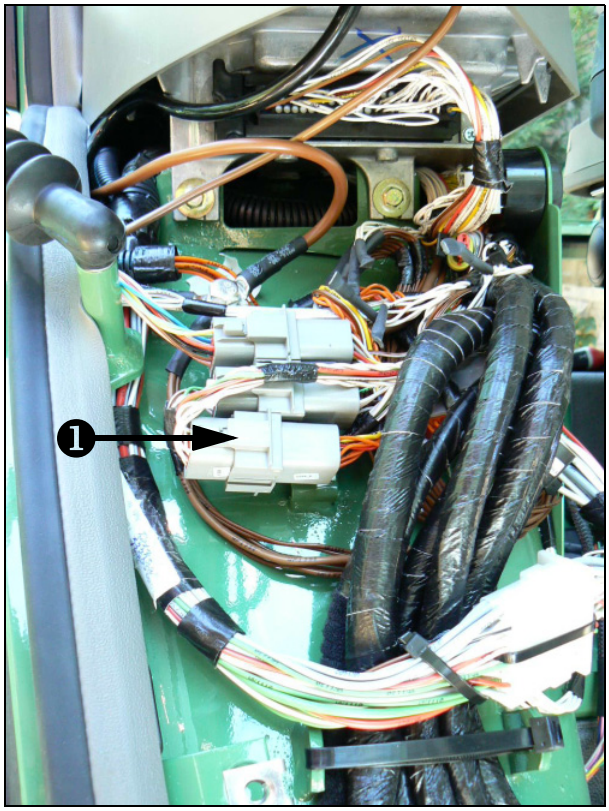
Step 4

Open the first CAN loop and connect PX1719 ❶ and RX1720 ❷from the Trimble CAN Bus cable to the matching connectors on the tractor wiring harness ❸.



Step 5

At the front of the rear fender, release the connector labeled X025 ❶.

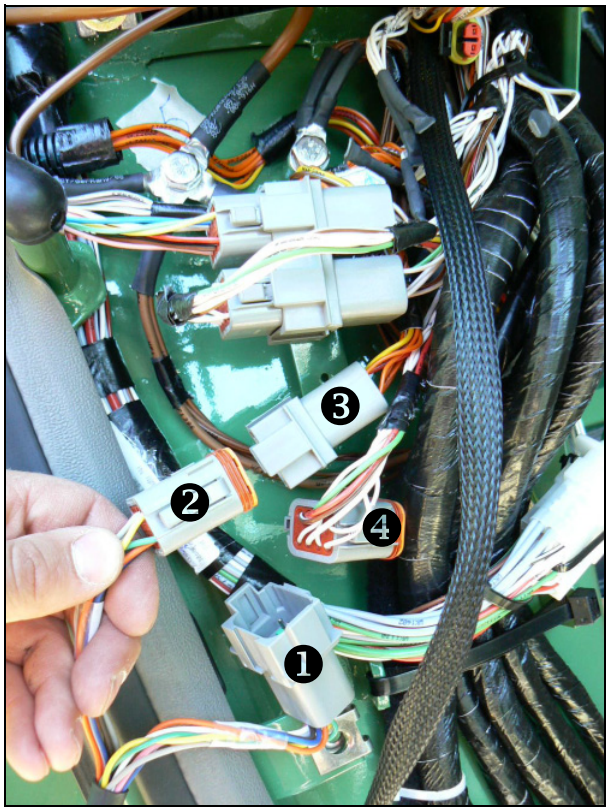


Step 6

a. Route the end of the CAN Bus wiring harness that has the Trimble RX025 ❶ and Trimble PX025 ❷ connectors attached along the rear fender towards the original tractor connector X25 (❸, original X25; ❹, original x25 disconnected).

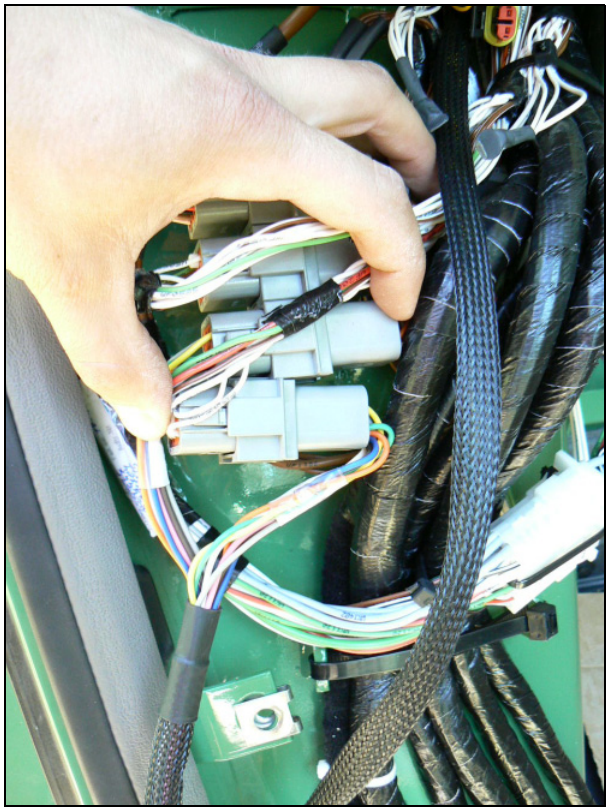
b. Open the second tractor's CAN Bus harness.

c. Connect RX025 and PX025 to the matching connectors of the second tractor's CAN Bus harness.



Step 7

Reattach the connector housing as shown.



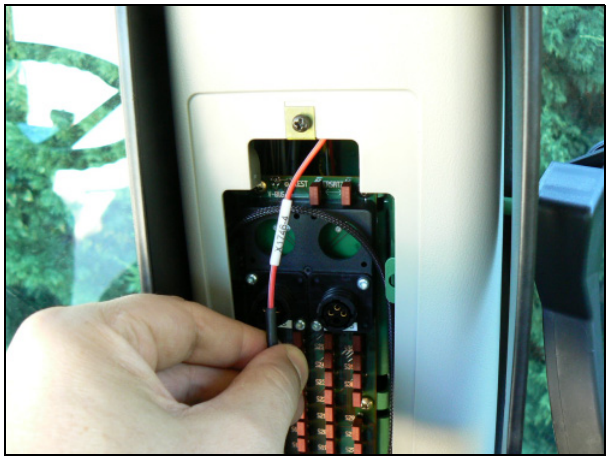
Step 8

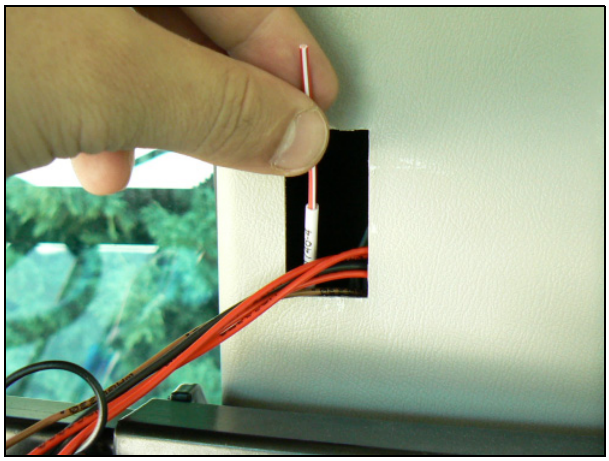
Remove the existing autoguidance power switch from the plastic panel around the right hand cab post but do not disconnect it.



Step 9

Route the red wire labeled X1746-4 from the CAN Bus wiring harness through the right post of the cab and then route it through the switch cavity.

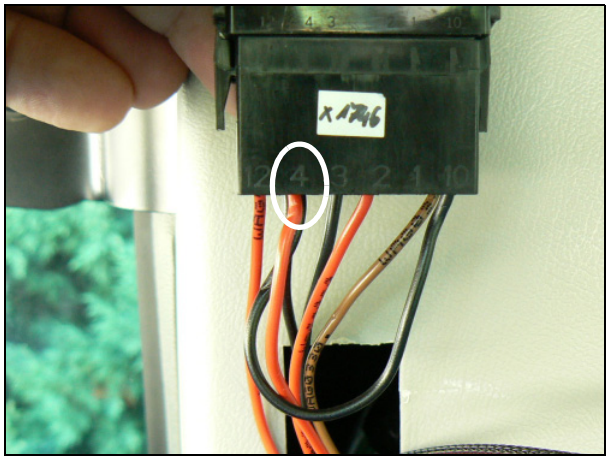




Step 10

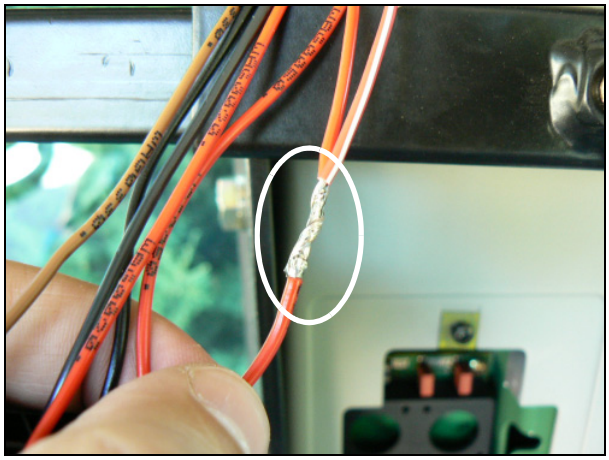
On the power switch, locate the red wire connected to connector X1746 (at position 4).

Remove about ¾" of the cable insulation on this wire.



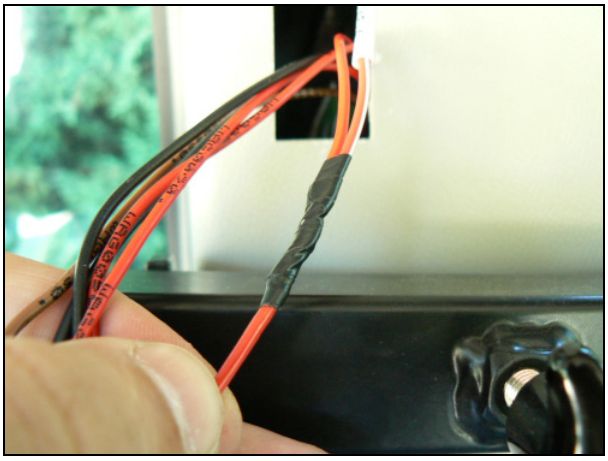
Step 11

Splice the red wire on the power switch to the red wire labeled X1746-4 that runs from the CAN Bus wiring harness.



Step 12

Solder the wires together and then use electrical tape to insulate them.



Step 13

Reinstall the power switch in the original slot.



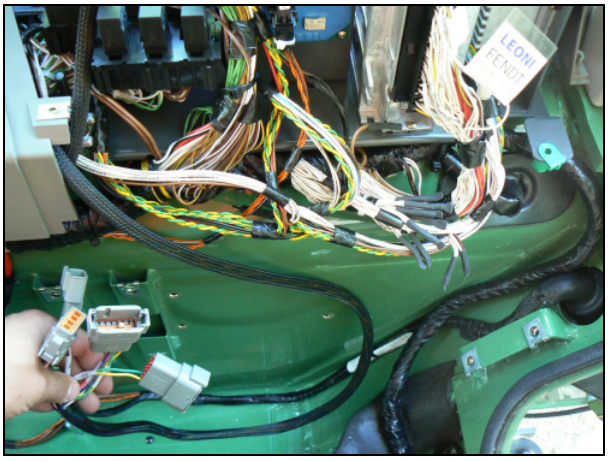
Step 14

a. Route the other end of the CAN bus wiring harness along the rear fender down towards the cab floor to where the NavController II will be installed.

a. Coil the excess cables and then use cable ties to secure them behind the side panels.

   Protect the cables where they are in contact with any cutting edges

b. Reinstall all plastic covers, with the exception of the cup holder and the panels which are in contact with the cab floor, in their original position.



CHAPTER 3

Antenna/Receiver Installation

In this chapter:

- Antenna and receiver installation options
- AG-372 receiver with AgGPS 450/900 radio module (if equipped) components
- Installing the AG-372 GPS receiver with AgGPS 450/900 radio module (if equipped)
- Installing an AG-372 receiver with magnetic feet
- AgGPS 542 receiver components
- Installing the AgGPS 542 receiver

This chapter describes how to install the required receiver and antenna, and radio module (if used).

To install the antenna for CFX-750 or FmX 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 21.
- **Magnetic mounting** – Magnetic mounting for quick release is available.

Possible mounting methods

GNSS receiver	VHB mounted plate	VHB V mounted plate
CFX-750 display; FmX integrated display	✓	✓
AG-372 receiver	✘	✓
*Ag*GPS 542 receiver	✓	✓

Notes:

- *For quick release magnetic mounting with an AG-372 receiver, order the kit listed in Antenna mounting kits, page 8 and bolt the V plate to the spar.*
- *With all other antennas, bolt the V plate to the spar for high accuracy and repeatability.*
- *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 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

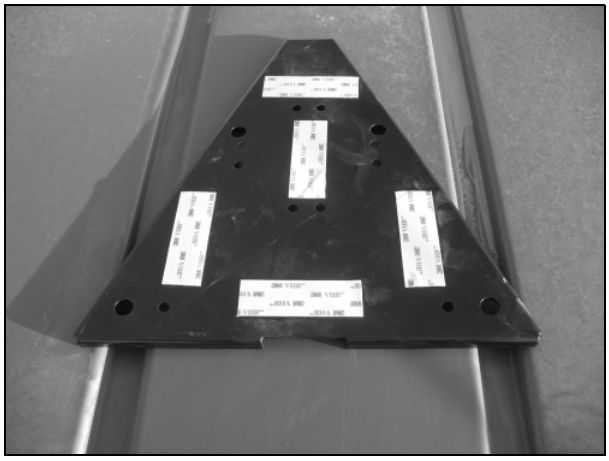
Clean the antenna location on the roof of the cab with a light solvent to remove oil and dust. Apply force to the roof to find a firm location.



Step 2

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

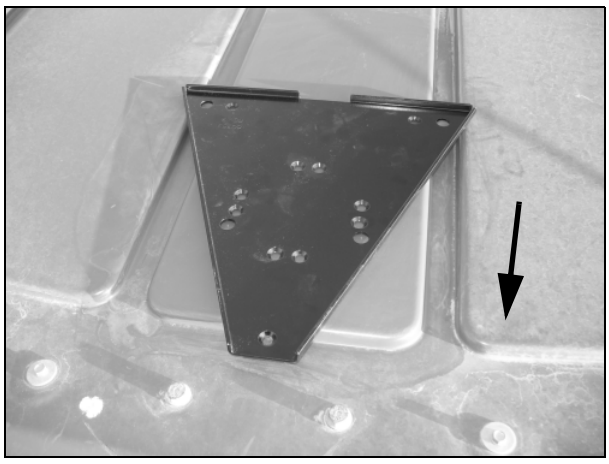
Note – *The VHB strips are pre-applied to the* P/N 62034 *plate.*



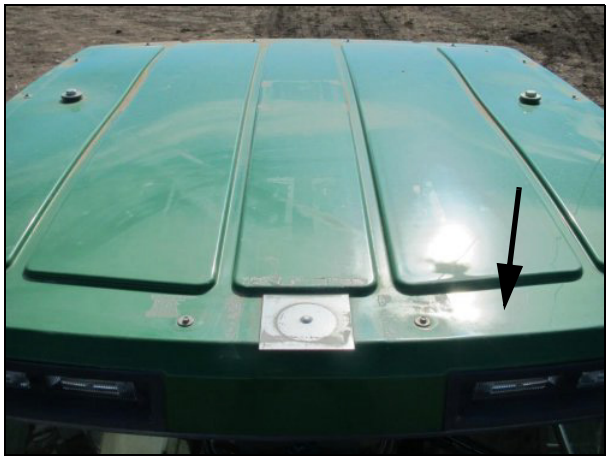
Step 3

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.*

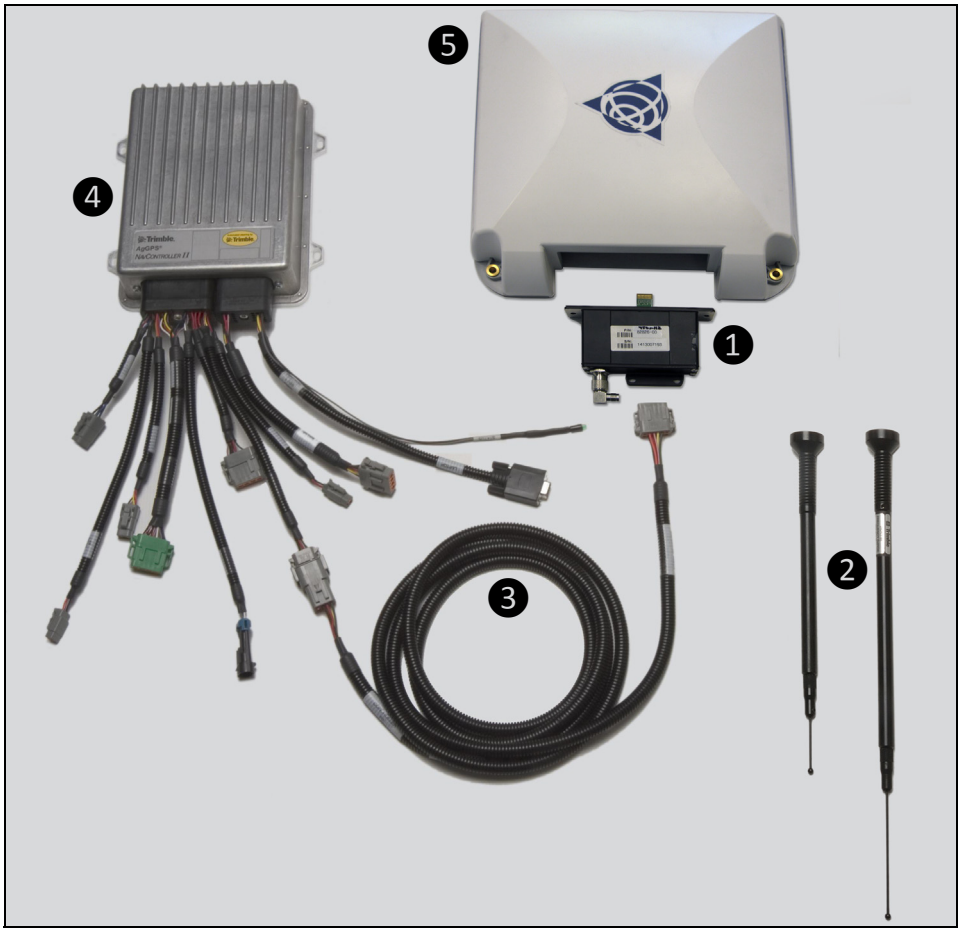


V plate



P/N 62034 plate

AG-372 receiver with *Ag*GPS 450/900 radio module (if equipped) components



Item	Description	Trimble part number
❶	*Ag*GPS 450 or 900 radio (if equipped)	
❷	Radio antenna cable and magnetic mount	
❸	*Ag*GPS 450 or 900 radio antenna	
❹	Antenna/receiver cable	54608
❺	Autopilot controller	

Installing the AG-372 GPS receiver with *Ag*GPS 450/900 radio module (if equipped)

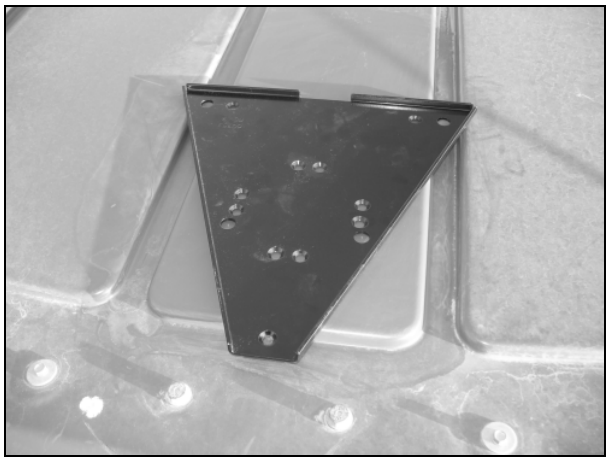
WARNING – To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information.

To attach the AG-372 receiver plate to the cab roof attach a V plate to the roof and then stick the receiver plate to the V plate with magnets. This provides a removable installation.

Removable installation

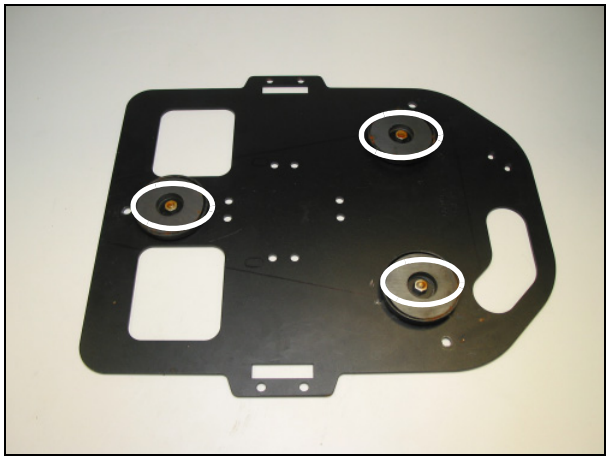
Step 1

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.



Mounting plate

Attach the three provided magnets to the plate with the ¼" flathead screws and hardware provided.



Underside of plate

Installing the optional radio in the receiver

Step 1

Remove the blanking plate and set it aside.



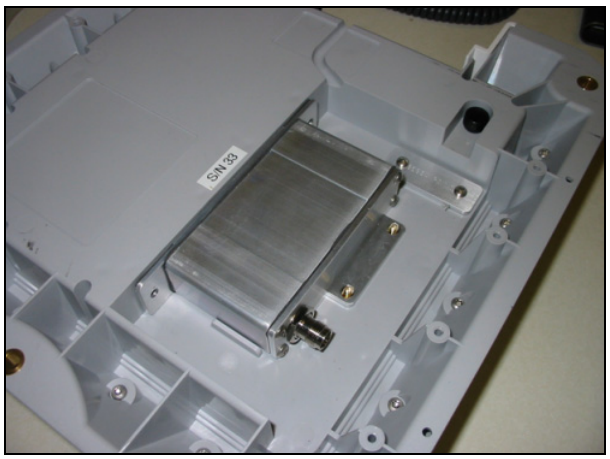
Step 2

Place the integrated radio inside the AG-372 receiver. Ensure that the circuit board is aligned with the slot in the vertical wall of the receiver.



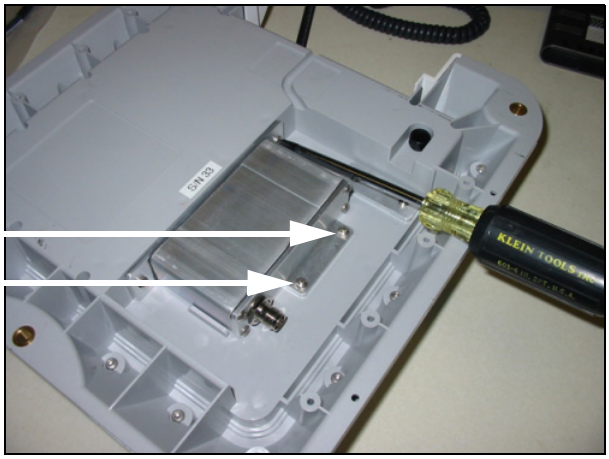
Step 3

Slide the integrated radio back so that it is flush with the vertical wall of the receiver.



Step 4

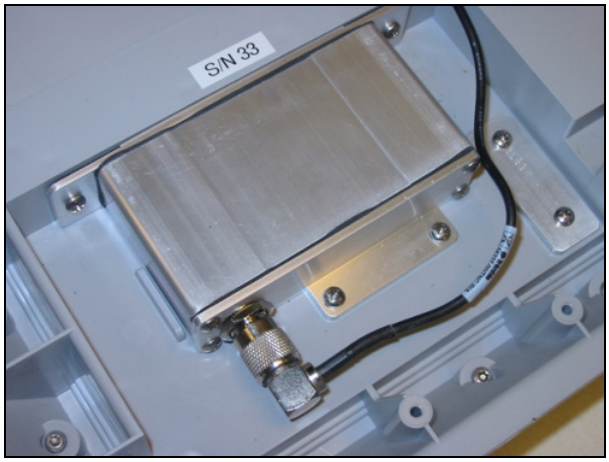
Use a #1 or #2 Phillips screwdriver and the supplied screws to install the integrated radio. First insert and tighten the two screws on the horizontal wall (arrowed), and then insert the remaining screws.



Step 5

Install the supplied antenna cable.

Notes: *The housing can accommodate a cable diameter of up to ¼".*

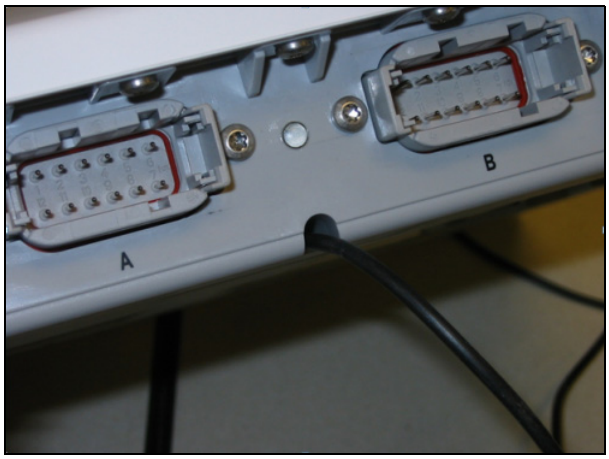


Step 6

Route the cable through the cable channel and then insert the cable cover.

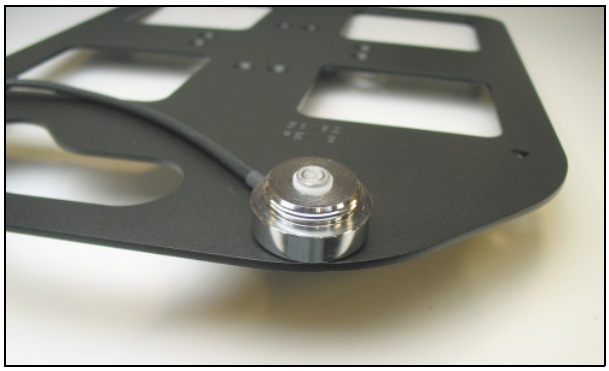


This image shows the unit with the cable routed through the channel.



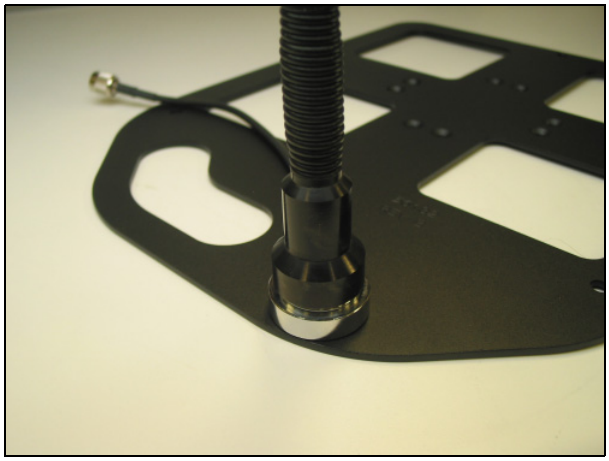
Step 7

Attach the antenna base to the rear of the plate with the two flathead screws provided.



Step 8

Attach the radio antenna to the antenna base.



Step 9

Position the AG-372 receiver and radio on the mounting plate with the connector ports facing the radio antenna. Align the three bolt holes with the receiver, radio, and mounting plate.



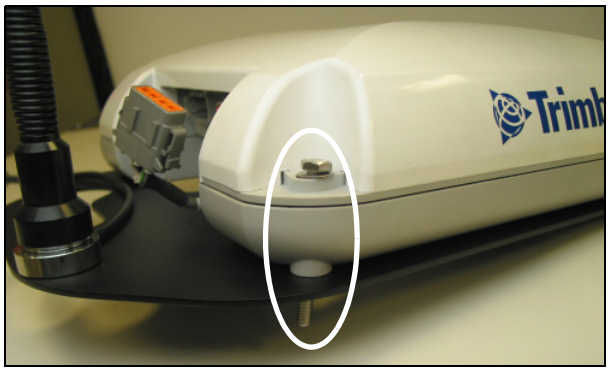
Step 10

Insert the nylon bushings provided.



Step 11

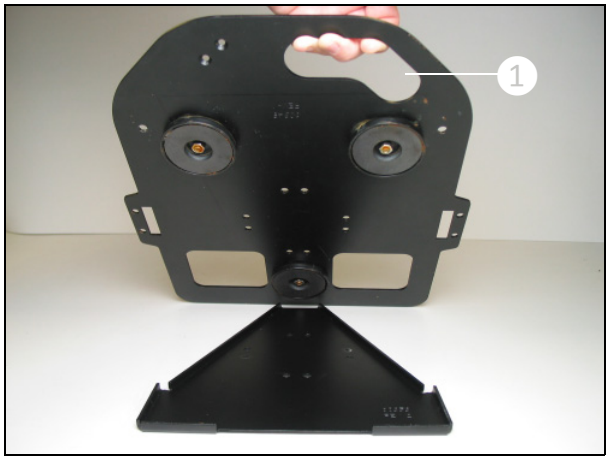
Insert the bolts through the receiver, radio, and mounting bracket. Place nuts on the bolt ends and then tighten them.



Step 12

Magnet method

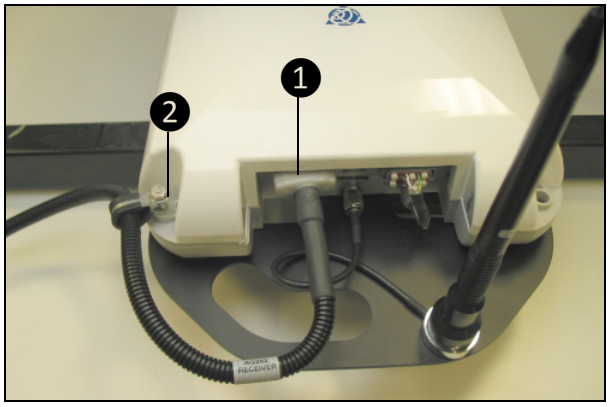
Place the receiver on the roof by aligning the magnets with the V plate. Ensure that the handle ❶ is toward the back of the vehicle.



Step 13

Connect the cable from the cab controller into port A ❶ of the AG-372 receiver. Bolt the cable clamp ❷ to the left side of the receiver.

Route the cable into the cab and into the controller.



Installing an AG-372 receiver with magnetic feet

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.

Use this option only when all other options are unavailable. It requires a firm surface for mounting to avoid vertical vibration and is not an easily repeatable location when moving receivers. Many cabs do not offer roof bolts; you may need to drill or to construct a firm location.

Step 1

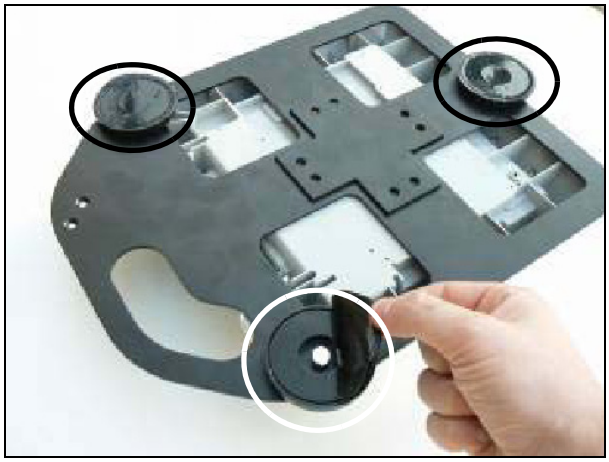
Attach the magnets to the receiver mounting plate. Use the three ¼" bolts to mount the AG-372 receiver.

Place the nuts on the receiver side.



Step 2

Turn the mounting plate upside down. Stick the covers onto the magnets as shown.

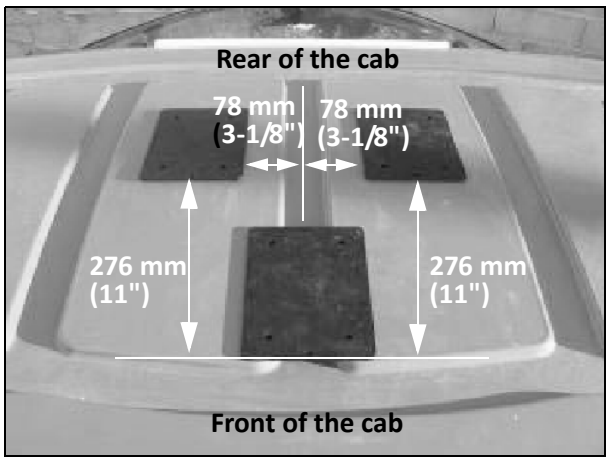


Step 3

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

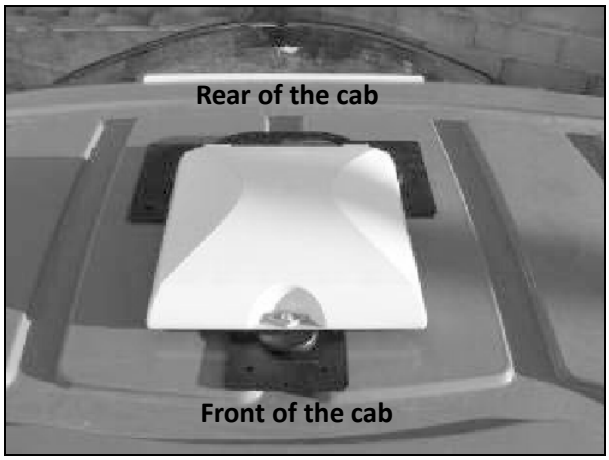
Remove the backing from the VHB strips and then apply the plates to the cab roof.

Attach the three mounting plates so that the receiver is as firm as possible.



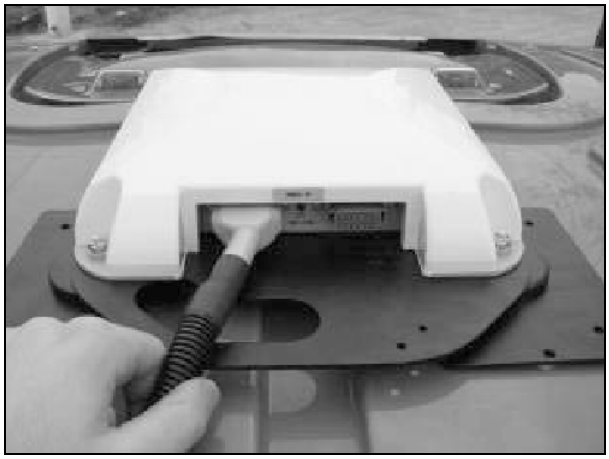
Step 4

Stick the antenna magnetic mounts at the center of the mounting plates.

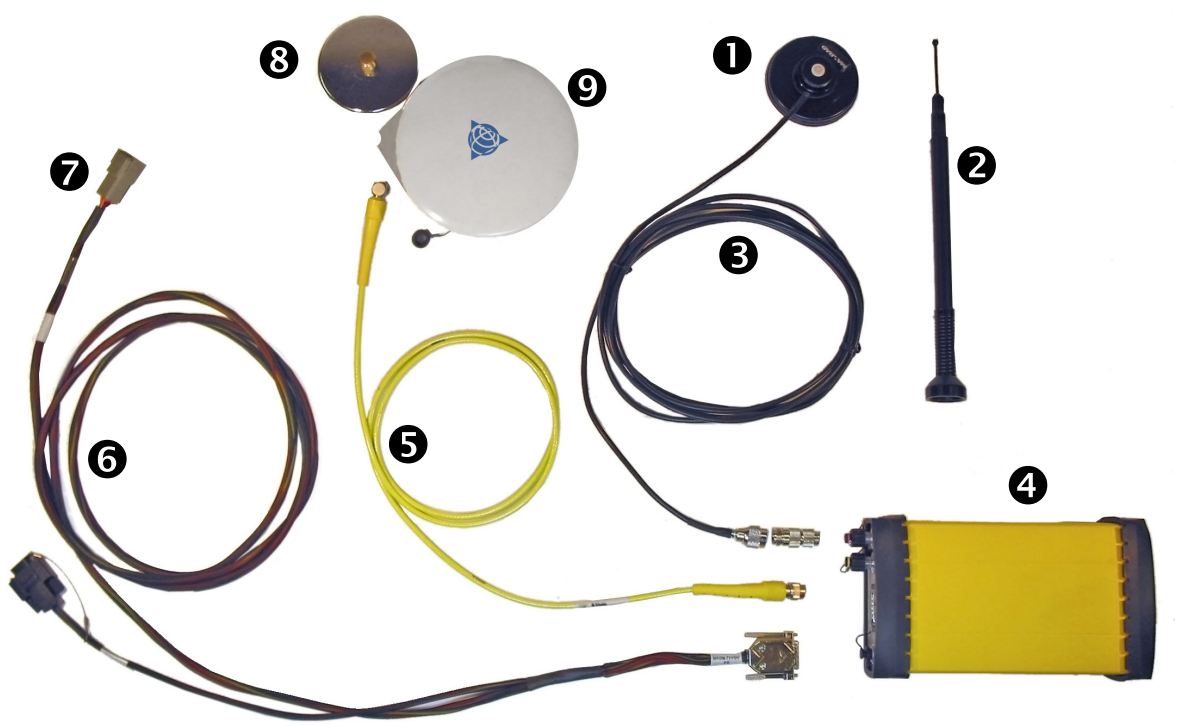


Step 5

Connect the antenna cable to port A of the AG-372 GPS receiver and then route the cable toward the NavController II harness.



*Ag*GPS 542 receiver components



Item	Description	Trimble part number
❶	Radio antenna magnetic base	
❷	Radio antenna	
❸	Radio antenna cable	
❹	*Ag*GPS 542 GPS receiver	
❺	Antenna cable	
❻	Receiver cable	62037
❼	To controller “P3 GPS”	
❽	Antenna magnetic mount	
❾	*Ag*GPS 542 GPS receiver	

Installing the *Ag*GPS 542 receiver

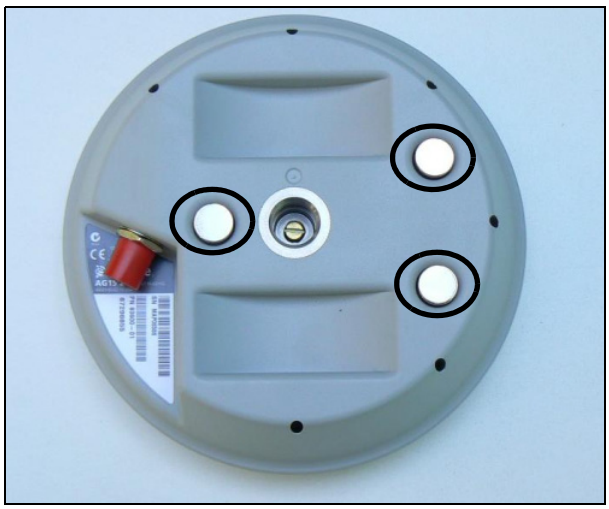
WARNING – To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information chapter.

Step 1

Attach the large magnet with a $^{5}/_{8}$" stud to the GPS antenna.



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



Step 2

GLONASS,RTK, OmniSTAR, DGPS applications

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



Step 3

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.



Step 4

Mount the receiver in a convenient location in the cab. Route the antenna cable to the receiver and then connect it.

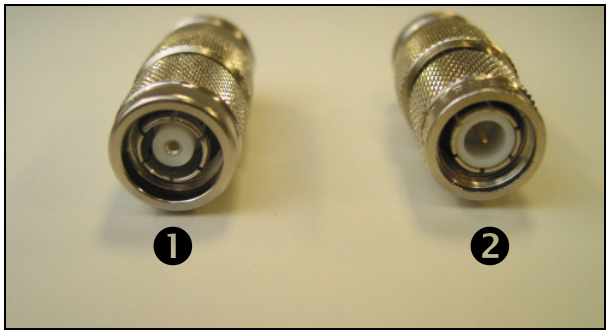


Step 5

Identify the correct adaptor for the radio connection:

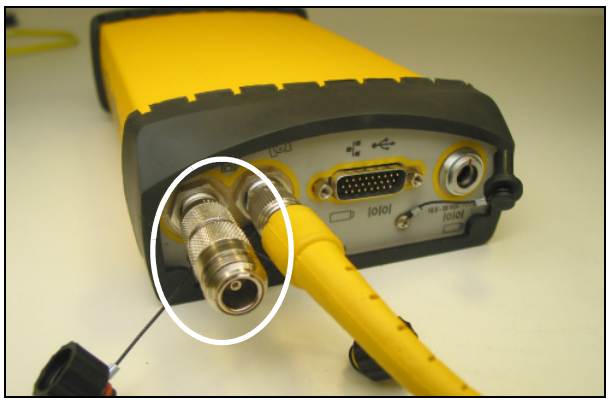
❶ Reverse polarity TNC-to-N for 900 MHz radios

❷ Normal polarity TNC-to-N for 400 MHz radios



Step 6

Attach the adaptor to the radio port.



Step 7

Connect the radio antenna cable to the radio port adaptor.



Step 8

Connect the controller cable to the 26-pin connector of the receiver. Controller cable connections will be completed in Chapter 5, Controller Installation.



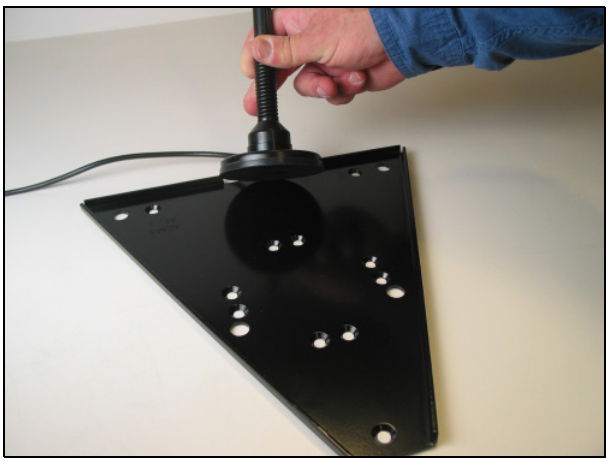
Step 9

Connect the radio antenna to the magnetic antenna base.



Step 10

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.



CHAPTER 4

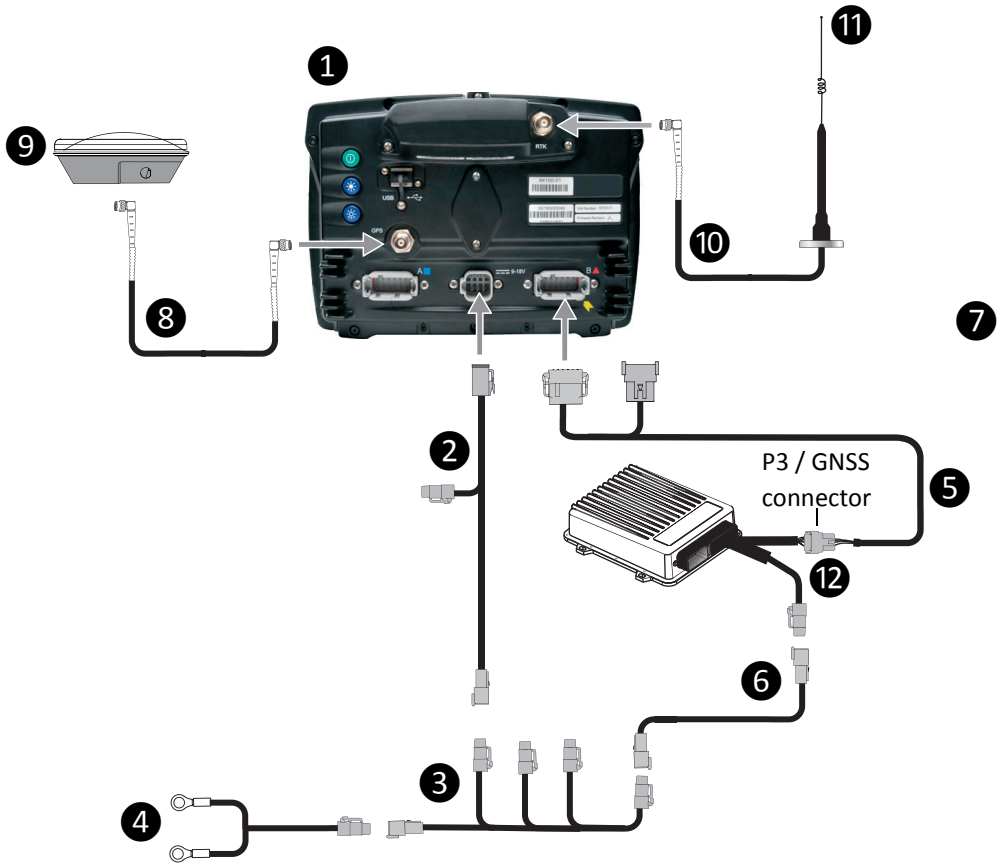
Display Installation

In this chapter:

- CFX-750 display components
- FmX integrated display components
- Preparing the CFX-750 display
- Installing the CFX-750 display
- CFX-750 display: Installing the wiring harness
- Preparing the FmX integrated display
- Installing the FmX integrated display
- FmX integrated display: Installing the wiring harness
- CFX-750 display and FmX integrated display: Connecting accessory options
- CFX-750 and FmX displays: Installing the GNSS antenna and plate
- CFX-750 and FmX displays: Installing the RTK radio antenna

This chapter describes how to install and connect the FmX integrated display or the CFX-750 display in the vehicle.

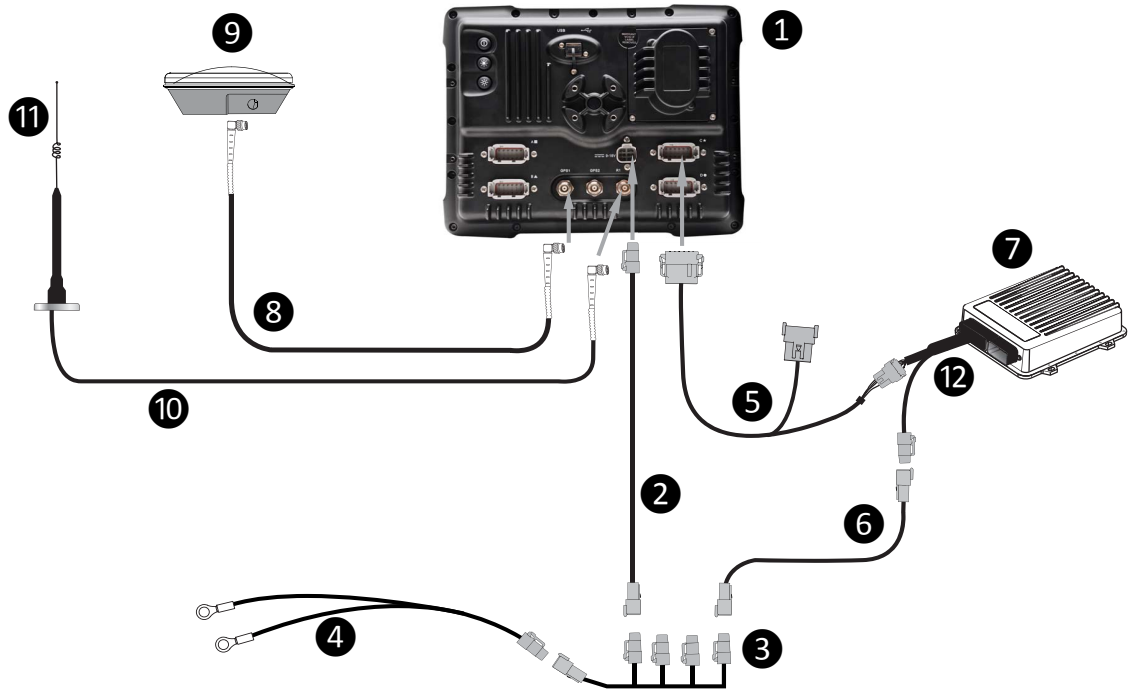
CFX-750 display components



CAUTION – Connecting the Port Replicator on the FmX to NavController II cable ❺ to the P4 or P12 connector of the NavController II harness ⓬ will result in damage to the FmX / FM-1000 integrated display, and will void the warranty.

Item	Description	Trimble part number
❶	CFX-750 display ***Note –*** *RTK password required.*	93100-02
❷	CFX-750 power cable	66694
❸	CFX-750 power cable with relay and switch (power bus)	67259
❹	Basic power cable	67258
❺	FmX to NavController II cable with port replicator	75741
❻	2 pin DTM to 2 pin DT power adaptor	67095
❼	NavController II	55563-00
❽	8 m GNSS TNC/TNC RT angle cable	50449
❾	AG25 GNSS antenna	77038-00
❿	NMO to TNC 20ft antenna cable and base	72122
⓫	900 MHz radio antenna kit	22882-10
⓬	Main NavController II cable	54601

FmX integrated display components



⚠ **CAUTION –** Connecting the Port Replicator on the FmX to NavController II cable ❺ to the P4 or P12 connector of the NavController II harness ⓬ will result in damage to the FmX / FM-1000 integrated display, and will void the warranty.

Item	Description	Trimble part number
❶	FmX integrated display	93100-02
❷	FmX power cable	66694
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❹	Basic power cable	67258
❺	FmX to NavController II cable with port replicator	75741
❻	2 pin DTM to 2 pin DT power adaptor	67095
❼	NavController II	55563-00
❽	8 m GNSS TNC/TNC RT angle cable	50449
❾	AG25 GNSS antenna	77038-00
❿	NMO to TNC 20ft antenna cable and base	72122
⓫	900 MHz radio antenna kit	22882-10
⓬	Main NavController II cable	54601

Preparing the CFX-750 display

Step 1

Locate the CFX-750 display, the RAM mount, and the RAM mount clamp.



Step 2

Use the provided metric hardware to attach the RAM mount to the rear of the display.



Step 3

Attach the RAM mount to the rear of the display.



Installing the CFX-750 display

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

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

Attach the free end of the RAM mount to the bar mount and then tighten the clamp on the RAM mount so that the display is secure.

Step 2

Connect the cable to the B port of the CFX-750 display.

To connect power to the CFX-750 display, see Chapter 5, Controller Installation.



CFX-750 display: Installing the wiring harness

Step 1

Locate the cable that connects the CFX-750 display to the NavController II.

Step 2

Connect the cable to the P3 connector on the NavController II main harness and then route the cable from the NavController II to the mounting location on the CFX-750 display.



Preparing the FmX integrated display

Step 1

Locate the FmX integrated display, the RAM mount, and the RAM mount clamp.



Step 2

Use the provided metric hardware to attach the RAM mount to the rear of the display.



Step 3

Attach the RAM mount to the rear of the display.



Installing the FmX integrated display

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.

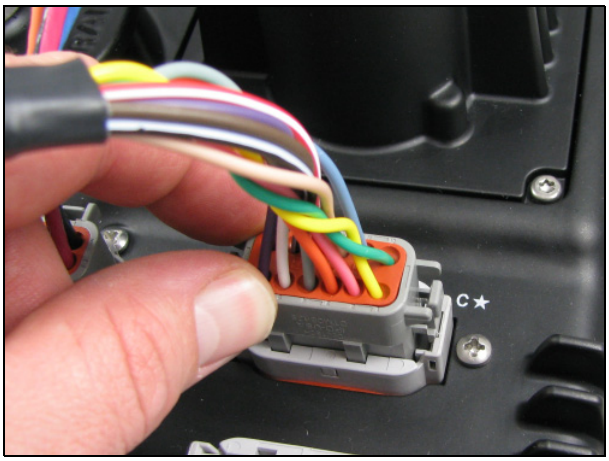
Step 1

Decide where you will mount the display in the vehicle cab and then use the provided bolts to attach the bar mount to the rail. Attach the free end of the RAM mount to the bar mount and then tighten the clamp on the RAM mount so that the display is secure.

Step 2

Connect the cable to the C port of the FmX integrated display.

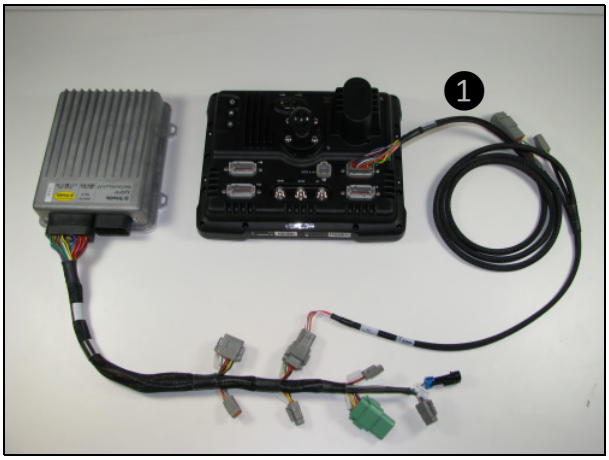
To connect power to the FmX integrated display, see Chapter 5, Controller Installation.



FmX integrated display: Installing the wiring harness

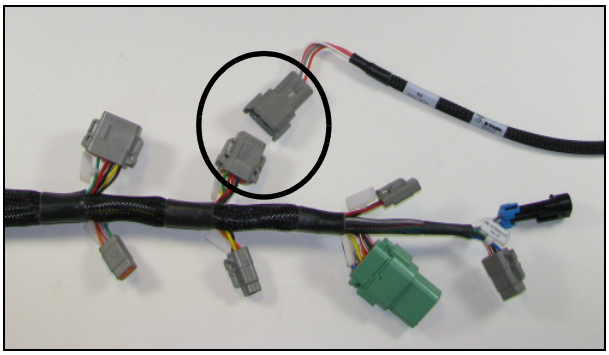
Step 1

Locate the cable that connects the FmX integrated display to the NavController II ❶.



Step 2

Connect the cable to the P3 connector on the NavController II main harness, and then route the cable from the NavController II to the mounting location on the FmX integrated display.



CFX-750 display and FmX integrated display: Connecting accessory options

Note – *Unless otherwise stated, "the display" applies to the CFX-750 display or the FmX integrated display.*

AgCam

The AgCam and AgCam cable are accessory items that you can purchase separately from the display. The CFX-750 display allows up to two video inputs; the FmX integrated display allows up to four.

Step 1

Locate the AgCam and AgCam cable.

Step 2

Mount the AgCam in a secure location and then route the cable towards the display.



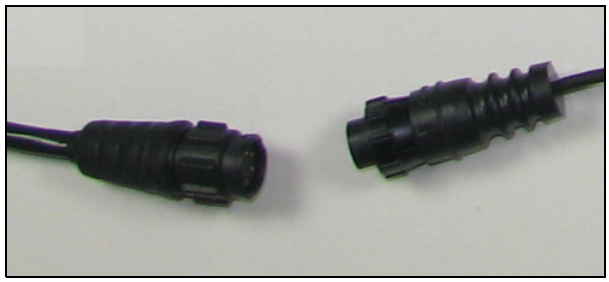
CFX-750 display



FmX display

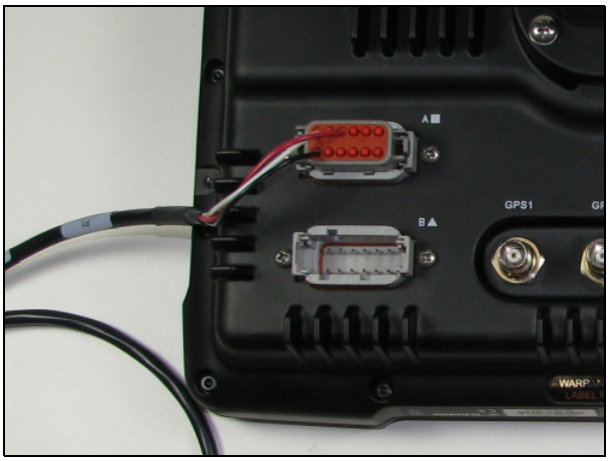
Step 3

Connect the AgCam cable to the display adaptor cable.



Step 4

Connect the display to AgCam adaptor cable to one of the open 12 pin connectors on the back of the display.



CFX-750 and FmX 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 8**.*

VHB adhesive method

Standard P/N 62034 plates are provided in most kits. You can use Very High Bond (VHB) to attach either a P/N 62034 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 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.

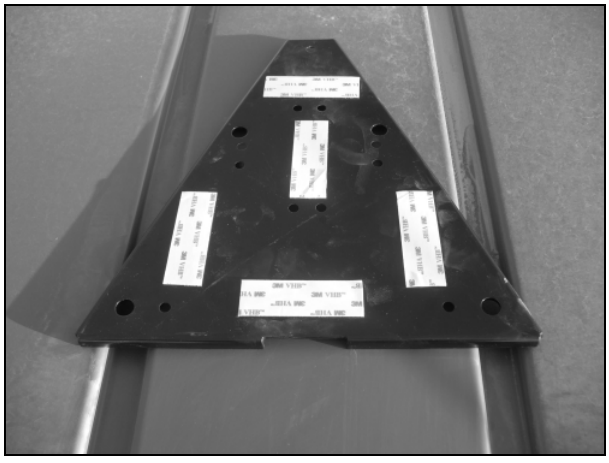


Step 2

V plate only

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

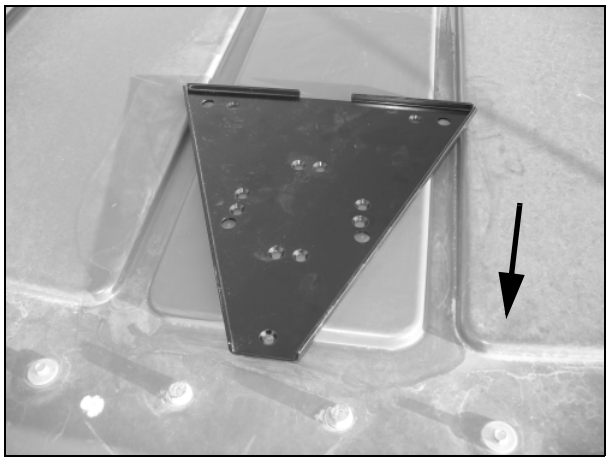
Note – *The VHB strips are pre-applied to the P/N 62034 plate.*



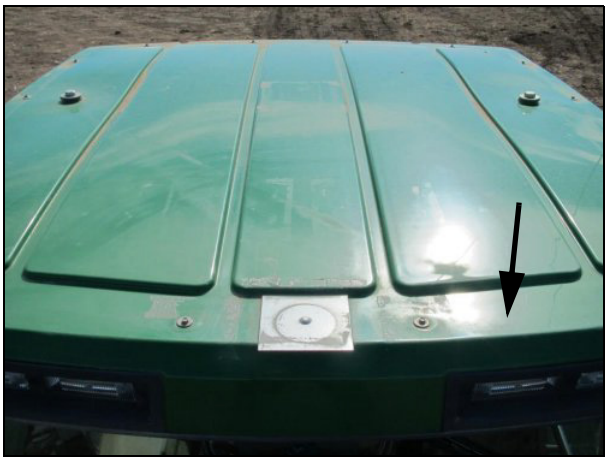
Step 3

Remove the backing from the other side of the VHB strips and then apply the plate to the cab roof. The narrow end 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.*



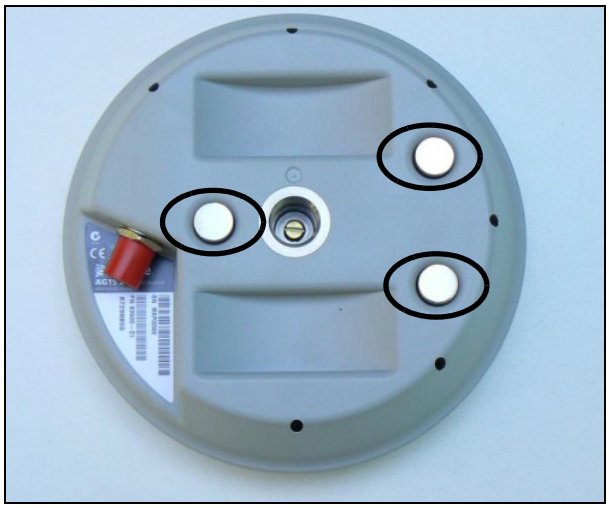
V plate



P/N 62034 plate

Step 4

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



Otherwise, attach the large magnet with a $^{5}/_{8}$" 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 P/N 62034 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.



CFX-750 and FmX 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.

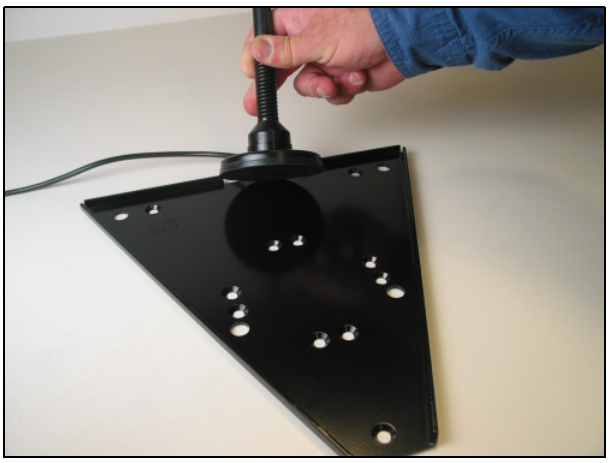
Step 1

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 P/N 62034 plate with the VHB provided to relocate the antenna.



Step 3

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

CHAPTER 5

Controller Installation

In this chapter:

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

This chapter describes how to install the controller unit.

Installing the controller

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.

Notes:

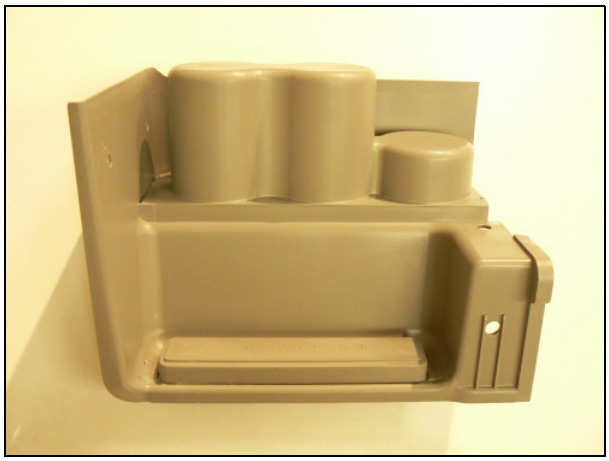
- Route all harnesses, wires, and cables along routes that are free of obstructions and pinch points. Use wire ties where necessary. For ease of installation, connectors on all harnesses are identified by component. The following instructions will only give you the general direction to route the components.
- You will be responsible for determining the best method of concealing all routings. Make a note of where any wire harness and hose tie straps are removed during disassembly so they can be properly installed during assembly.
- Ensure that the vehicle is parked on flat, level ground.

Permanent installation (main method)

Step 1

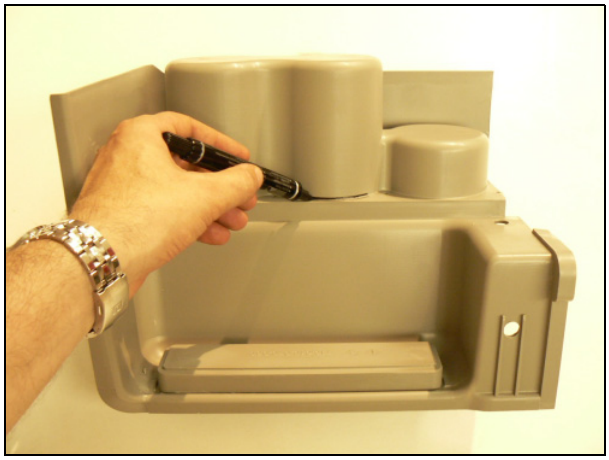
a. Locate the cup holder. Use a Torx key to remove the eight screws which hold the rubber cover in place.

b. Turn the cup holder upside down.

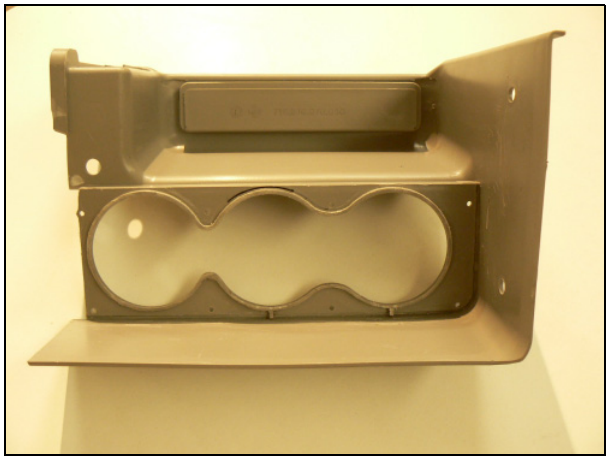


Step 2

Draw a line at the base of the cup holder, as shown here, and then cut along the line to remove the cup holder.

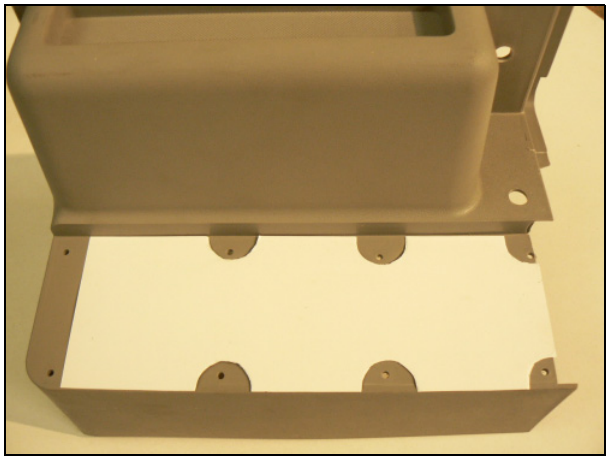


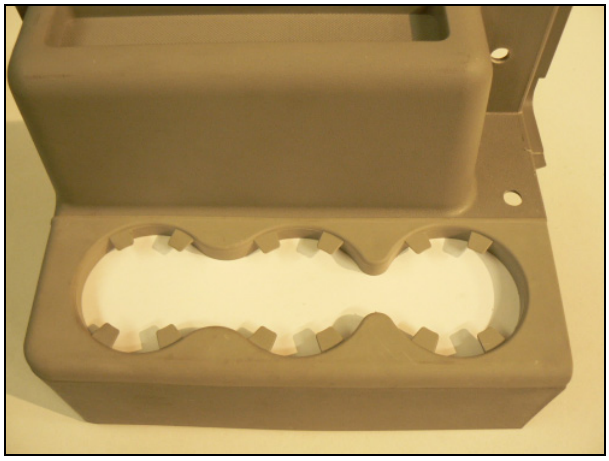
After the plastic is cut, the cup holder should look as shown here.



Step 3

Cut a cover from a thin sheet of plastic and then reinstall the rubber cover using the original eight screws.





Step 4

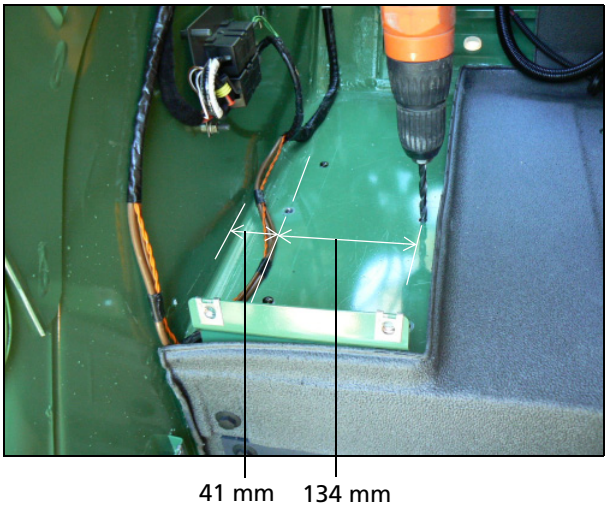
From the outside, at the rear right of the cab, locate the panel below the cab floor and remove it.

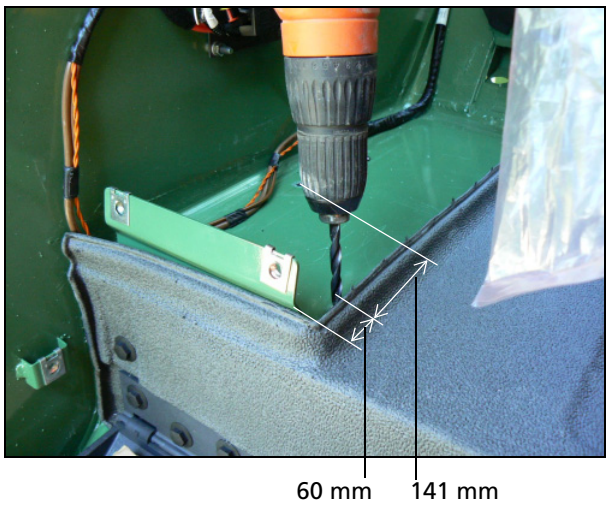


Step 5

Mark the position and then drill four 7 mm diameter holes in the cab floor as follows:

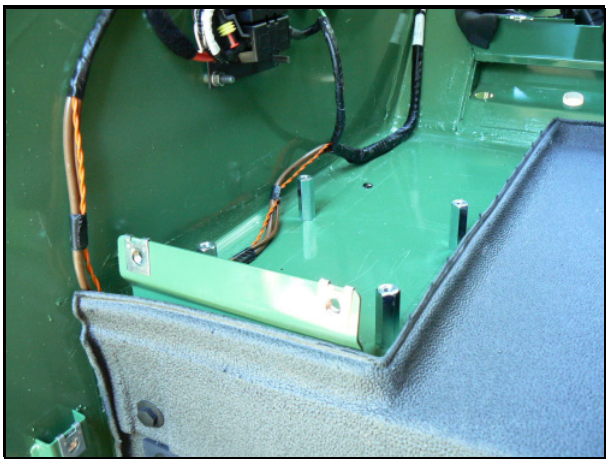
- 41 mm from the right wall
- 60 mm from the front edge





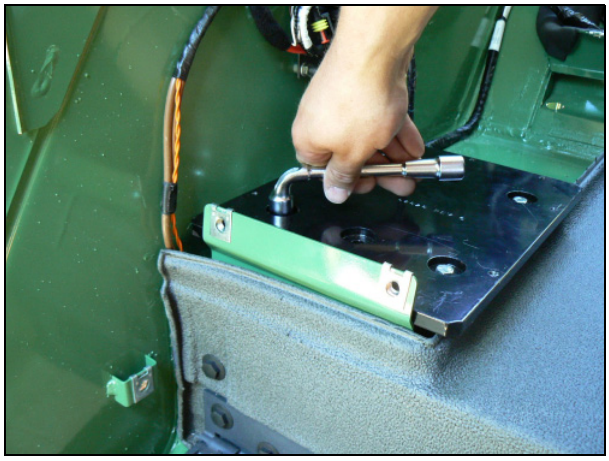
Step 6

Install four ¼" x 1½" standoffs with four ¼" x ⅜" hexagonal screws and then tighten them securely.



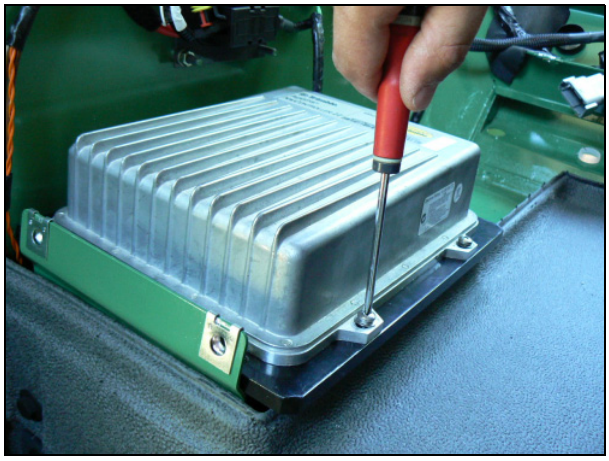
Step 7

Install the NavController II mounting plate with four ¼" x ¾" hexagonal screws.



Step 8

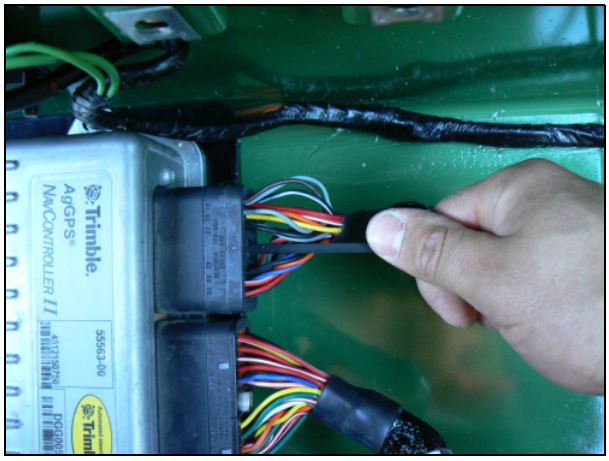
Use four #10 x ⅝" screws to install the NavController II onto the mounting plate.



Step 9

a. Connect both the main and auxiliary NavController II wiring harnesses to the NavController II.

b. Secure the connectors with an Allen key.



Step 10

a. Connect the CAN bus cable to the NavController II wiring harness. See Controller connections, page 62.

b. Coil the excess cables and then use cable ties to secure them behind the side panels.

c. Protect the cables where they are in contact with any cutting edges.

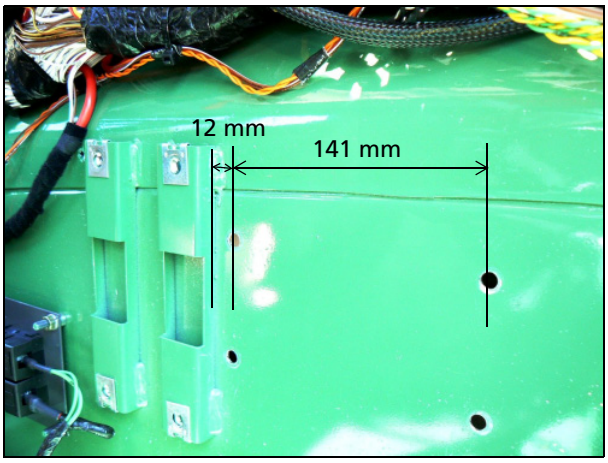
d. Reinstall all plastic covers back to their original position.

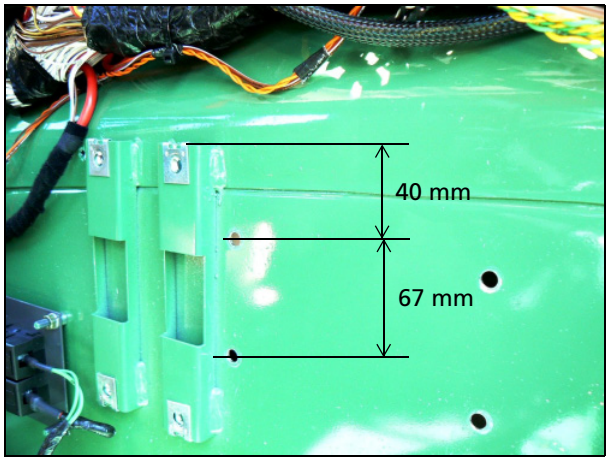
e. Reinstall the cup holder as well as the panel below the cab.

Removable installation (alternate method)

Step 1

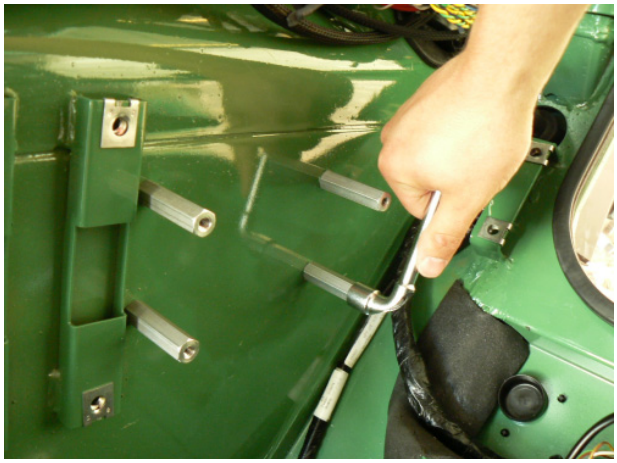
Mark the position and then drill four 7 mm diameter holes through the right fender, as shown.





Step 2

Install four ¼" x 2" standoffs with four ¼" x ⅜" hexagonal screws and tighten them securely.



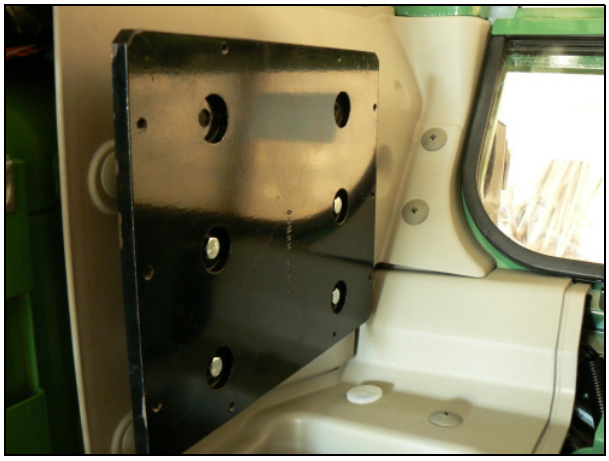
Step 3

Drill four holes, 30 mm in diameter, in the plastic panel and then reinstall the panel over the standoffs.



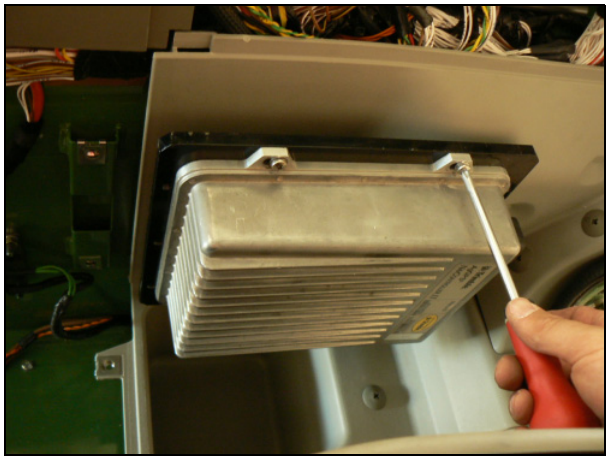
Step 4

Mount the NavController II mounting plate with four ¼" x ¾" hexagonal screws.



Step 5

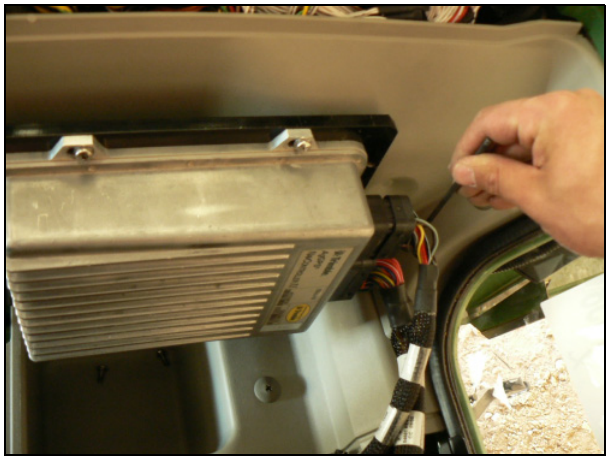
Mount the NavController II using four #10 x ⅝" screws.



Step 6

a. Connect both the main and auxiliary NavController II wiring harnesses to the NavController II.

b. Secure the connectors with an Allen key.



Step 7

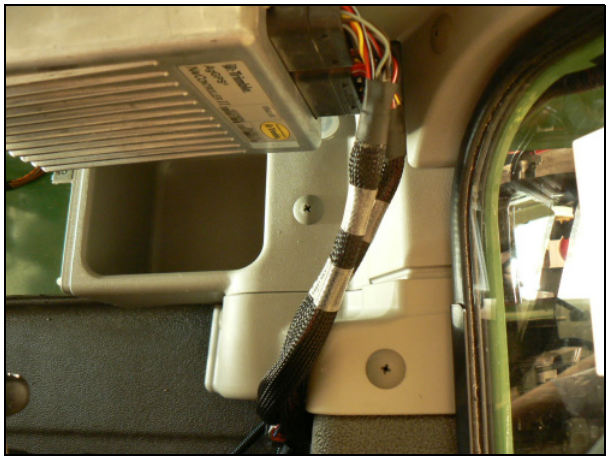
a. Cut the corner of the plastic panel and then pass the cables through it.

b. Connect the CAN Bus cable to the NavController II wiring harness. See Controller connections, page 62.

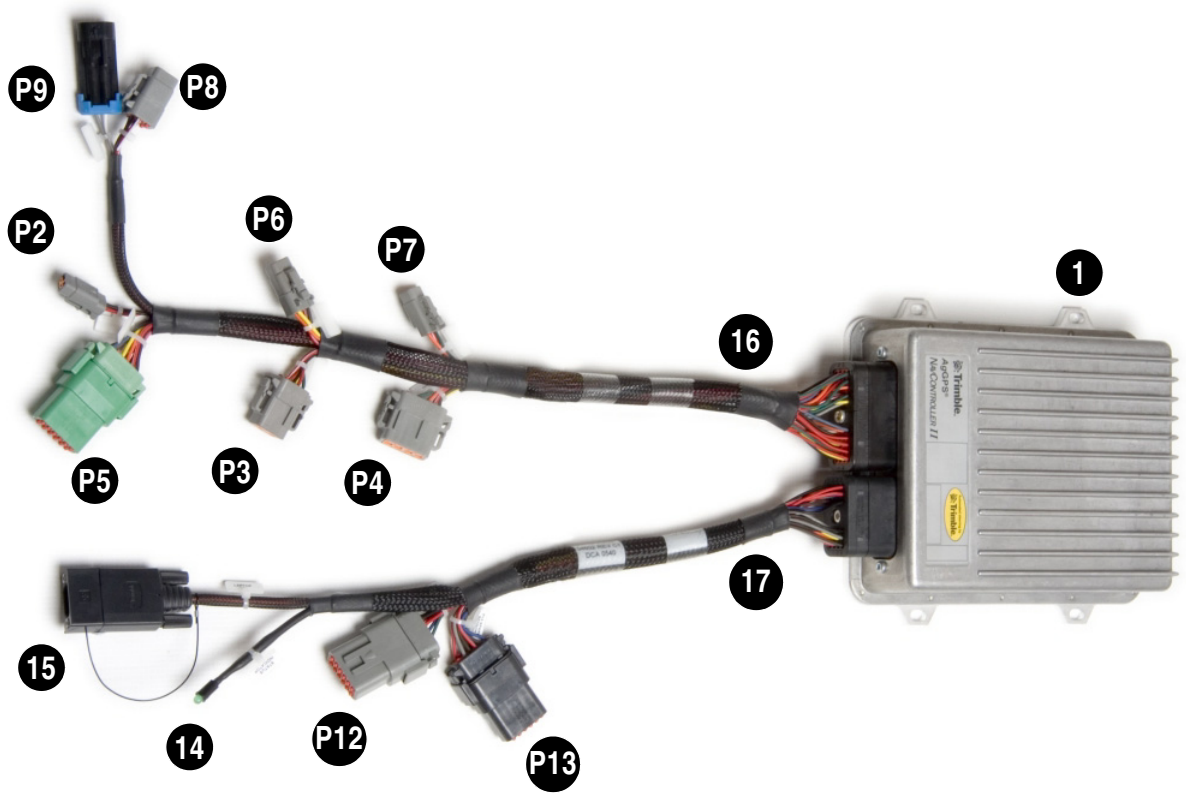
c. Coil the excess cables and then use cable ties to secure them behind the side panels.

d. Protect the cables where they are in contact with any cutting edges.

e. Reinstall all plastic covers back to their original position.



Controller connections



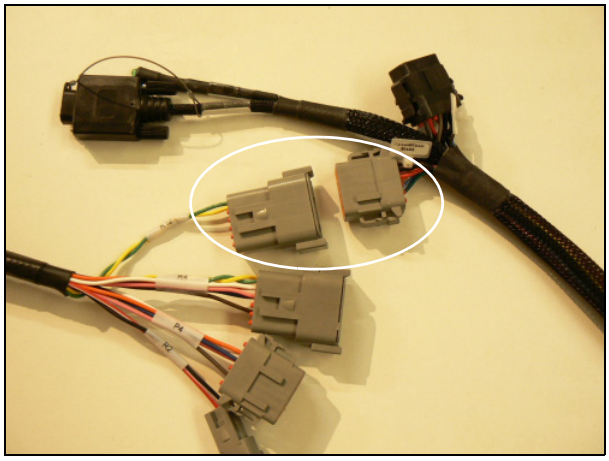
Item	Description
1	NavController II controller
P2	Power connector
P3	GNSS connector
P4	Display connector
P5	Vehicle sensors connector
P6	Steering sensor connector
P7	Manual override connector
P8	Hydraulic valve connector

Item	Description
P9	Sonalert connector
P12	Lightbar/spare connector
P13	Spare sensors connector
14	Status indicator
15	Laptop connector
16	Main harness
17	Auxiliary harness

Connecting the cables to the controller

Step 1

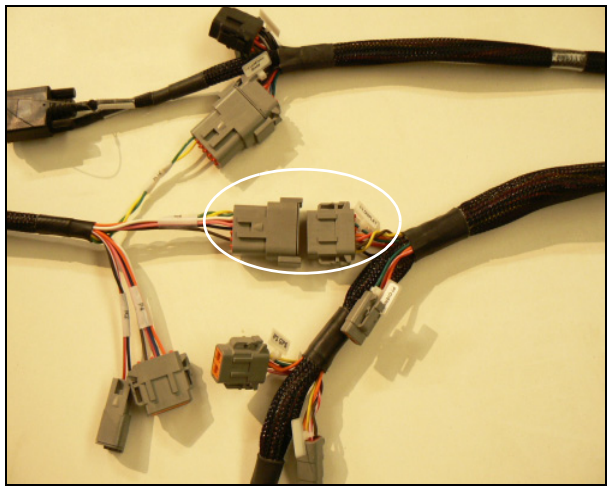
Connect P12 on the ***auxiliary*** NavController II wiring harness to R12 on the CAN Bus cable.



Step 2

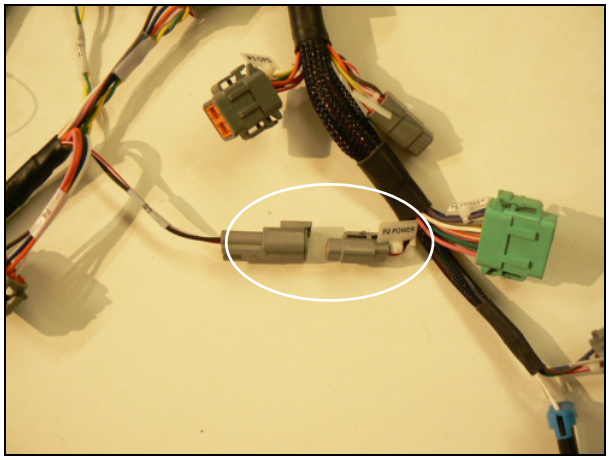
Connect P4 on the ***main*** NavController II wiring harness to R4 on the CAN Bus cable.

Note – *Do not connect P4 to R4 (leave it unconnected) if you intend to use your Fendt tractor with an ISOBUS implement and access this through the Variodoc Terminal.*
If P4 to R4 is left unconnected, you may not be able to use the remote engage button on the side panel, depending on the tractor's firmware revision. Please engage/disengage the Autopilot system from the Trimble display.



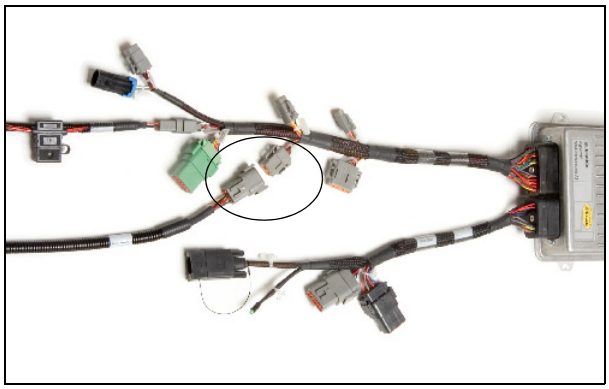
Step 3

Connect P2 from the ***main*** NavController II wiring harness to R2 on the CAN Bus cable.



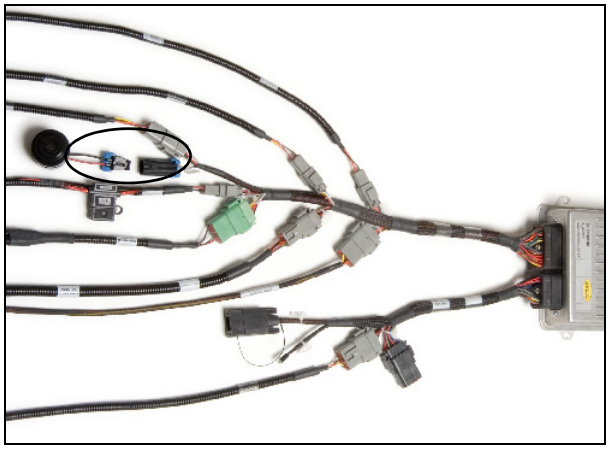
Step 4

Connect the CFX-750 display or FmX integrated display to P-3, which is labeled “GPS”. P-3 is located on the main wiring harness.



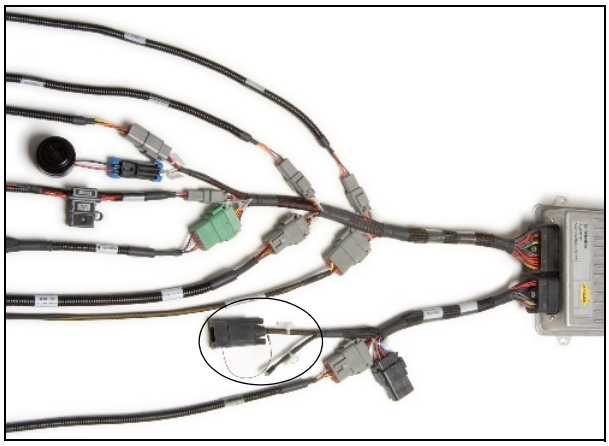
Step 5

Connect the Sonalert P-9 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.



Step 6

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 7

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.

CHAPTER 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:

Step 1

Connect the battery and start the machine.

Step 2

Connect and run the Autopilot Toolbox II software for system setup and calibration. For more information, refer to the *Autopilot Toolbox II Software User Guide*.

Step 3

a. Turn the Autopilot power button to the first position to turn on the NavController II and the receiver.

b. Turn the power button to its second position; both the NavController II and the tractor's steering module are now turned on.

Step 4

Open the *Diagnostic* page of the Autopilot Toolbox II software and ensure that all signals from the sensors are active.

Step 5

Note – *You do not need to perform the Dead Zone and P Gain calibration.*

Enter the correct controller mounting position, antenna height and offset, and perform the roll calibration.

Adjust the behavior of the vehicle when driving in Automatic mode with both the main and the line acquisition agressivness.