Autopilot

AUTOMATED STEERING SYSTEM

INSTALLATION INSTRUCTIONS

John Deere 5xxxM Series Tractors

- 5065M
- 5075M
- 5085M
- 5100M
- 5115M

Version 6.00
Revision A
August, 2017
P/N 54035-167-E06

Trimble

Legal Notices

Agriculture Business Area

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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
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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.

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Introduction

- Technical assistance
- Manual system upgrade to the Autopilot system
- 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 the Autopilot system

CFX-750 display and FmX integrated display

Retain
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	Special tools
Platform kit: P/N 54035-167	Drill
Hydraulic hose kit: P/N 98436	$^{5}/_{16}$" drill bit
	⅜-6 tap
	2" hole saw

Antenna mounting kits

Kits required
AG-15 antenna mounting plate: P/N 62034
Bracket, GPS - V-base plate indexing: P/N 62388-02
Bracket, GPS Spar 45"- 55": P/N 55348

Accessory kits

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

Autopilot hardware organization: As shipped

Hardware	Component	See...
Platform kit: P/N 54035-167	Hydraulic valve	Chapter 2
	Hydraulic manifold	
	Transducer flow switch	
	Manual override cable	
	Hydraulic brackets and bolt kits	
	Hydraulic valve cable	
	AutoSense™ steering device and cabling	Chapter 3
	AutoSense mounting bracket and hardware	
	Power switch	Chapter 6
	Bolt kit controller	Chapter 8
Hydraulic hose kit: P/N 98436	Hydraulic hoses	Chapter 2
	Hydraulic adaptors	
Roof bracket kit: • AG-15 antenna mounting plate: P/N 62034 • Bracket, GPS - V-base plate indexing: P/N 62388-02 • Bracket, GPS Spar 45"–55": P/N 55348	Roof brackets	Chapter 4
	Bolt kit, roof bracket	
GNSS receiver	GNSS receiver	Chapter 4
	GNSS antenna	
	GNSS receiver power/data cable	
	RTK radio, cable, and radio antenna	
Display	CFX-750 display	Chapter 5
	FmX integrated display	
	Display cable	
	Mounting bracket	
Common parts	Controller	Chapter 8
	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.

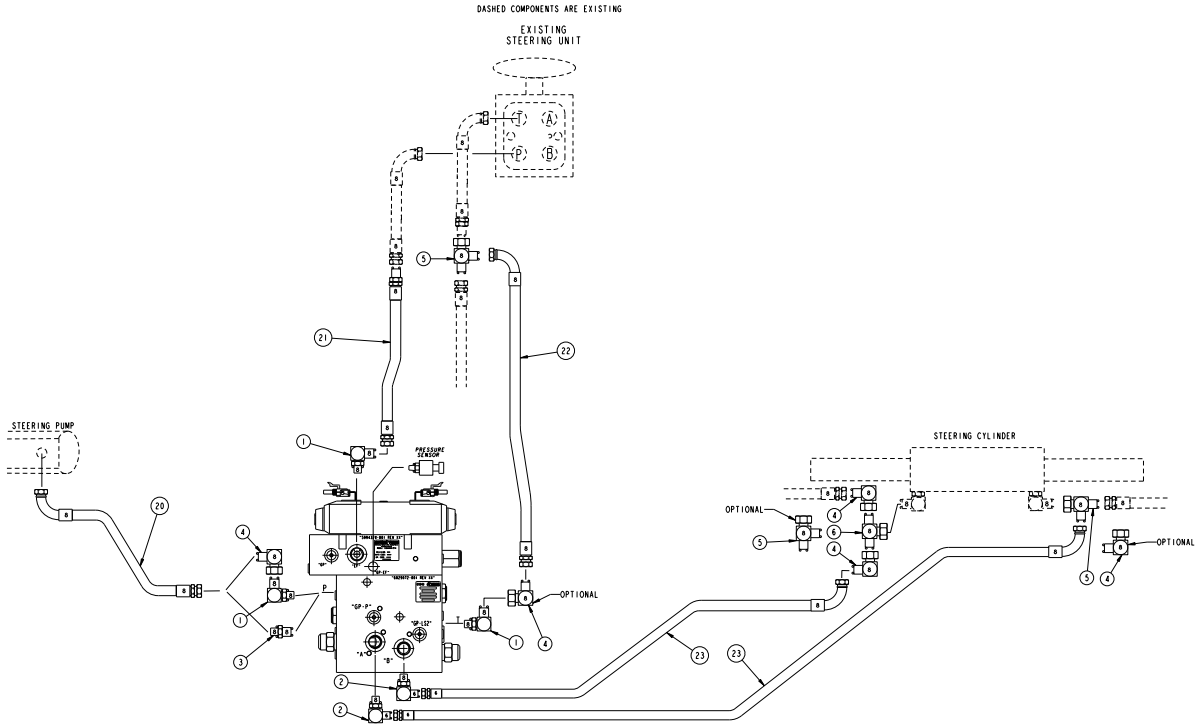
2

Hydraulic Control Valve Installation

- Hydraulic control valve components
- Preparing the Autopilot manifold
- Mounting the hydraulic manifold
- Hydraulic connections on the machine
- Hydraulic connections at the valve
- Checking the hydraulics

This chapter describes how to install the hydraulic control valve and hoses.

Hydraulic control valve components



Item	Description	P/N	Item	Description	P/N	Line
1	Fitting (x3)	8 C5OLO	**20**	36" hose (x1)	F451TCJSJ9-08-08-08-36	P
2	Fitting (x2)	6 - 8 C5OLO	**21**	36" hose (x1)	F451TCJSJ0-08-08-08-36	EF
3	Fitting (x1)	8 F5OLO	**22**	36" hose (x1)	F451TCJSJ9-08-08-08-36	T
4	Fitting (x5)	8 C6LO	**23**	65" hose (x2)	F451TCJSJ9-06-08-06-65	A, B
5	Fitting (x3)	8 R6LO				
6	Fitting (x1)	8 S6LO				

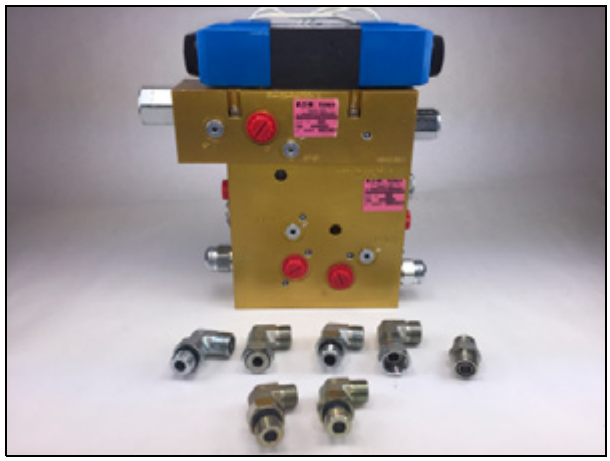
NOTE – Part numbers are Parker numbers and are for reference only.

Preparing the Autopilot manifold

Step 1

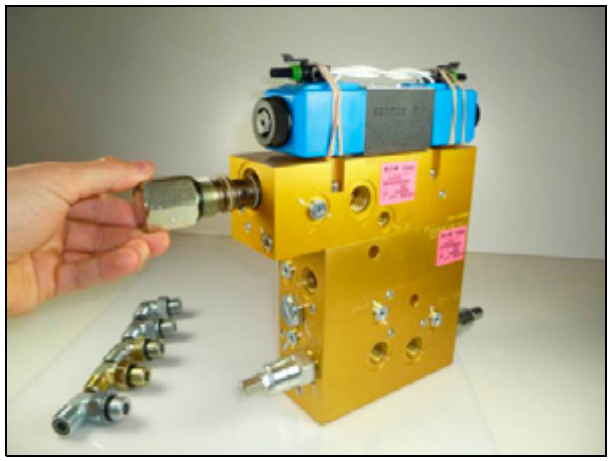
On a clean work surface gather the Autopilot manifold and fittings,

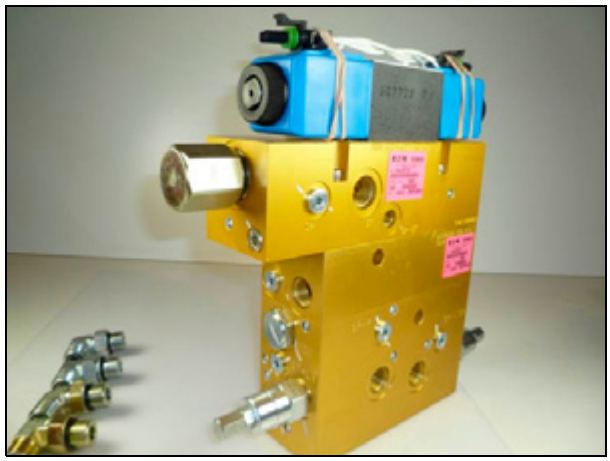
Removed the plastic plugs from the A, B, P, T, EF, and PFRD ports.



Step 2

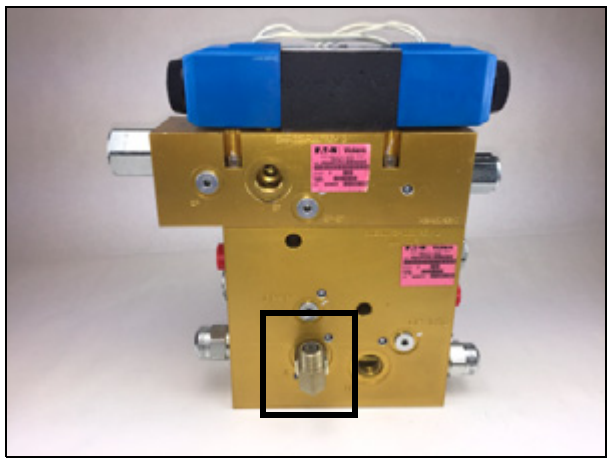
Assemble the provided PFRD cartridge into the PFRD port of the Autopilot manifold.





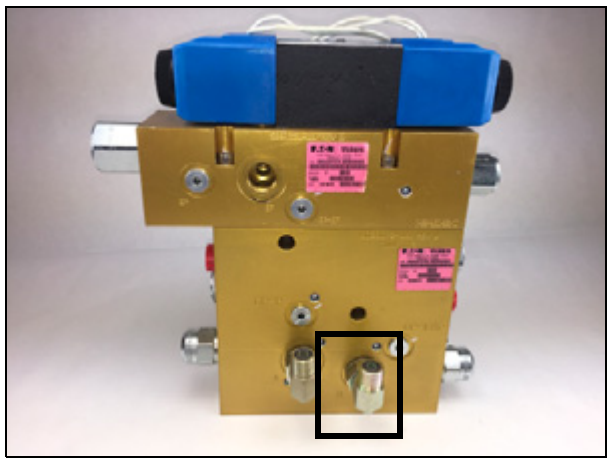
Step 3

Install the provided -6-8 90° ORFS-ORB fitting into the A port. The orientation of the fitting can be set once the hoses are connected.



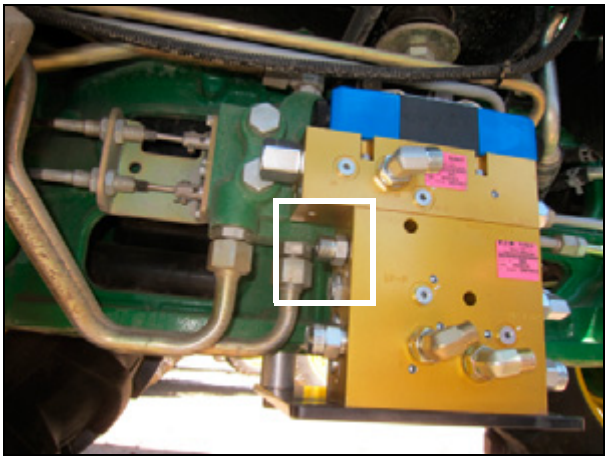
Step 4

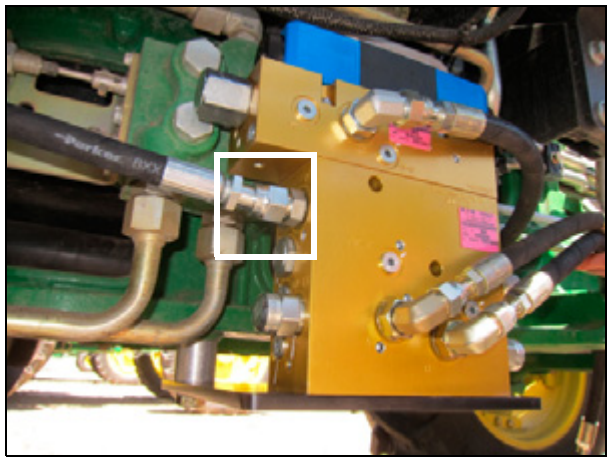
Install the provided -6-8 90° ORFS-ORB fitting into the B port. The orientation of the fitting can be set once the hoses are connected.



Step 5

For an external frame mount installation, install the provided -8 ORS straight fitting into the P port.

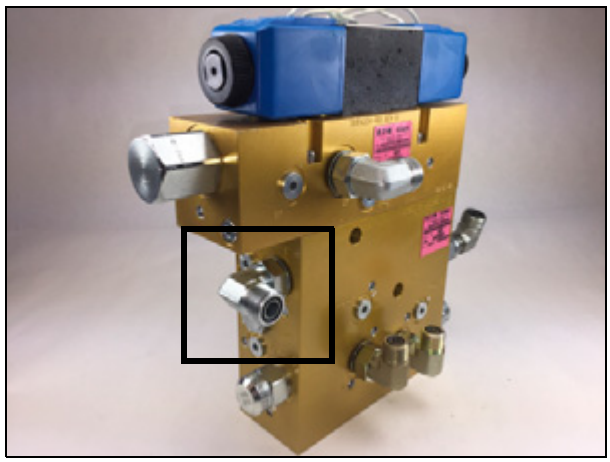


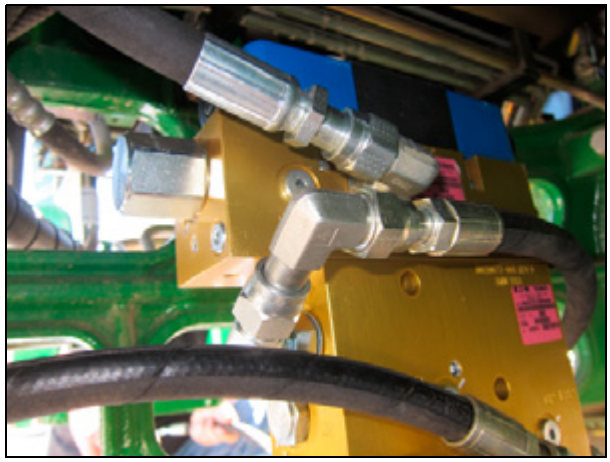


Step 6

For an internal frame mount installation, install the provided -8 ORS 90° fitting into the P port.

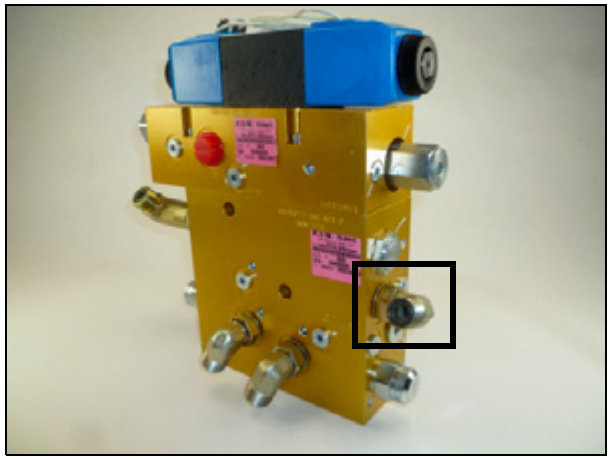
Then install the swivel 90° fitting onto the 90° fitting on the P port and orientate the fitting approximately to the position as shown here.





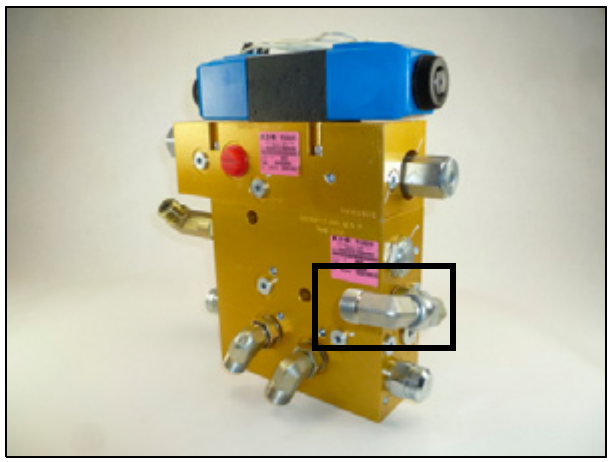
Step 7

Install the provided -8 90° ORFS fitting into the T port. The orientation of the fitting can be set once the hoses are connected.



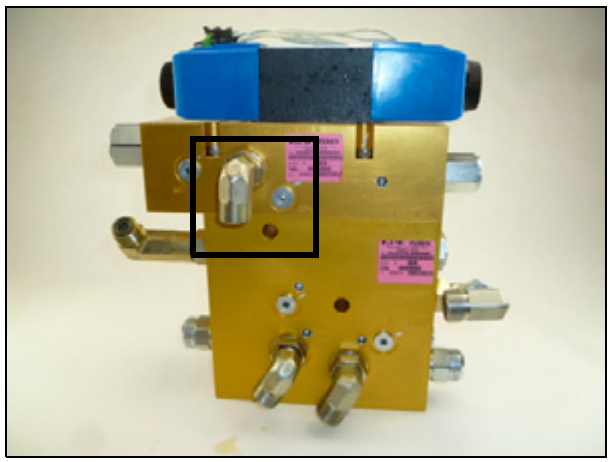
Step 8

Optional. You may install a 90° swivel fitting on the fitting installed in the previous step to route the hose.



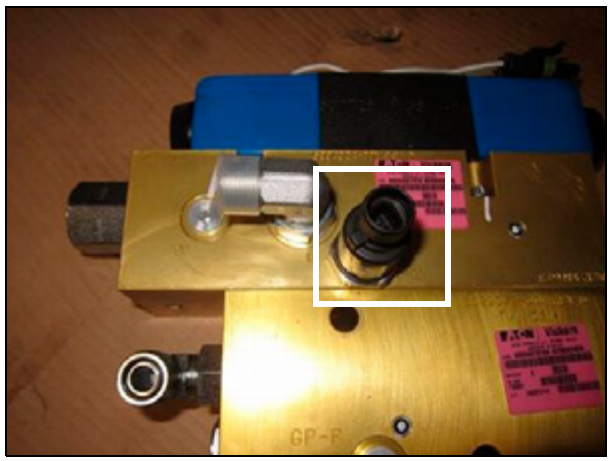
Step 9

Install the provided -8 90° ORFS fitting into the EF port. The orientation of the fitting can be set once the hoses are connected.



Step 10

Remove the plug from the GP-EF port and then install the provided manual override pressure transducer into that port.



Mounting the hydraulic manifold

Step 1

The Autopilot manifold will be mounted behind the stairs on the right side of the vehicle.

There are two mounting options:

- For machines without fuel tanks, inside (between) or outside the frame rails.
- For any machine, outside the frame rails.



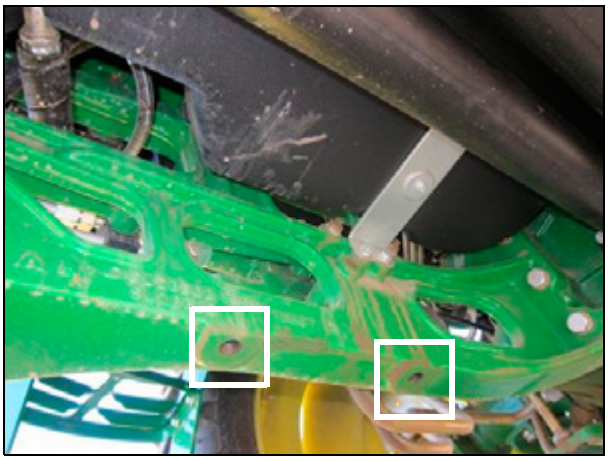
If the machine has a fuel tank like the one shown here, the Autopilot manifold must be mounted outside the frame rails.



Step 2

Locate the two Autopilot bracket mounting holes on the base of the frame rail.

Remove the plastic plugs from the mounting holes.



Step 3

Determine the best mounting position for the manifold. Use the provided hardware to mount the manifold mounting plate to the machine.

Spacers and longer bolts have been provided for external frame mount configurations if required.



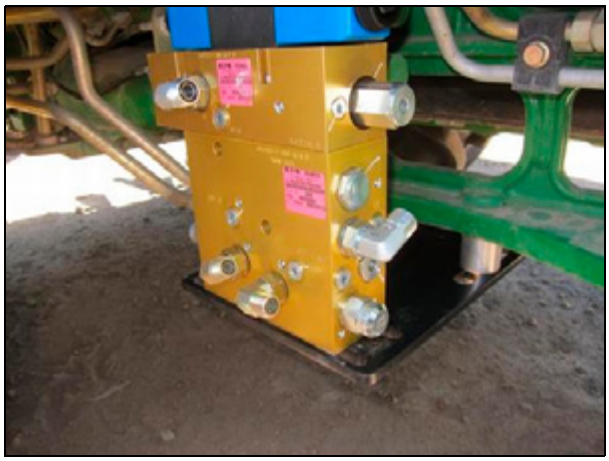
Outside mounting

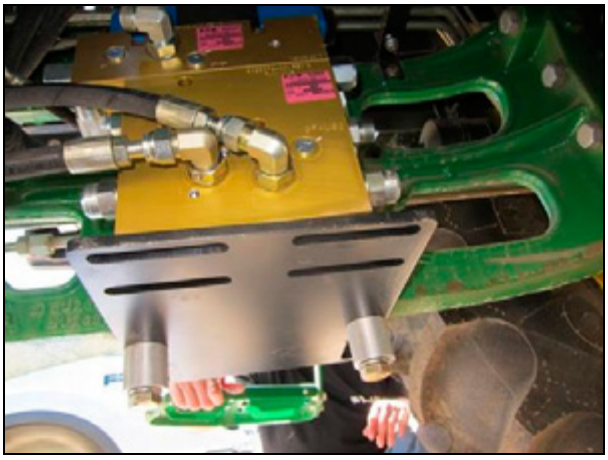


Inside mounting

Step 4

Use the provided ⅜'' bolts and washers to attach the manifold to the manifold mounting plate.





Hydraulic connections on the machine

Pressure. EF. and Tank connections: 2012 machines and later

⚠ **CAUTION –** Make sure that the installed hoses do not touch any hot or moving components.

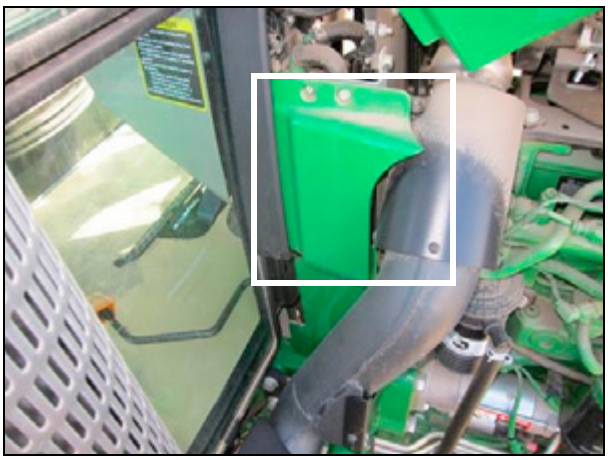
Step 1

The pressure, EF, and Tank lines connect to the hand pump.



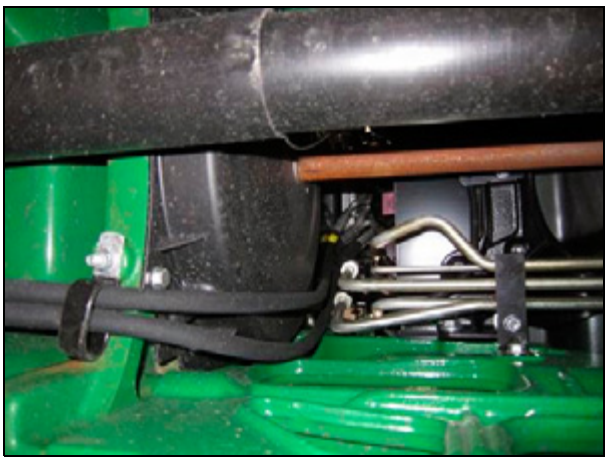
On machines with fuel tanks you must remove the panel indicated here to access the lines.

This document describes how to connect lines from underneath the machine. This can be done on machines without a fuel tank or on machines with the fuel tank where the tank is removed temporarily.



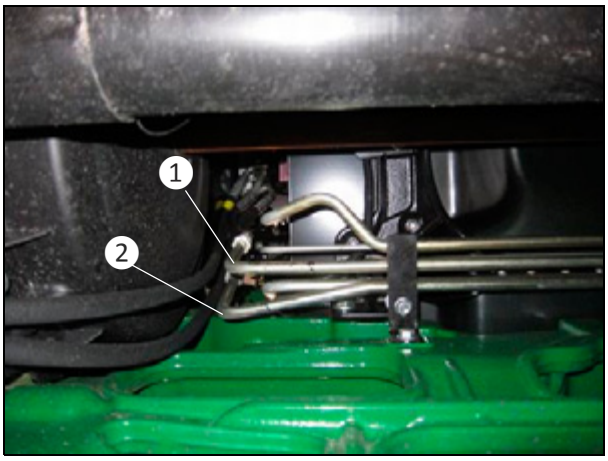
Step 2

This photo, taken from below looking up, shows the hand pump connection on the hydraulic lines.



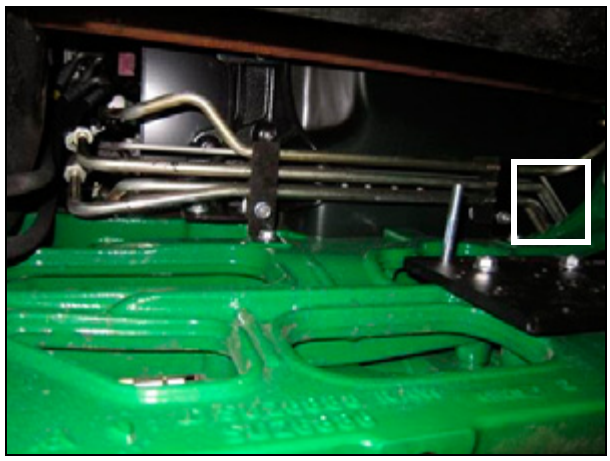
Locate and label the lines:

- Pressure ❶
- Tank ❷

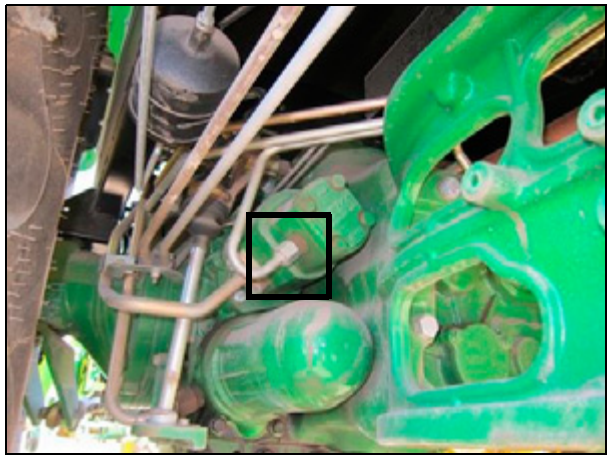


Step 3

Trace the line labeled **Pressure** back and then locate the steering pump.

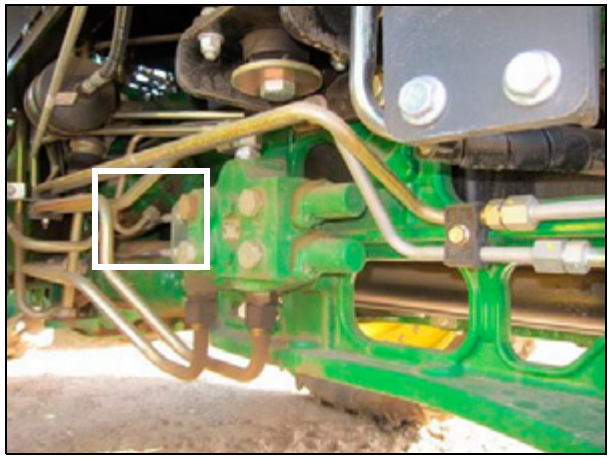


In the next steps the Autopilot P line will be connected at the location shown here.



Step 4

This photo shows the pump connection on a machine with a center fuel tank.



Disconnect the connection at the pump.



Step 5

Disconnect the pressure line at its location near the hand pump.

Trimble recommends that you either remove the hard line from the machine or install caps to seal the ends of the line so that, if it is used in the future, it is not filled with contaminants.



Step 6

⚠ **CAUTION –** Make sure that the installed hose does not touch any hot or moving components.

Connect the Autopilot P line to the pump where the hard line was removed previously.

Route the other end of the line to the P port on the Autopilot manifold.



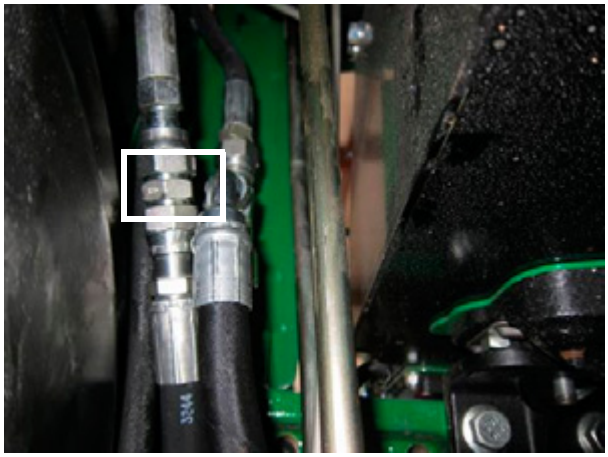
Step 7

⚠ **CAUTION –** Make sure that the installed hose does not touch any hot or moving components.

Connect the male end of the EF line to the location near the hand pump where the machine's hard line was disconnected previously.

Route the other end of the line to the EF port on the Autopilot manifold.

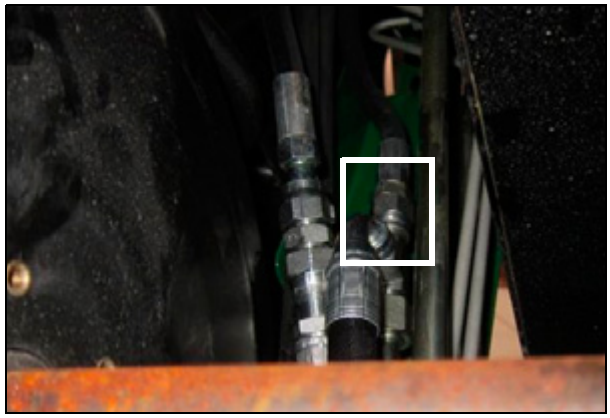




Step 8

Disconnect the connection where the hose from the hand pump meets the hard tank line.

Assemble the provided run tee fitting between the two lines.

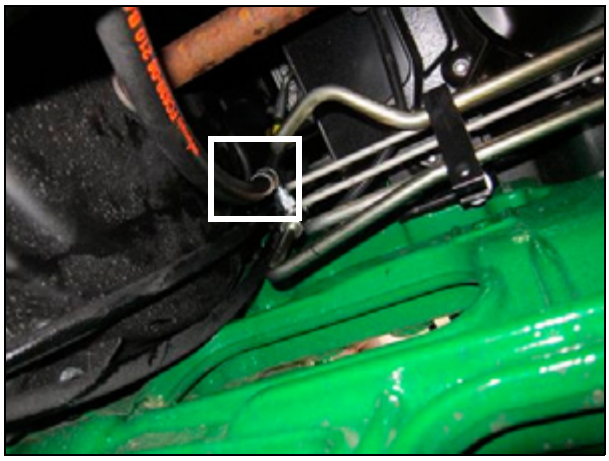


Step 9

⚠ **CAUTION –** Make sure that the installed hose does not touch any hot or moving components.

Connect the 90° end of the T line to the branch on the run tee fitting and then route the line back to the T port on the Autopilot manifold.





Late model pressure, EF, and tank connection point / pre 2012 models

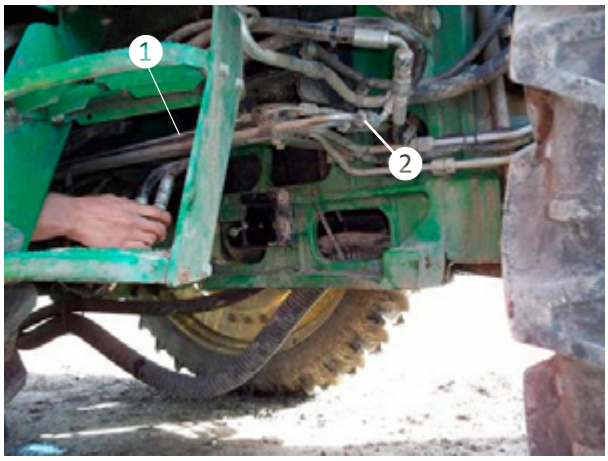
Step 1

On late model machines the pressure and tank connections points are located under the right side of the cab.



Locate and label the lines:

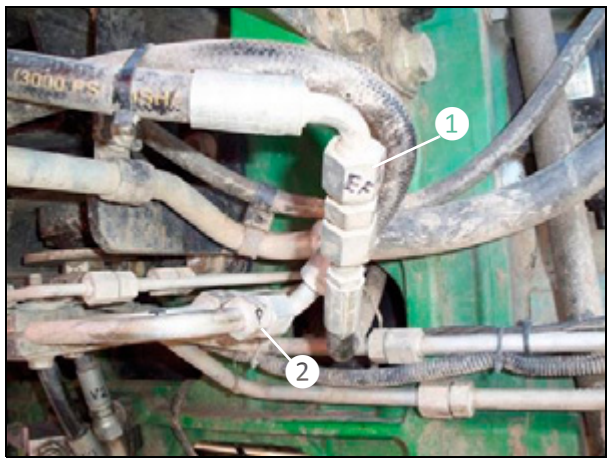
- Pressure (outer line) ❶
- Tank (inner line) ❷



Step 2

Disconnect and remove the pressure hard line. The Autopilot P line ❷ connection will connect at the pump while the Autopilot EF line ❶ will connect to the hose connection here (shown with a 90° hose end while a straight end is provided).

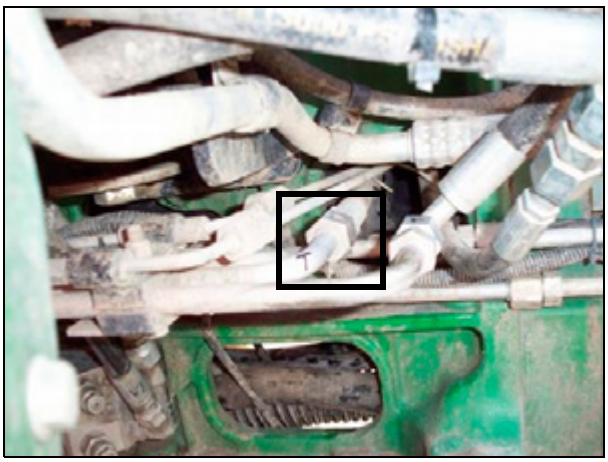
Trimble recommends that you either remove the hard line from the machine or install caps to seal the ends of the line so that, if it is used in the future, it is not filled with contaminants.



Step 3

For the tank line, disconnect the hard line from the soft line and then install the provided run tee fitting between the lines.

Connect the Autopilot T line to the branch of the run tee fitting and route the other end of the line to the T port on the Autopilot manifold.



A and B connections on the machine (all machines)

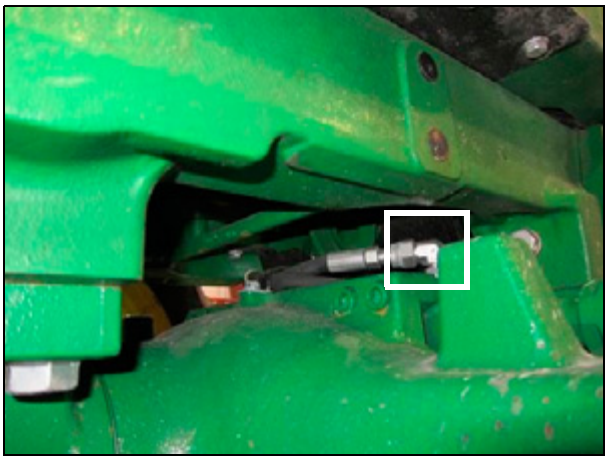
Step 1

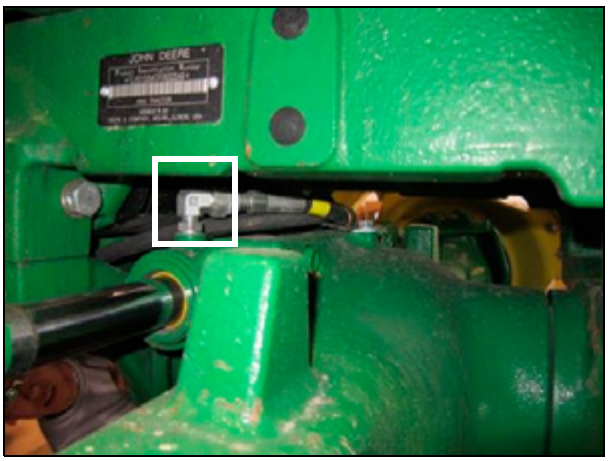
⚠ **CAUTION –** Make sure that the installed hoses do not touch the frame as the axle pivots right or left.

The A and B line connections points are made at the front axle.

As space is tight in this location, the procedure given here is only one possible way that you can use to assemble the Autopilot hoses to the existing lines.

Extra fittings are provided so that the installer can determine the best fit on the machine.





Step 2

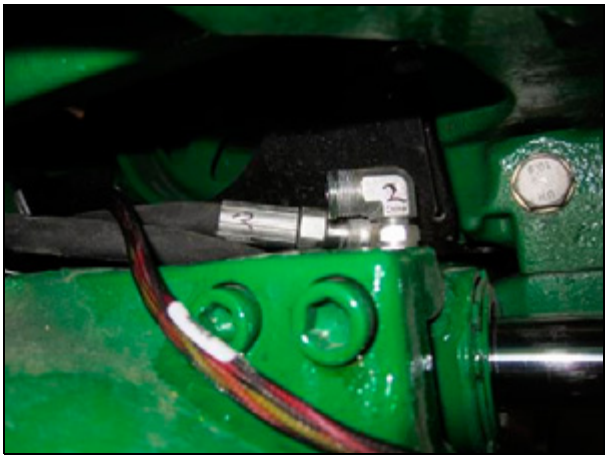
Remove the clip holding the lines to the front axle. This allows you to reposition the lines for mounting the Autopilot A and B lines.





Step 3

On the left side of the machine disconnect the machine's steering line.

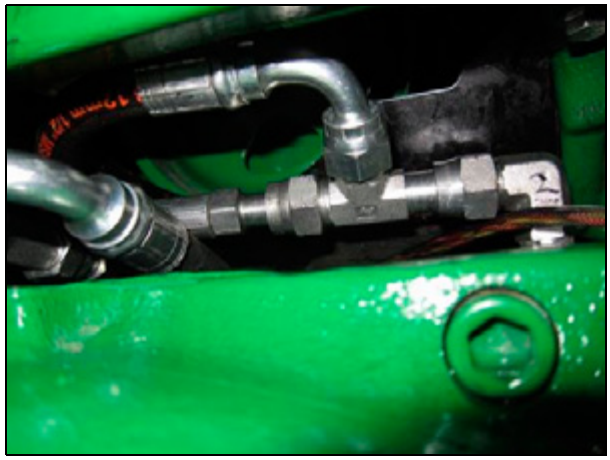


Step 4

⚠ **CAUTION –** Make sure that the installed hoses do not touch the frame as the axle pivots right or left.

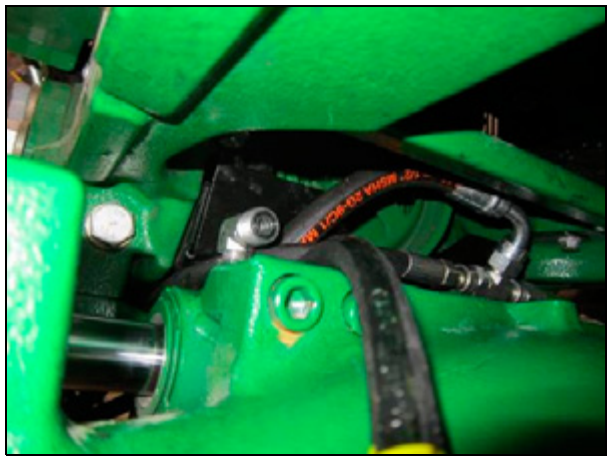
Connect the 90° end of the Autopilot B line to the branch of the run tee fitting as show.

An extra swivel 90° fitting is provided to help when connecting the hoses.



Step 5

Disconnect the machine hose on the cylinder and then rotate the fitting on the cylinder forward.



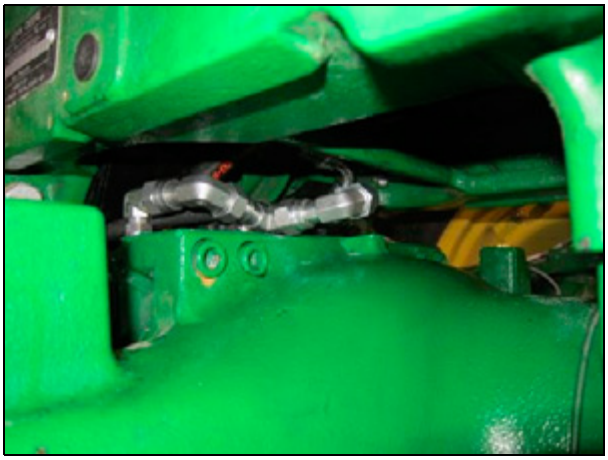
Step 6

On the hose that was removed from the cylinder, assemble the provided branch tee fitting swivel 90° fittings as shown.



Step 7

Connect the assembly to the fitting on the cylinder.

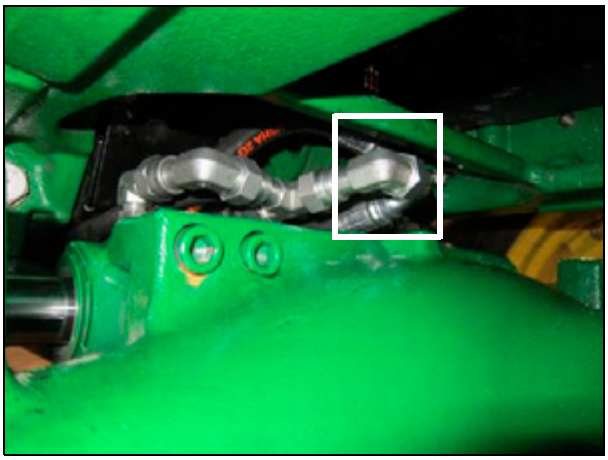


Step 8

⚠ **CAUTION –** Make sure that the installed hoses do not touch the frame as the axle pivots right or left.

Connect the 90° end of the Autopilot A line to the swivel 90° fitting.

An extra run tee fitting is provided to help when connecting the hoses.



Hydraulic connections at the valve

Outside frame mounting / machines with fuel tanks inside frame rails

⚠ **CAUTION –** Make sure that the installed hoses do not touch any hot or moving components.

Step 1

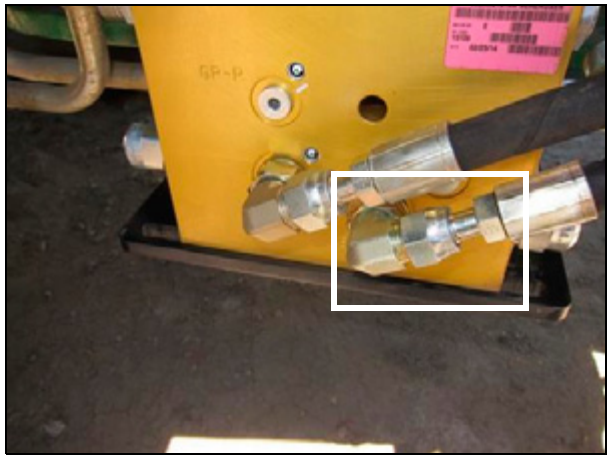
Route the A and B lines from the connection at the front axle to the Autopilot manifold.

Connect the A line to the 90° fitting on the A port of the Autopilot manifold.



Step 2

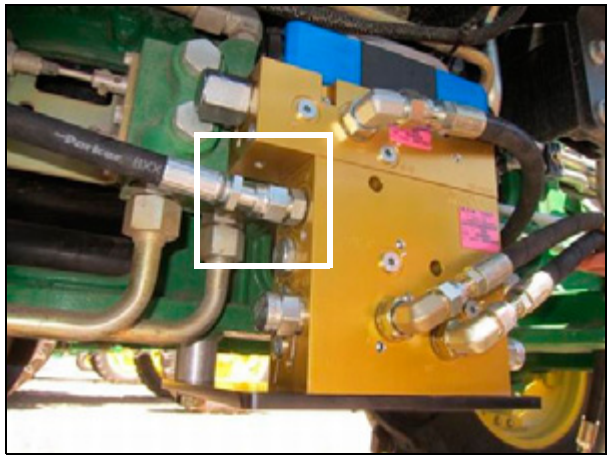
Connect the B line to the 90° fitting on the B port of the Autopilot manifold.



Step 3

Route the P line from the pump to the P port on the Autopilot manifold.

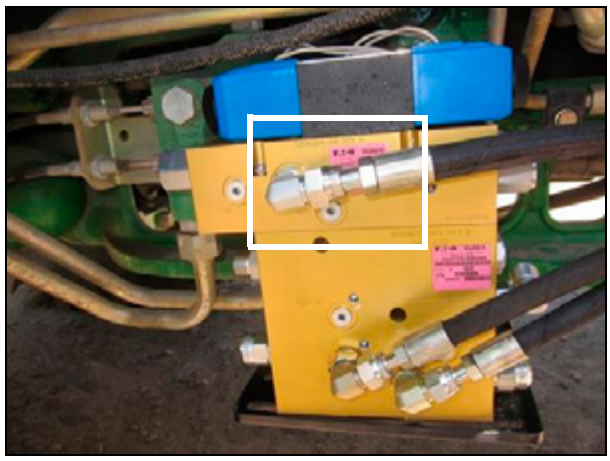
Connect the line to the straight fitting on the P port of the manifold.



Step 4

Route the EF line from the EF connection point near the hand pump to the EF port on the Autopilot manifold.

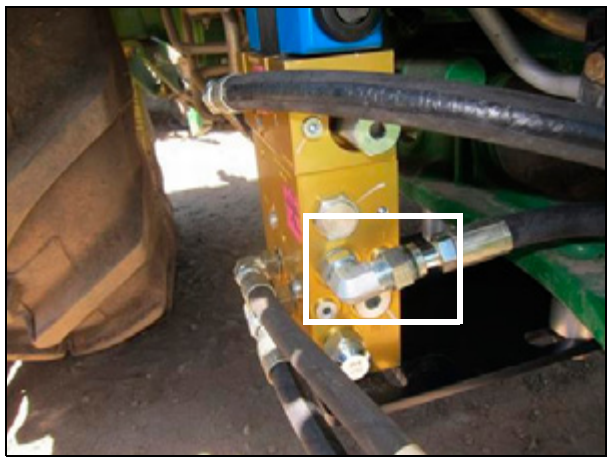
Connect the line to the 90° fitting on the EF port of the manifold.



Step 5

Route the T line from the T connection point near the hand pump to the T port on the Autopilot manifold.

Connect the line to the 90° fitting on the T port of the manifold.



Inside frame mounting / machines without fuel tanks inside frame rails

⚠ **CAUTION –** Make sure that the installed hoses do not touch any hot or moving components.

Step 1

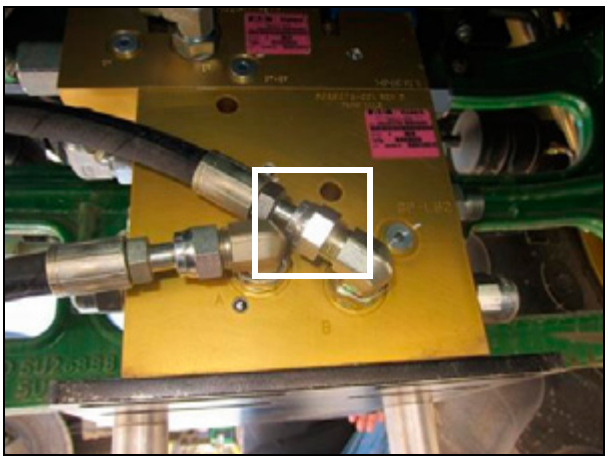
Route the A and B lines from the connection at the front axle to the Autopilot manifold.

Connect the A line to the 90° fitting on the A port of the Autopilot manifold.



Step 2

Connect the B line to the 90° fitting on the B port of the Autopilot manifold.



Step 3

Route the P line from the pump to the P port on the Autopilot manifold

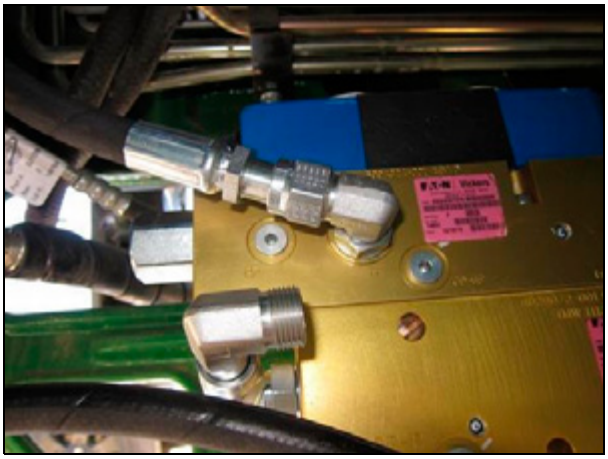
Connect the provided 90° swivel fitting to the 90° fitting on the P port of the manifold and then connect the straight end of the P hose.



Step 4

Route the EF line from the EF connection point near the hand pump to the EF port on the Autopilot manifold.

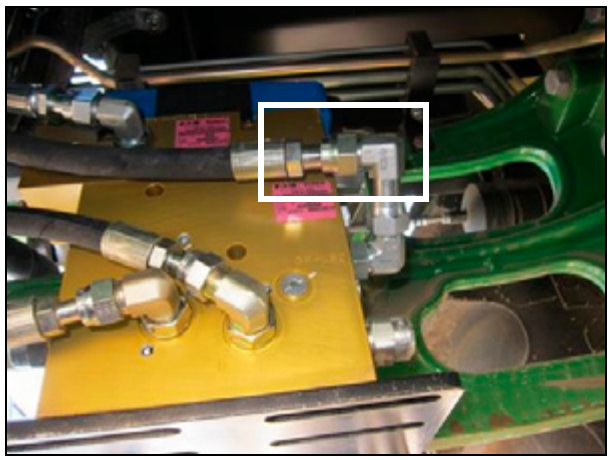
Connect the line to the 90° fitting on the EF port of the manifold.



Step 5

Route the T line from the T connection point near the hand pump to the T port on the Autopilot manifold.

Connect the provided 90° swivel fitting to the 90° fitting on the T port of the manifold and then connect the straight end of the T hose.



Step 6

⚠ **CAUTION –** Make sure that the installed hoses do not touch any hot or moving components.

Connect the valve cabling to the valve.

Connect the manual override pressure transducer cabling.

Route the cables to the NavController harness.



Checking the hydraulics

1. Make sure that all the hydraulic connections are tight.
2. Check the oil level in the hydraulic tank. If necessary, top it up.
3. Check for hydraulic leaks. Connect the battery and then start the machine. Once you complete the leak check, disconnect the battery.

3

AutoSense Steering Device Installation

- AutoSense steering device components
- Installing the AutoSense device
- Preparing the harness: P/N 54602 Rev C

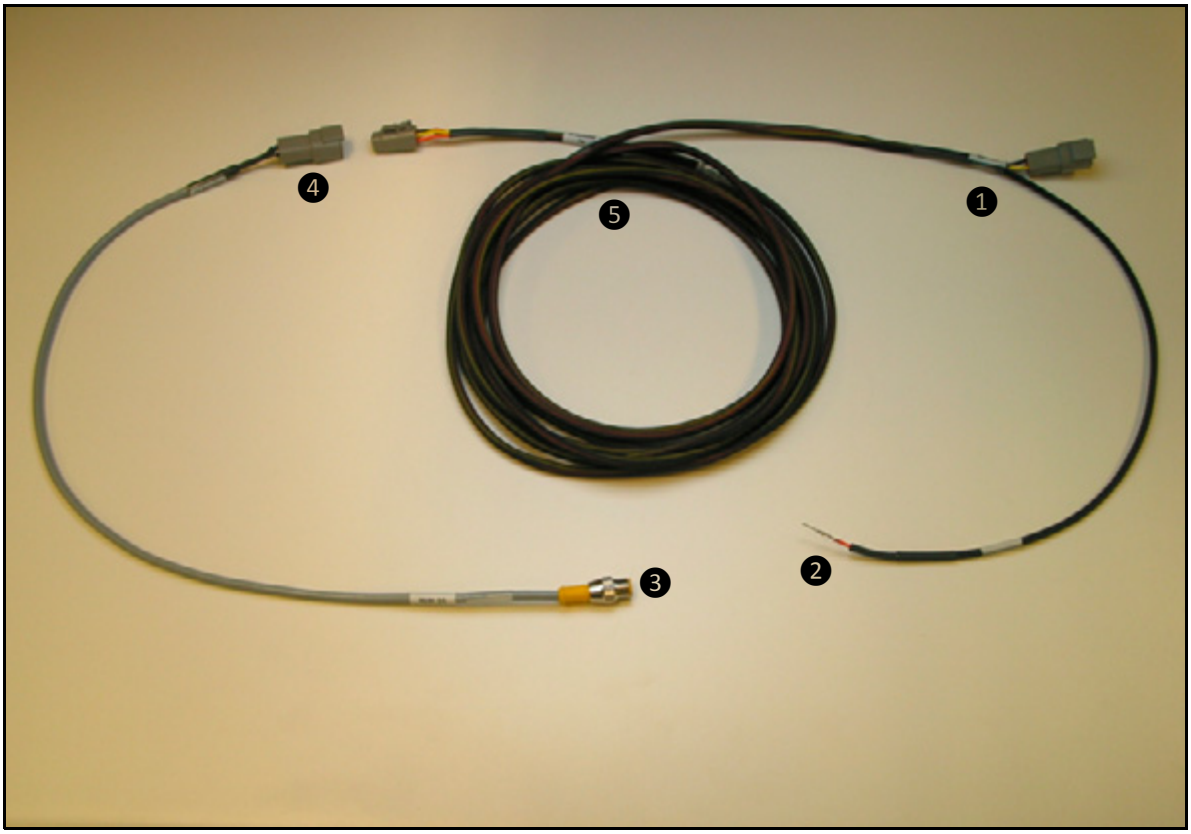
This chapter describes how to install the AutoSense™ steering device. If the required mounting location is not accessible, chose a different place. To ensure proper function, the AutoSense device must be located where it is free of obstructions and can rotate with the wheels when they turn.

On articulated vehicles, mount the AutoSense device on the opposite side of the pivot point to the Autopilot controller.

Mount the device base down or base up so that it maintains a level orientation. Do not mount it on its side. An angle of up to 10° in any direction is acceptable.

To avoid stretching the cable, leave adequate length on the service loop.

AutoSense steering device components



Item	Description	P/N
1	P-6 connector	
2	Power connector	
3	AutoSense connector	
4	Jumper cable	57560
5	AutoSense steering cable	57885

Installing the AutoSense device

⚠ **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.

Mounting option 1

Step 1

The AutoSense device will be mounted in the location shown, near the front right wheel.

You will need to thoroughly clean the mounting surface before you install the mounting plate.

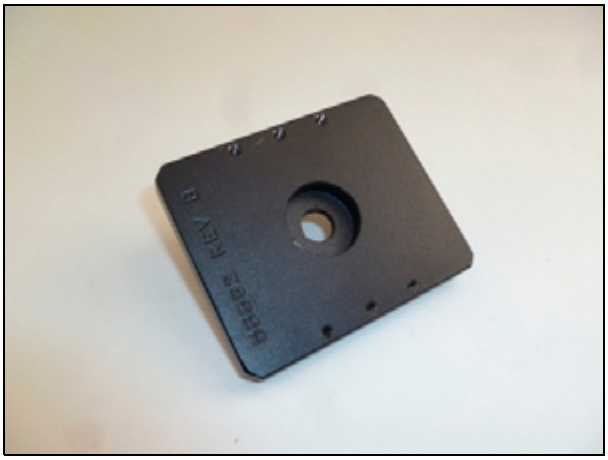


Step 2

Locate the AutoSense mounting plate, P/N 58892.

Use the provided hardware to attach the AutoSense device to the mounting plate.

Use the VHB tape on the AutoSense mounting plate to attach the plate to the machine.



Step 3

⚠ **CAUTION –** Make sure that the cable is not pinched or pulled as the wheels are steered from full right to full left and that the cabling does not contact any hot or moving components on the machine.

Attach the AutoSense cabling to the AutoSense sensor and then route the sensor wiring to the NavController II harness.



Mounting option 2

Step 1

The AutoSense device will be mounted in the location shown, near the front right wheel.



Step 2

The optional AutoSense mounting bracket, P/N 58043, is shown here.



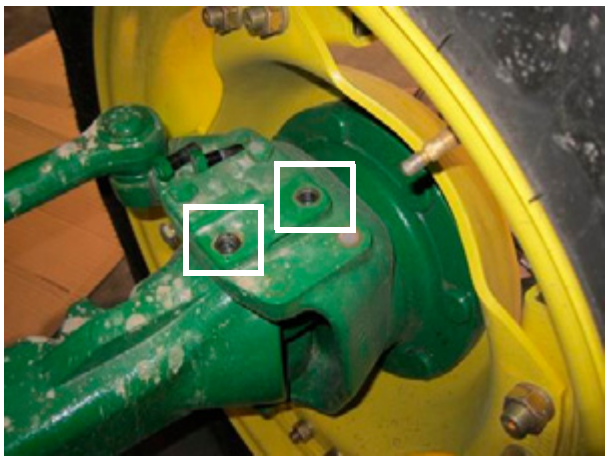
Use the provided socket screws to attach the AutoSense device to the AutoSense mounting bracket, P/N 58043.

⚠ **CAUTION –** Make sure that the cable is not pinched or pulled as the wheels are steered from full right to full left and that the cabling does not contact any hot or moving components on the machine.



Step 3

At the right front wheel locate and remove the two bolts from the bearing cap at the front hub.



Step 4

Use the bolts you removed in the previous step to attach the AutoSense mounting plate to the machine as shown.



Step 5

⚠ **CAUTION –** Make sure that the cable does not touch any hot or moving components on the machine.

Connect the Autosense device cabling to the Autosense device and then route the cabling to the NavController.

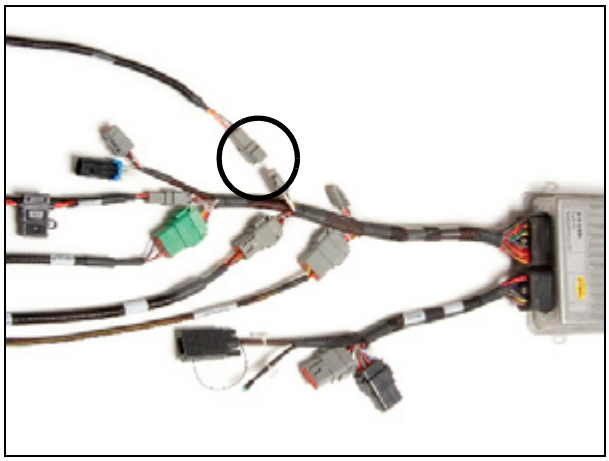
Be sure the cable does not contact any hot or moving components.



Step 6

Plug the steering sensor cable to P6 on the Autopilot controller main wiring harness.

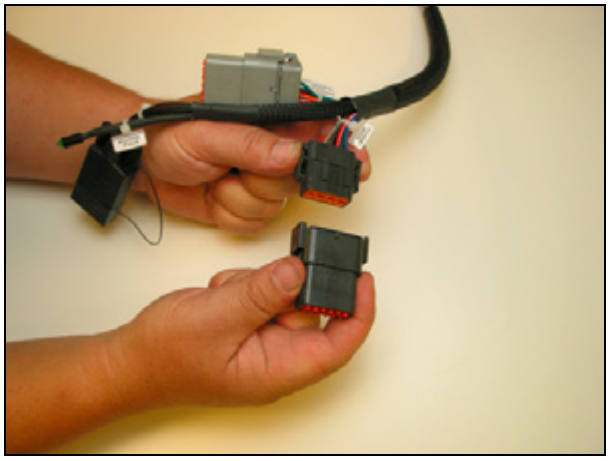
The P6 connector is labeled **Steering Sensor**.



Preparing the harness: P/N 54602 Rev C

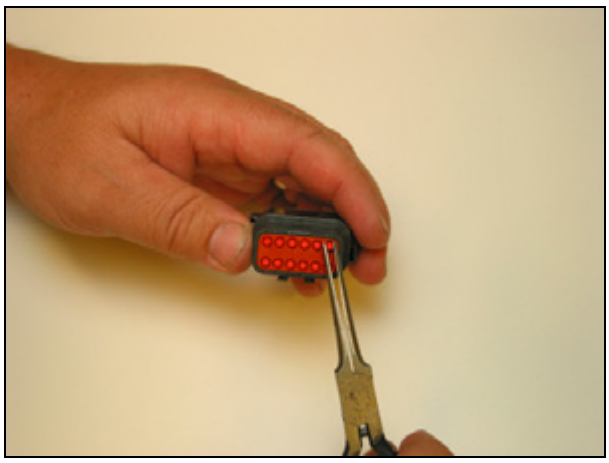
Step 1

Remove the black Deutsch DTM receptacle from the P13 sensor's leg of the auxiliary harness. See Chapter 8, Controller Installation.



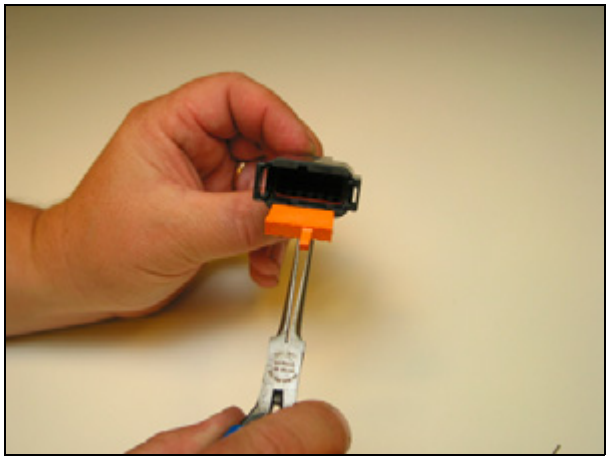
Step 2

Remove the plug from cavity number 1.



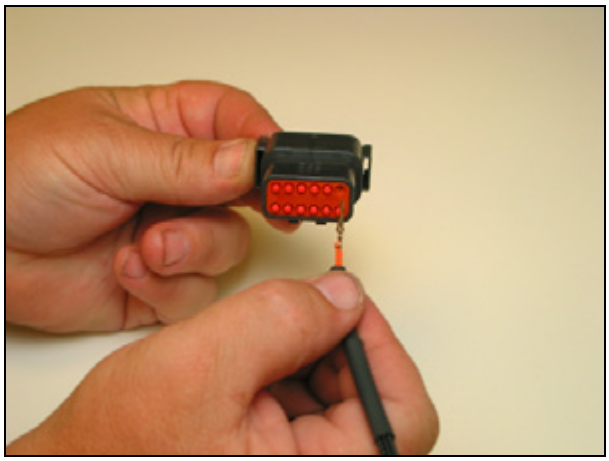
Step 3

Remove the wedge from the connector.



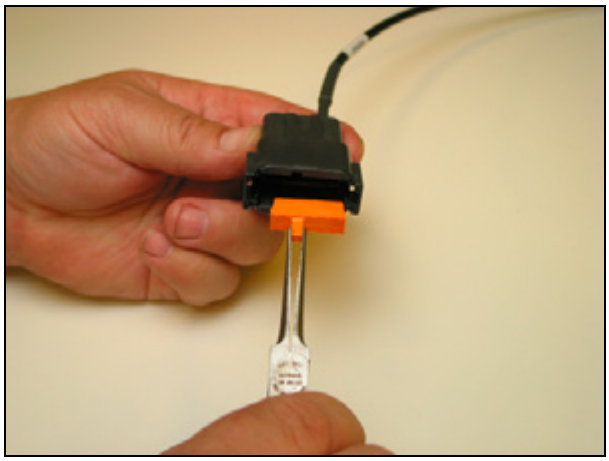
Step 4

Insert the DTM pin labeled **Cavity 1** into the connector.



Step 5

Pull back on the wire to seat the pin. Replace the wedge in the connector.



Step 6

Plug the assembled Deutsch receptacle into the P-13 sensors leg of the Autopilot controller auxiliary harness. See Chapter 8, Controller Installation.

4

Antenna/Receiver Installation

- Antenna and receiver installation options
- Mounting an adjustable spar to roof bolts
- 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 the display, see Chapter 5, 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:

- **Spar mount** – This bracket mounts directly to the roof bolts and is required for all high accuracy applications such as RTK and OmniSTAR. Trimble recommends this method for mounting an AG-372 receiver. Bolt a metal spar to the roof or to a light bracket and then attach either a V plate for magnetic mounting or an AG-372 receiver plate for permanent mounting.
- **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 47.
- **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	AG-15/AG-25/Zephyr/ AG-372 bolted to spar mount
CFX-750 display FmX integrated display TMX-2050 display	✓	✓	✓
AG-372 receiver	✘	✓	✓
Trimble®AgGPS® 542 receiver	✓	✓	✓

NOTES

- For quick release magnetic mounting with an AG-372 receiver, order the kit listed in Antenna mounting kits, page 9 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.

Mounting an adjustable spar to roof bolts

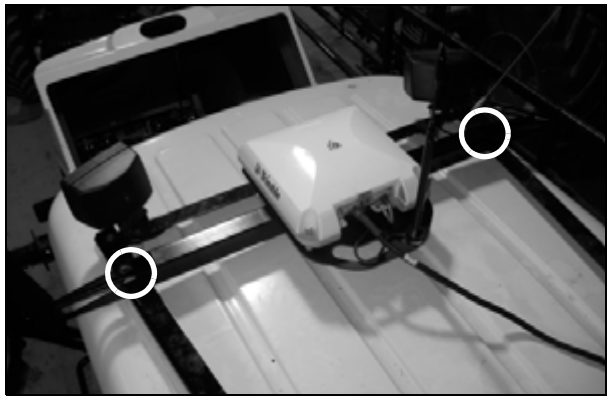
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information.

Step 1

Position the cab bolts on the roof of the vehicle.



If a light bracket already occupies the roof studs, mount the spar directly onto the light bracket.



Step 2

If required, replace the existing bolts with longer bolts.



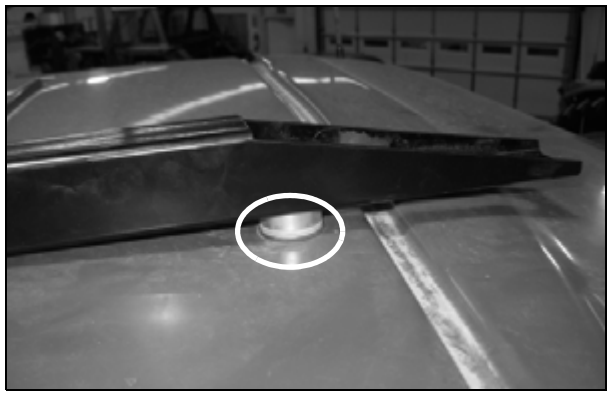
If you use the light bracket, drill two holes to match the spar width.



Step 3

Use the slotted holes to center the spar and then tighten the bolts. If required, use the spacers and flat washers provided to secure the spar.

NOTE – If the receiver is offset to the left or the right of the vehicle, Autopilot system performance may be affected. Before you tighten the cab bolts, make sure that the GNSS antenna is aligned with the center of the vehicle.



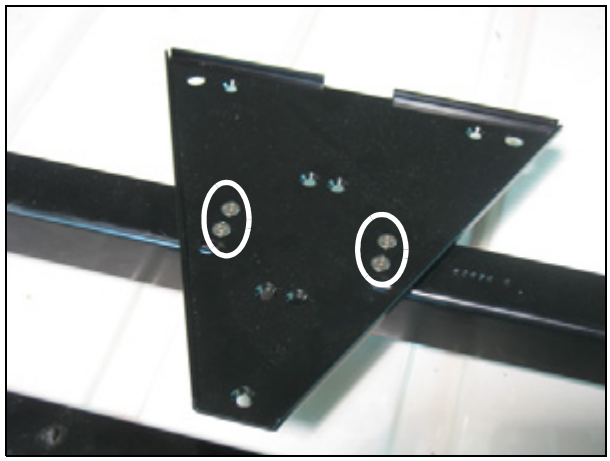
Step 4

For either of the following applications:

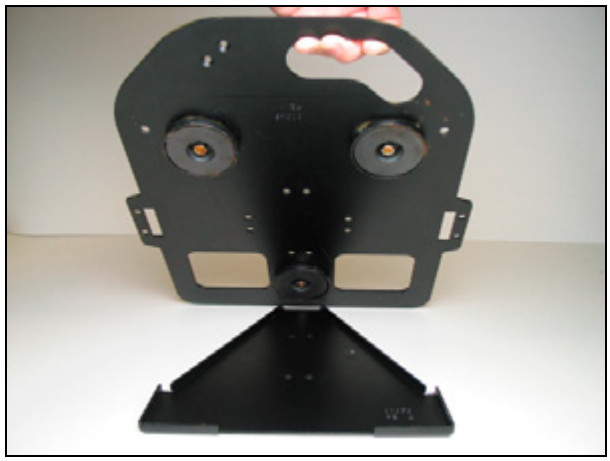
- A single magnet antenna mount
- An AG-372 receiver with magnetic option for quick removal

Attach a V plate with four ¼" flathead screws.

The narrow end points to the front of the vehicle.



V plate on the spar



Magnetic mount on the V plate

If you use a standard AG-372 plate for permanent mounting, install the radio antenna first. Use four ¼" flathead screws to attach the plate, with the handle toward the back of the vehicle.

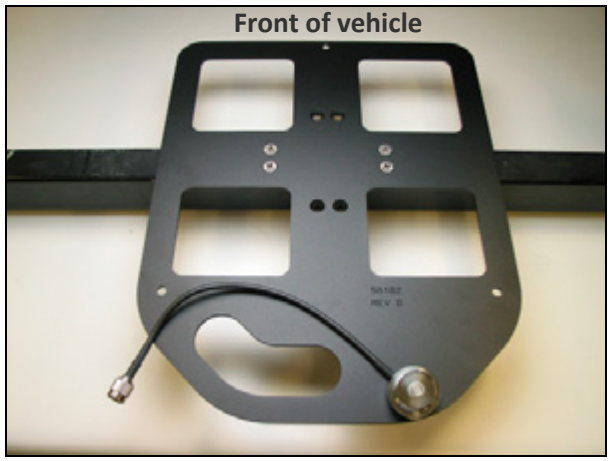


Plate on the spar

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.

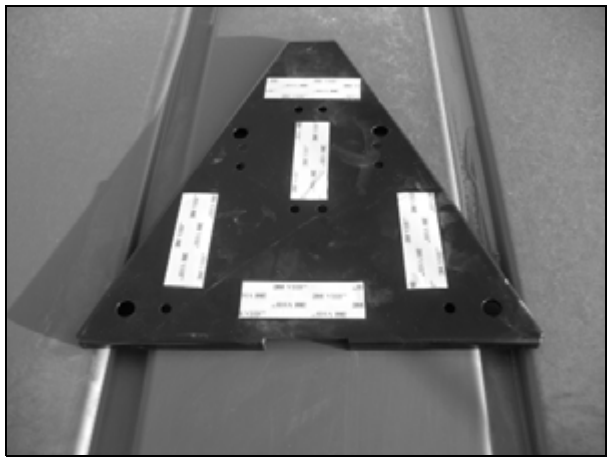


Step 2

V plate only

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

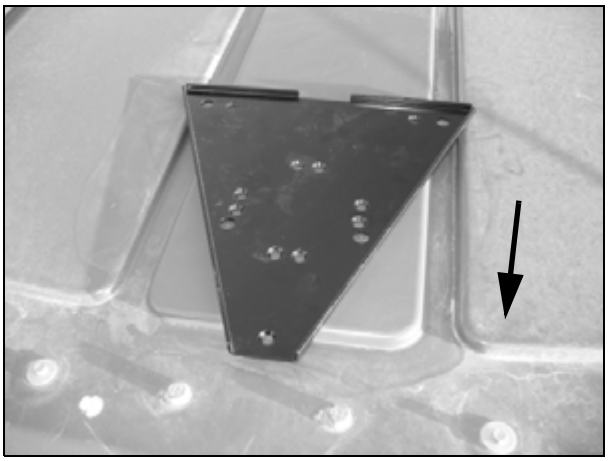
NOTE – The VHB strips are pre-applied to the P/N 62034 plate.



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.

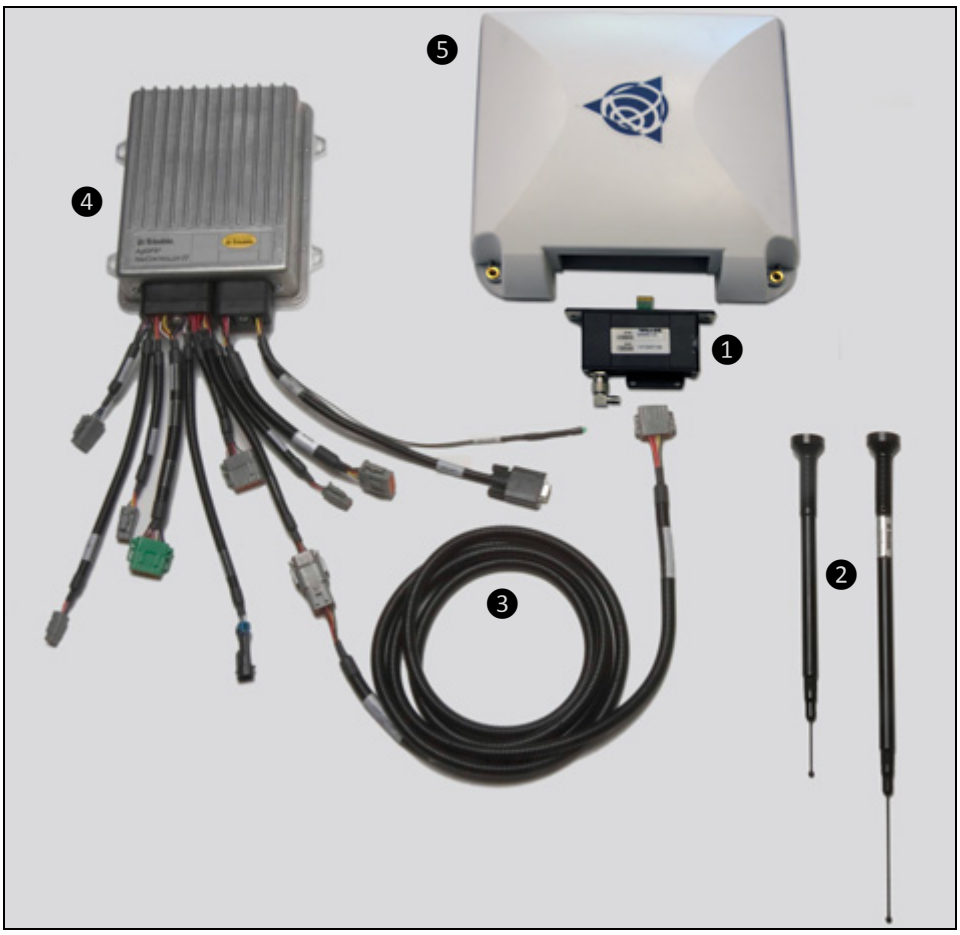


V plate



P/N 62034

AG-372 receiver with AgGPS 450/900 radio module (if equipped) components



Item	Description	Trimble part number
1	AgGPS 450 or 900 radio (if equipped)	
2	Radio antenna cable and magnetic mount	
3	AgGPS 450 or 900 radio antenna	
4	Antenna/receiver cable	54608
5	Autopilot controller	

Installing the AG-372 GPS receiver with AgGPS 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, do one of the following:

- For a removable installation, attach a V plate to a spar and then stick the receiver plate to the V plate with magnets.
- For a permanent installation, bolt the receiver plate to a spar.

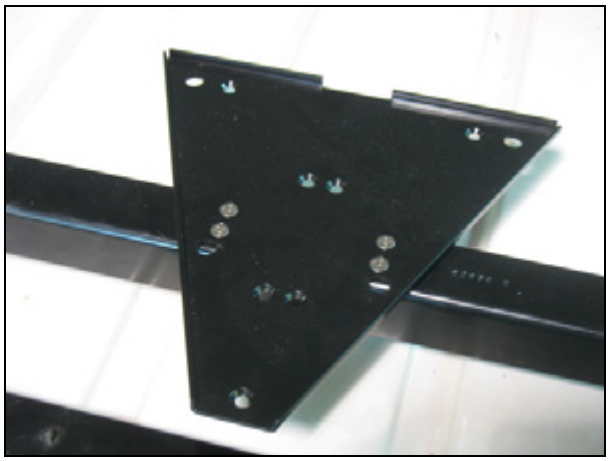
Removable installation

Step 1

V plate

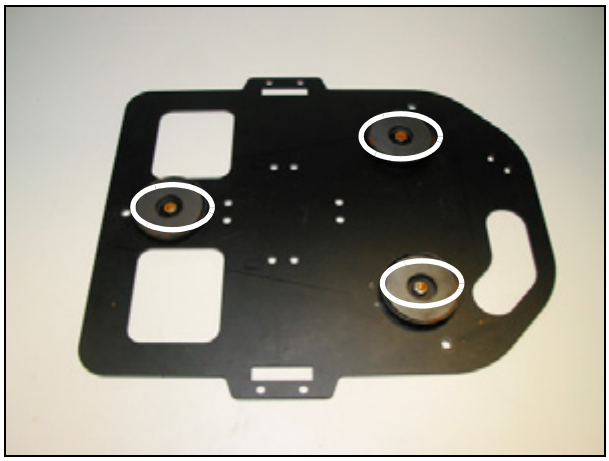
Attach the V plate to the spar using the ¼" flathead screws provided in the V plate bolt kit. Ensure that the narrow end points forward.

For spar mounting instructions, see page 44.



Mounting plate

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



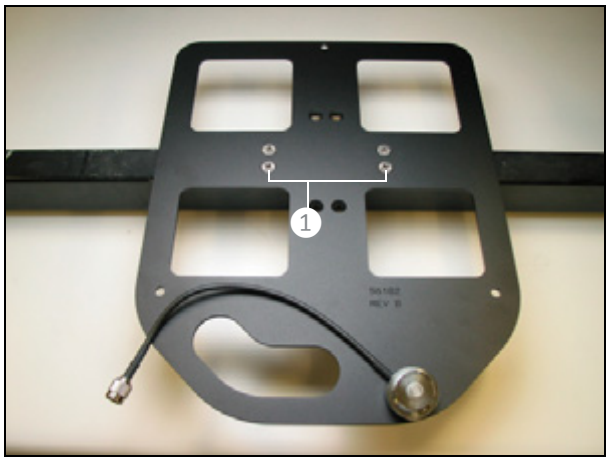
Underside of plate

Permanent installation

Step 1

Use the four provided ¼" flathead screws ❶ to attach the receiver mounting bracket to the spar.

For spar mounting instructions, see page 44.



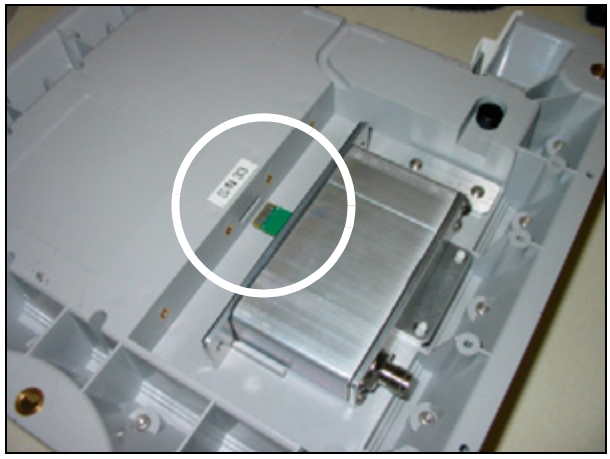
Step 2

Remove the blanking plate and set it aside.



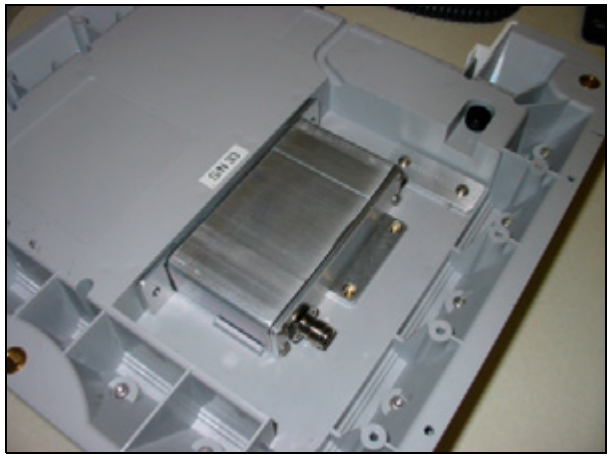
Step 3

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.



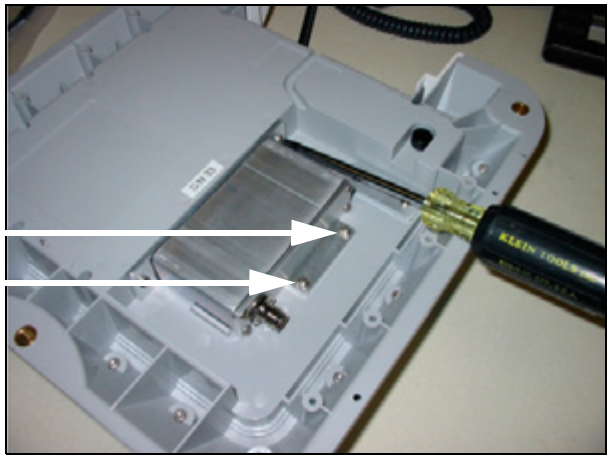
Step 4

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



Step 5

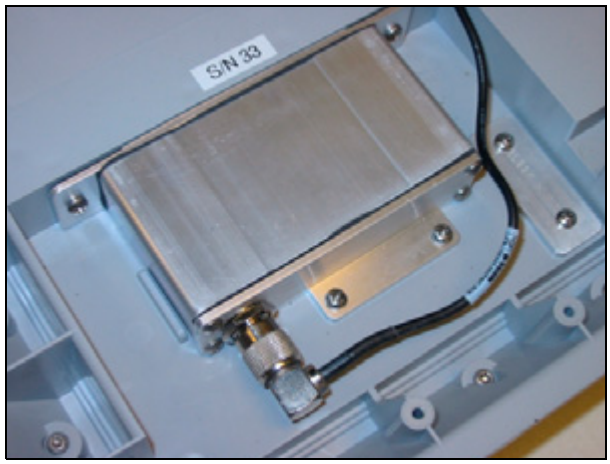
Use a #1 or #2 Phillips screwdriver and the supplied screws to install the integrated radio. First insert and tighten the two screws on the horizontal wall (arrowed), and then insert the remaining screws.



Step 6

Install the supplied antenna cable.

NOTES The housing can accommodate a cable diameter of up to ¼".

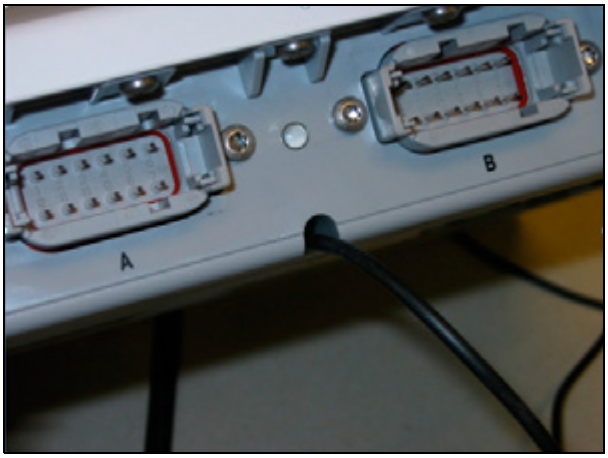


Step 7

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

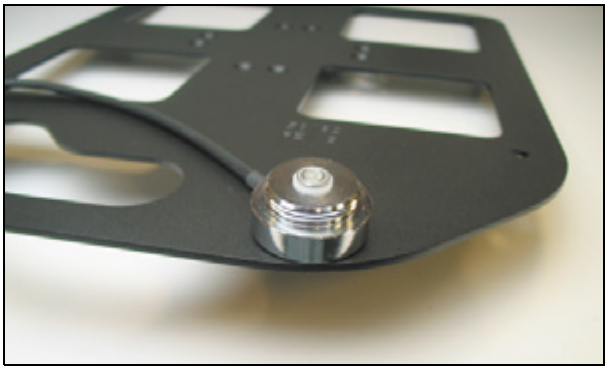


This image shows the unit with the cable routed through the channel.



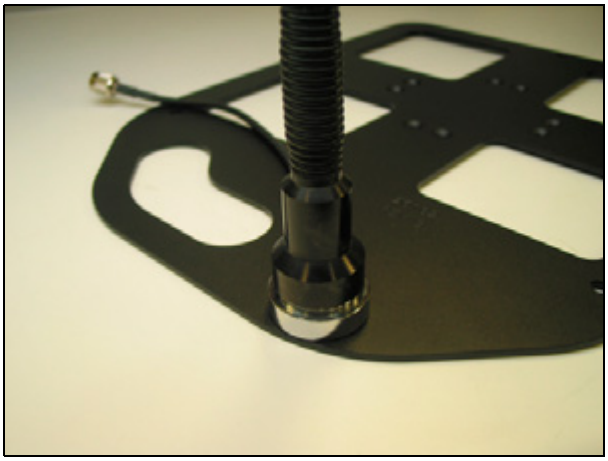
Step 8

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



Step 9

Attach the radio antenna to the antenna base.



Step 10

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.



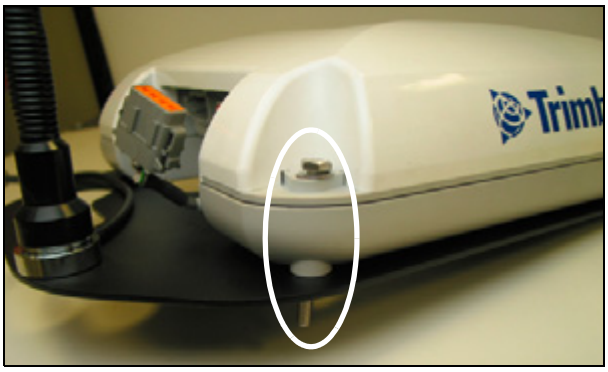
Step 11

Insert the nylon bushings provided.



Step 12

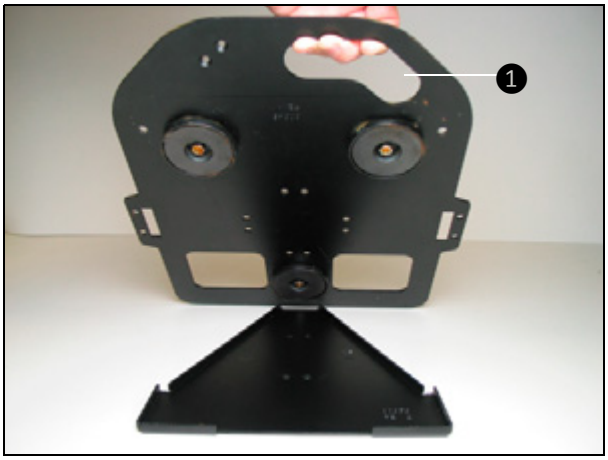
Insert the bolts through the receiver, radio, and mounting bracket. Place nuts on the bolt ends and then tighten them.



Step 13

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.

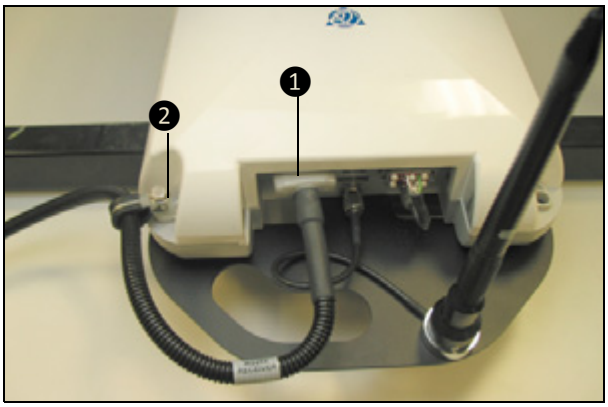


Step 14

Both methods

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

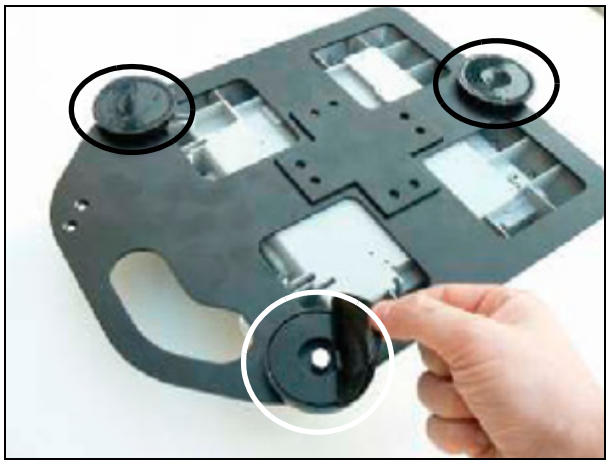
Attach the magnets to the receiver mounting plate. Use the three ¼" bolts to mount the AG-372 receiver.

Place the nuts on the receiver side.



Step 2

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

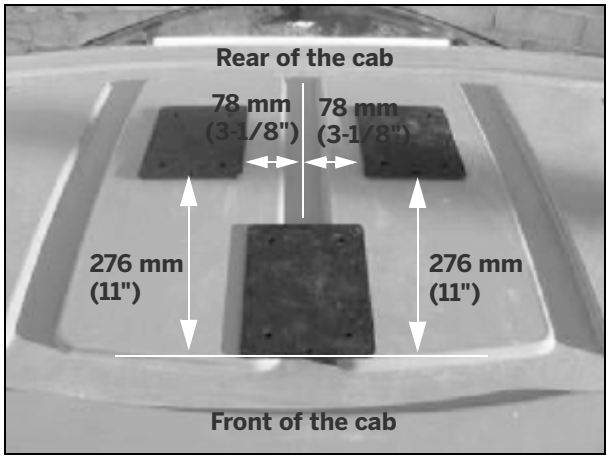


Step 3

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

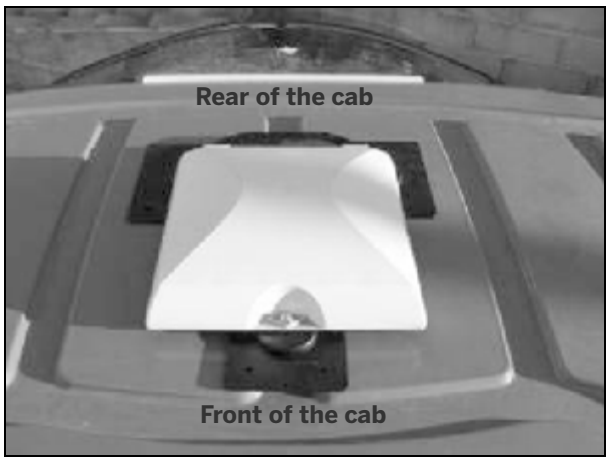
Remove the backing from the VHB strips and then apply the plates to the cab roof.

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.

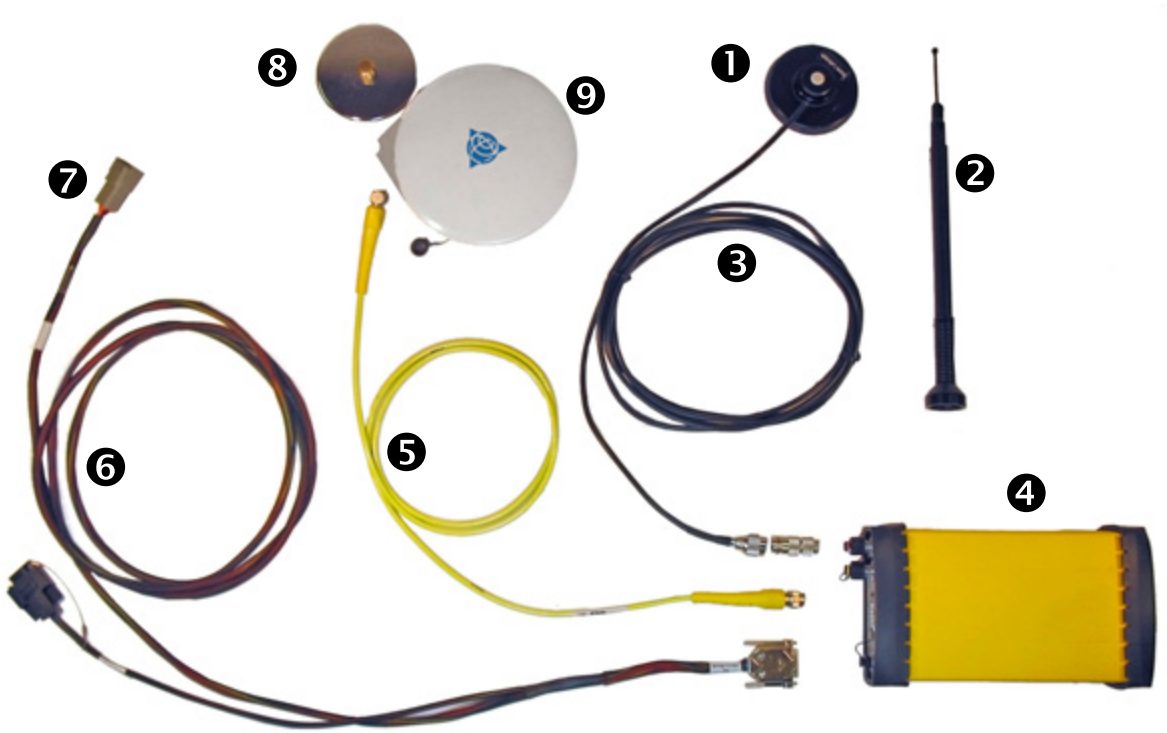


Step 5

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



AgGPS 542 receiver components



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

Installing the AgGPS 542 receiver

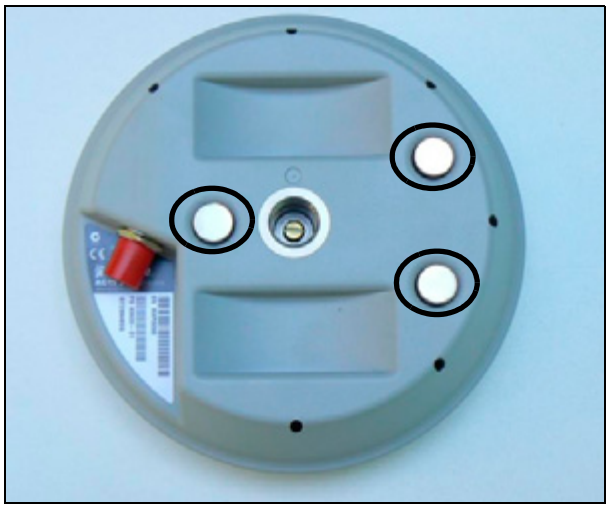
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information chapter.

Step 1

Attach the large magnet with a ⅝" 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

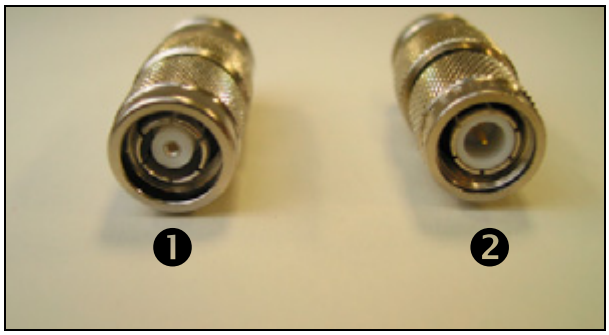
Mount the receiver in a convenient location in the cab. Route the antenna cable to the receiver and then connect it.



Step 5

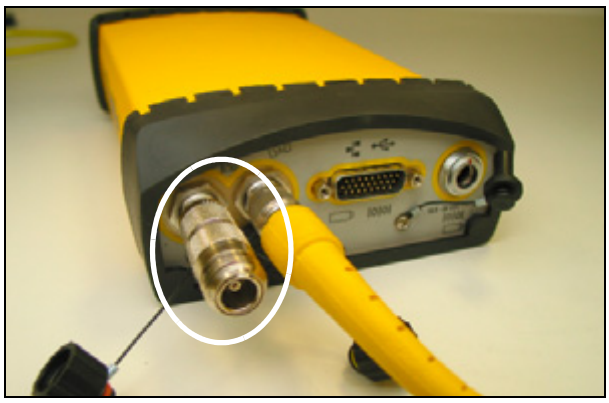
Identify the correct adaptor for the radio connection:

- 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 8, 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.



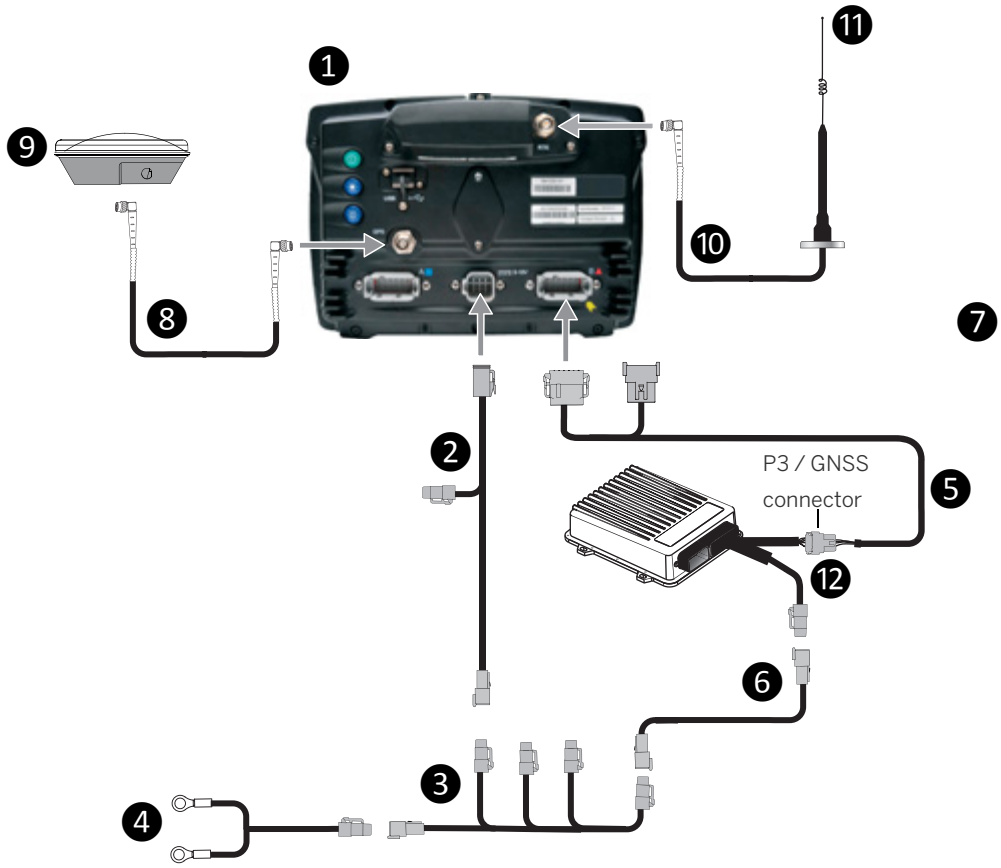
5

Display Installation

- CFX-750 display: Components
- CFX-750 display: Preparation
- CFX-750 display: Installation
- CFX-750 display: Installing the wiring harness
- FmX integrated display: Components
- FmX integrated display: Preparation
- FmX integrated display: Installation
- 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
- TMX-2050 display: Components
- TMX-2050 display: Preparation
- TMX-2050 display: Installing the wiring harness

This chapter describes how to install and connect the Trimble 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
1	CFX-750 display **NOTE –** RTK password required.	93100-02
2	CFX-750 power cable	66694
3	CFX-750 power cable with relay and switch (power bus)	67259
4	Basic power cable	67258
5	FmX to NavController II cable with port replicator	75741
6	2 pin DTM to 2 pin DT power adaptor	67095
7	NavController II	55563-00
8	8 m GNSS TNC/TNC RT angle cable	50449
9	AG25 GNSS antenna	77038-00
10	NMO to TNC 20ft antenna cable and base	72122
11	900 MHz radio antenna kit	22882-10
12	Main NavController II cable	54601

CFX-750 display: Preparation

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.



CFX-750 display: Installation

⚠ **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 8, Controller Installation.



CFX-750 display: Installing the wiring harness

Step 1

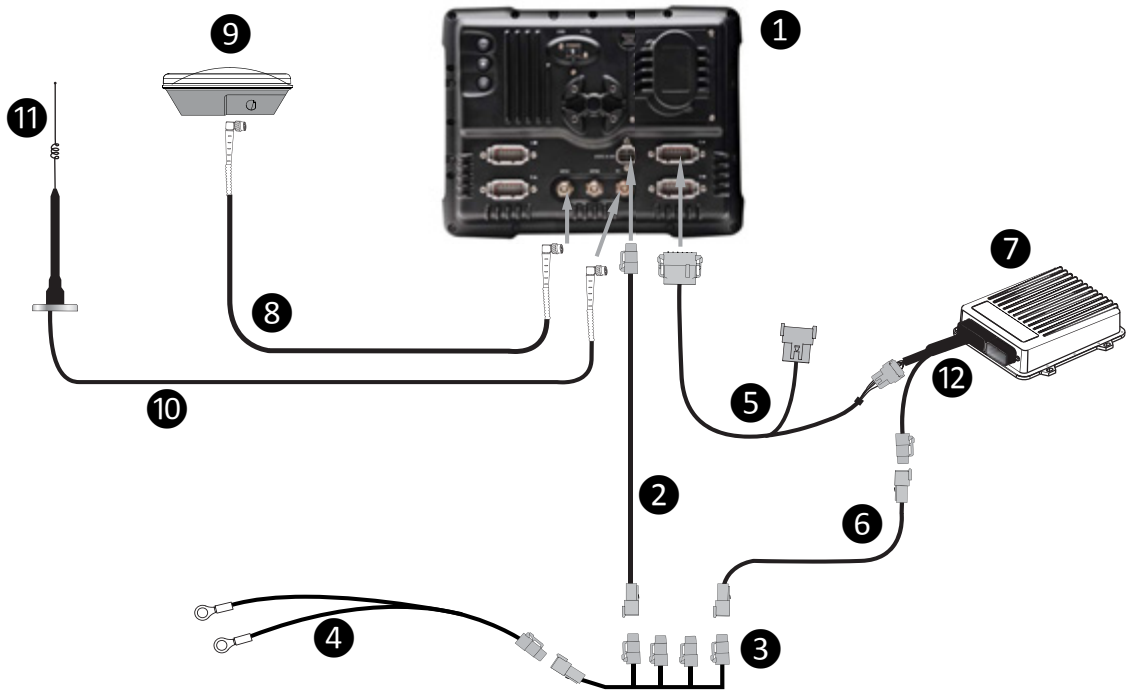
Locate the cable that connects the CFX-750 display to the NavController II.

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.



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
1	FmX integrated display	93100-02
2	FmX power cable	66694
3	FmX power cable with relay and switch (power bus)	67259
4	Basic power cable	67258
5	FmX to NavController II cable with port replicator	75741
6	2 pin DTM to 2 pin DT power adaptor	67095
7	NavController II	55563-00
8	8 m GNSS TNC/TNC RT angle cable	50449
9	AG25 GNSS antenna	77038-00
10	NMO to TNC 20ft antenna cable and base	72122
11	900 MHz radio antenna kit	22882-10
12	Main NavController II cable	54601

FmX integrated display: Preparation

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.



FmX integrated display: Installation

⚠ **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.

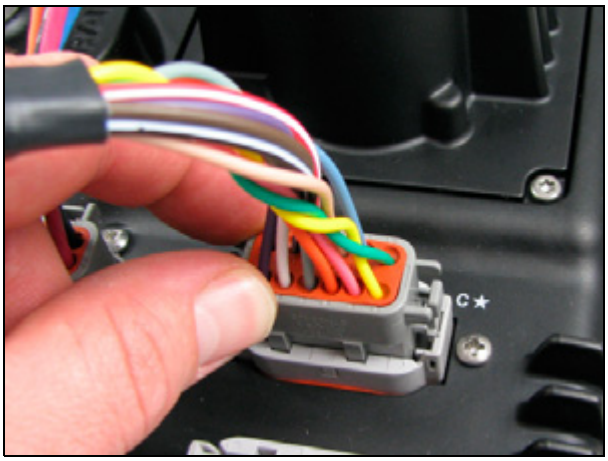
Step 1

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.

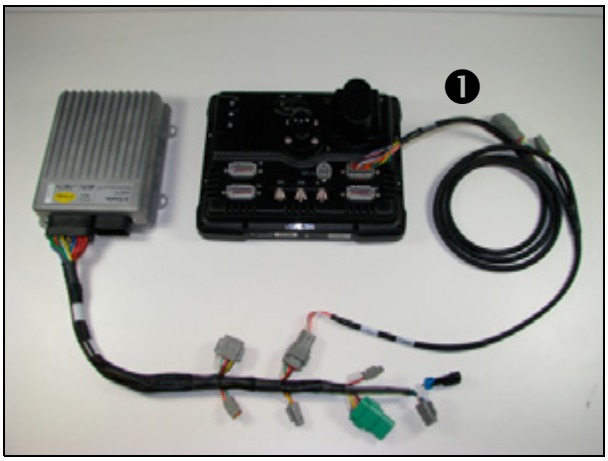
To connect power to the FmX integrated display, see Chapter 8, Controller Installation.



FmX integrated display: Installing the wiring harness

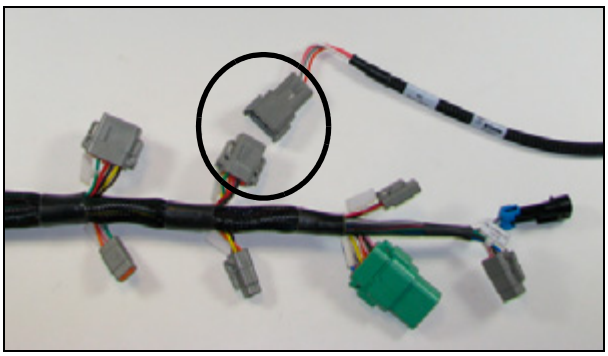
Step 1

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

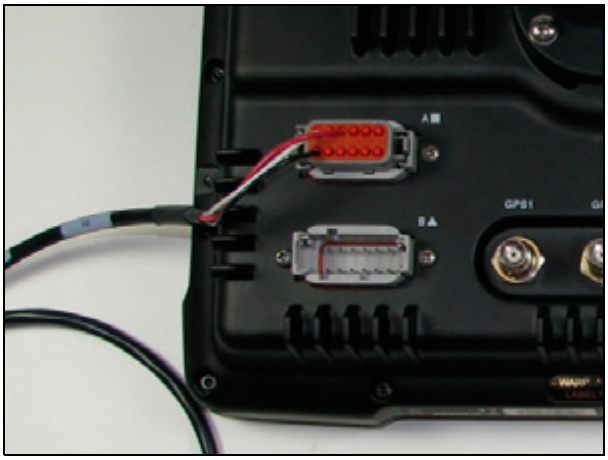
Step 3

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 9.

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 43.

Use a ⅝" bolt to attach the AG25 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.

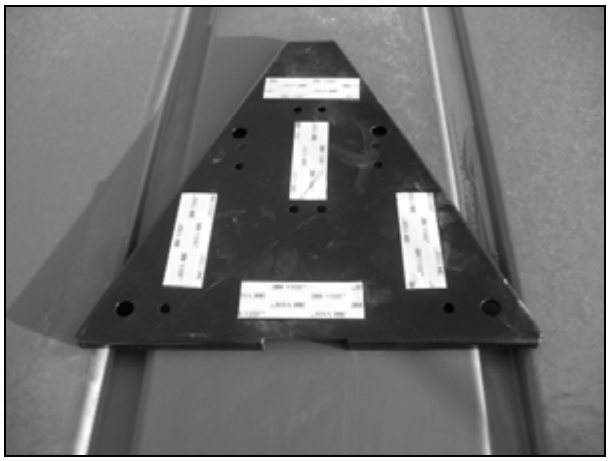


Step 2

V plate only

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

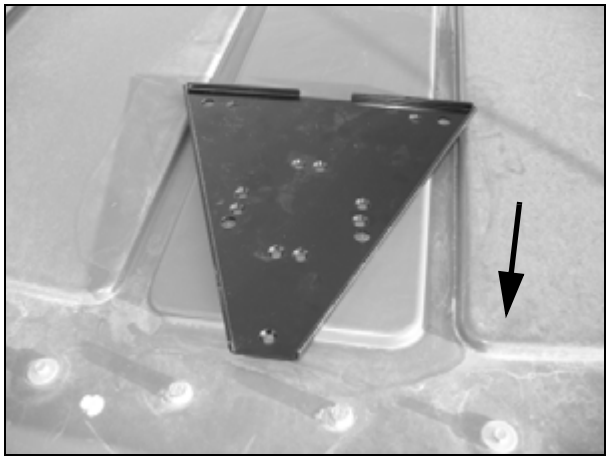
NOTE – The VHB strips are pre-applied to the 4" x 6" plate.



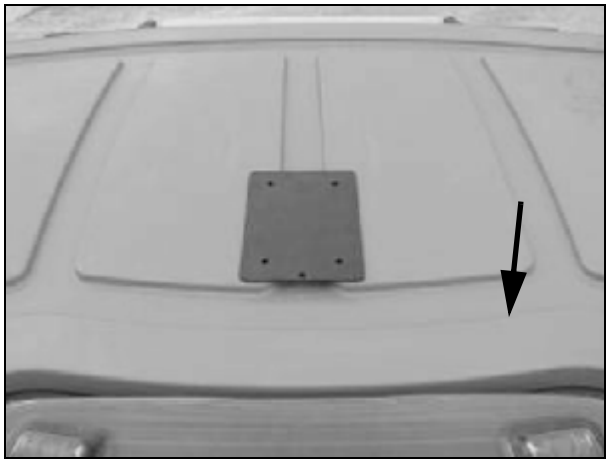
Step 3

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.



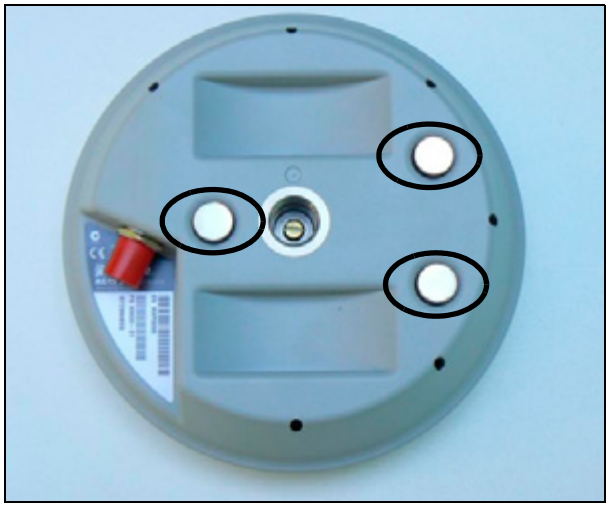
V plate



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.



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 4" x 6" plate with the VHB provided to relocate the antenna.

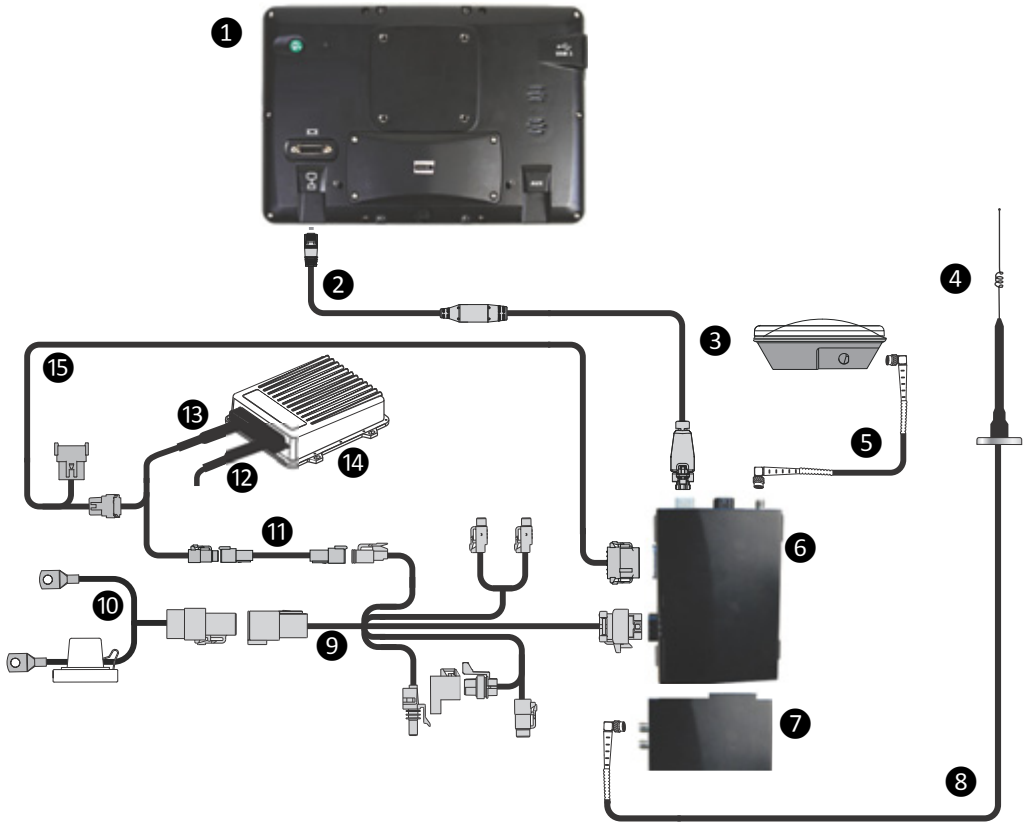


Step 3

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

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

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

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.

Installing the display and mount

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

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 3. 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.



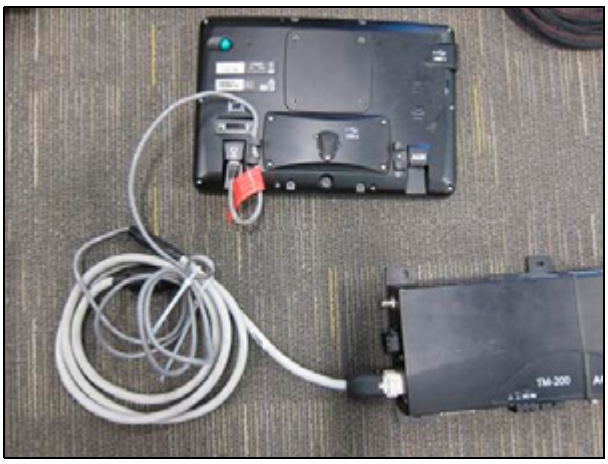
Step 3

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.



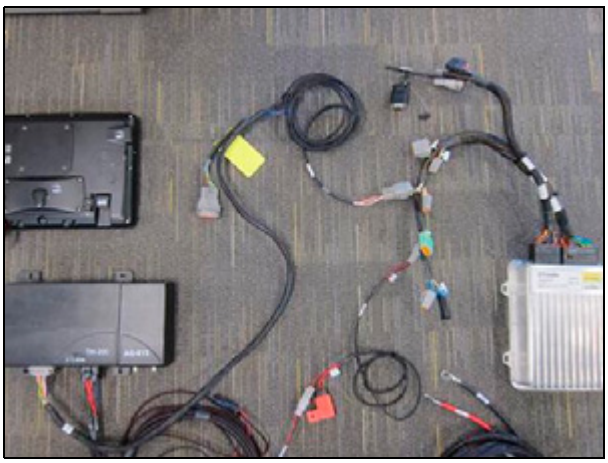
Step 5

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



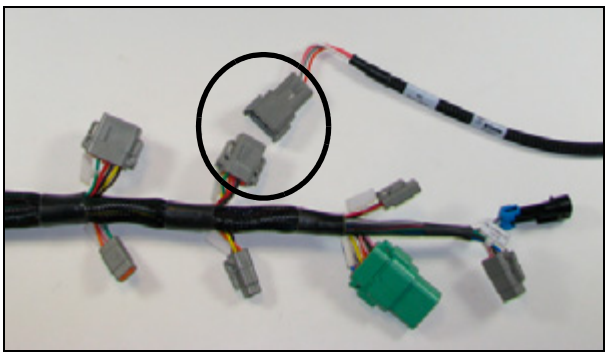
Step 6

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.



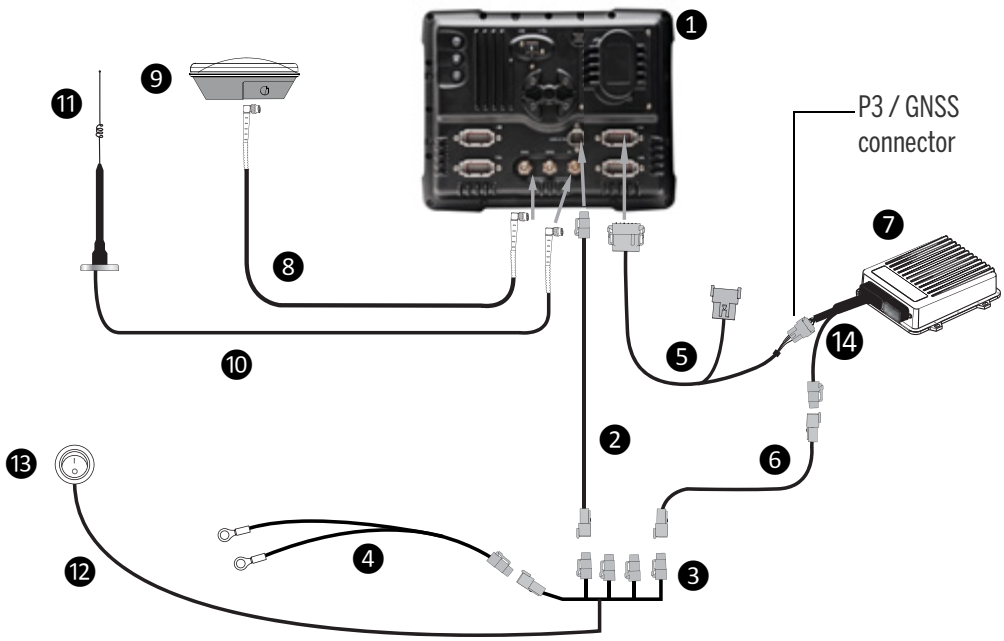
6

Power Harness Installation

- FmX integrated display: Components
- CFX-750 display: Components
- FmX and CFX-750 displays: Installing the power harness
- FmX and CFX-750 displays: Configuring the power bus options
- TMX-2050 display: Components
- TMX-2050 display: Installing the power harness
- TMX-2050 display: Configuring the power options

This chapter describes how to install the power harness in the vehicle.

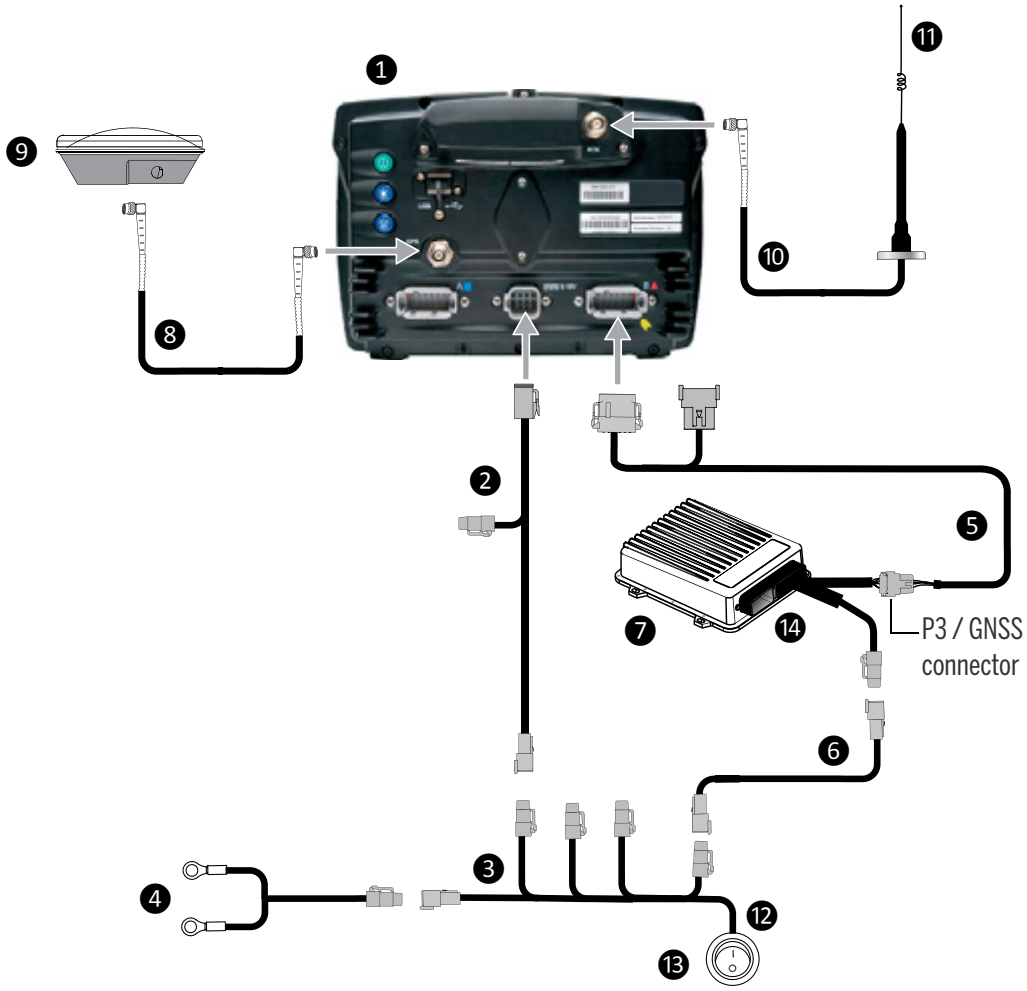
FmX integrated display: Components



⚠ **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
❸	FmX 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	AG-25 GNSS antenna	77038-00
❿	NMO to TNC 20ft antenna cable and base	72122
⓫	900 MHz radio antenna kit	22882-10
⓬	External switch cable included with kit	Part of P/N 67259
⓭	Switch	67095
⓮	NavController II harness	54601

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

Item	Description	Trimble part number
❾	AG-25 GNSS antenna	77038-00
❿	NMO to TNC 20ft antenna cable and base	72122
⓫	900 MHz radio antenna kit	22882-10
⓬	External switch cable included with kit	Part of P/N 67259
⓭	External switch included with kit	Part of P/N 67259
⓮	Main NavController II cable	54601

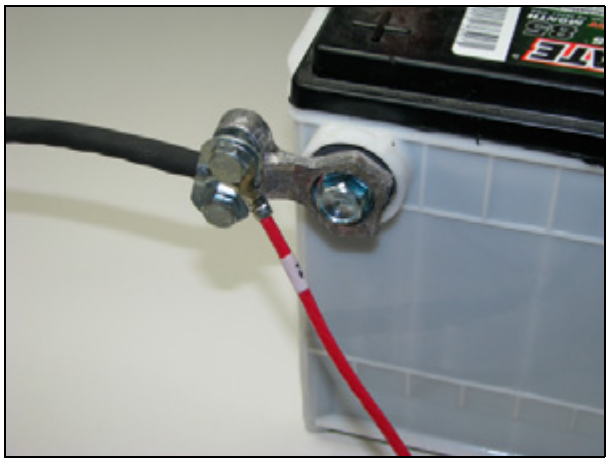
FmX and CFX-750 displays: Installing the power harness

NOTE – Unless otherwise stated, instructions for "the display" refer to either the FmX integrated display or the CFX-750 display.

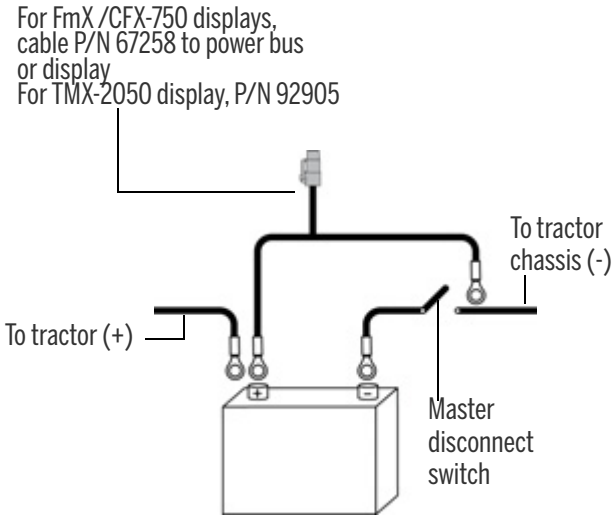
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information.

Step 1

Connect the basic power cable to the vehicle battery and then route the cable into the cab.

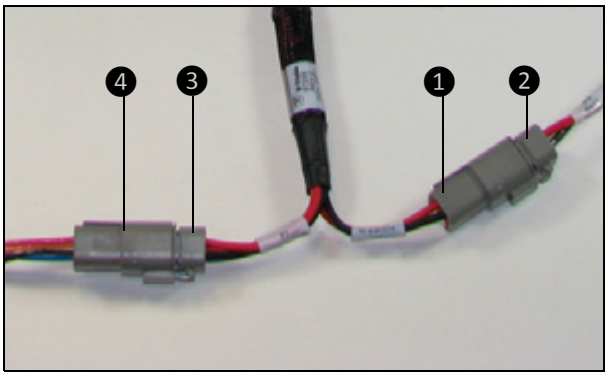


⚠ **CAUTION –** If the vehicle has a master electrical disconnect, make sure the basic power cable (P/N 67258 / 92905) is not directly attached to the battery terminal that is disconnected by the master switch - the negative pole in this example.
Attach this terminal side just past the main disconnect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



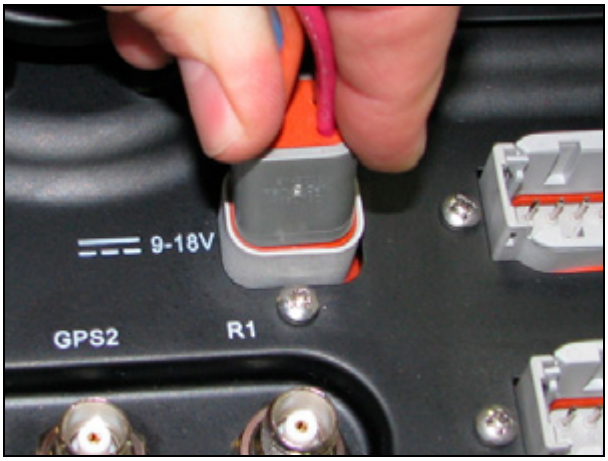
Step 2

Locate and connect the 4-pin Deutsch DTP receptacle on the power bus ? to the 4-pin Deutsch DTP plug ❷ on the basic power cable and then remove the protective cap from the 4-pin Deutsch DTP plug ❸ on the power bus and connect the plug to the 4-pin Deutsch DTP receptacle ❹ on the display power adaptor.



Step 3

Route the display power adaptor to the display mounting location and then connect it to the display.



FmX display



CFX-750 display

FmX and CFX-750 displays: Configuring the power bus options

NOTE – Unless otherwise stated, instructions for "the display" refer to either the FmX integrated display or the CFX-750 display.

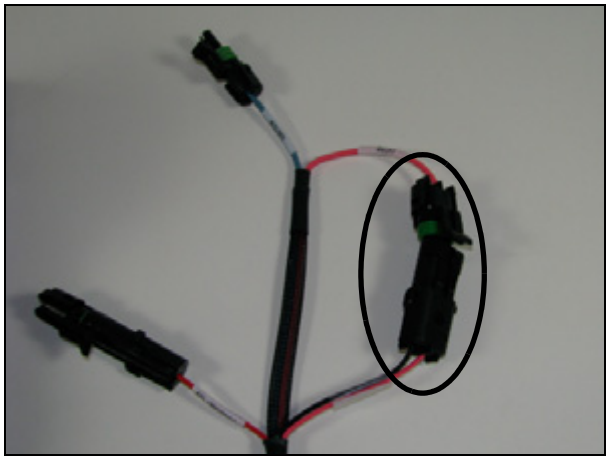
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information chapter.

When you use the power bus cable, use one of the following configuration methods to turn on the Autopilot system:

- Display power button is used to turn on the Autopilot system
- External switch is used to turn on the Autopilot system
- Ignition is used to turn on the Autopilot system

Display power button is used to turn on the Autopilot system

Connect the 2 pin connectors labeled **R2** and **P2** on the power bus.

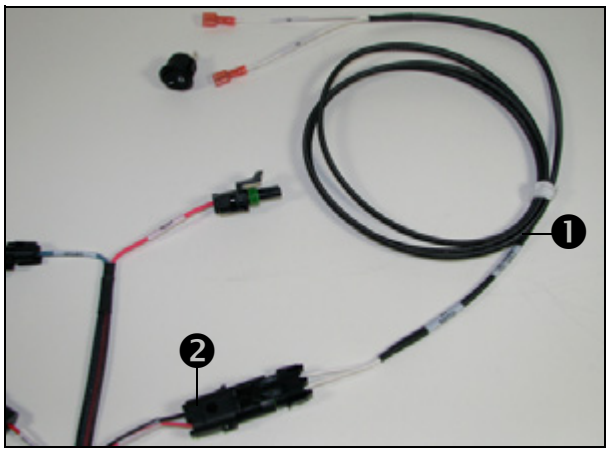


External switch is used to turn on the Autopilot system

Step 1

Connect the cable labeled **R7 switch** ❶ (included with the power bus) to connector labeled **P2** on the power bus ❷ and then route the cable labeled **R7** to a switch location.

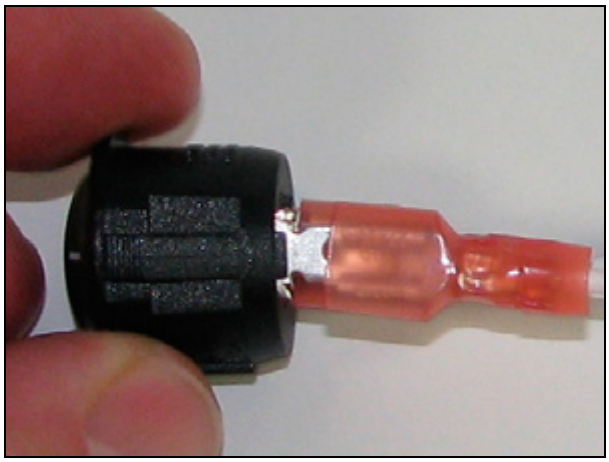
NOTE – To install the switch provided, drill a ¾" hole.



Step 2

Connect the cable labeled **R7** to the switch pins.

NOTE – Polarity is not important.

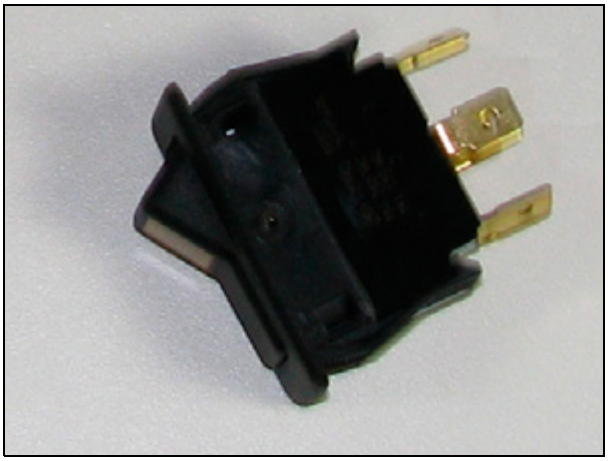


Installing the optional illuminated full or standard Euro switch

Step 1

Find an available knockout location on the vehicle console.

NOTE – An alternative location is required for the switch provided.

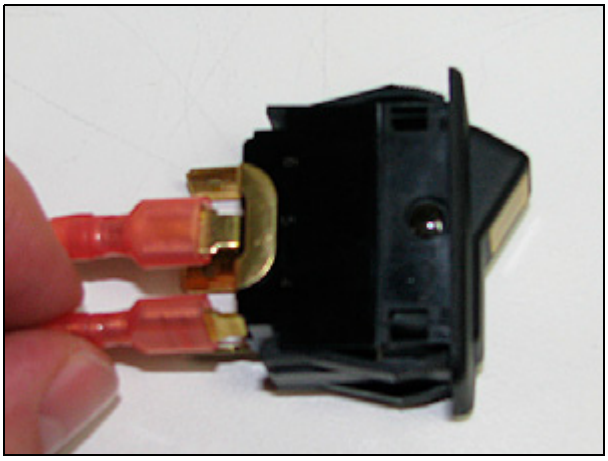


Step 2

Route the cable labeled **R7** to the switch location and then connect the cable to the illuminated switch.

Connect the wire labeled **S1** to pin 5 on the switch and then connect the wire labeled **S2** to pin 4 on the switch.

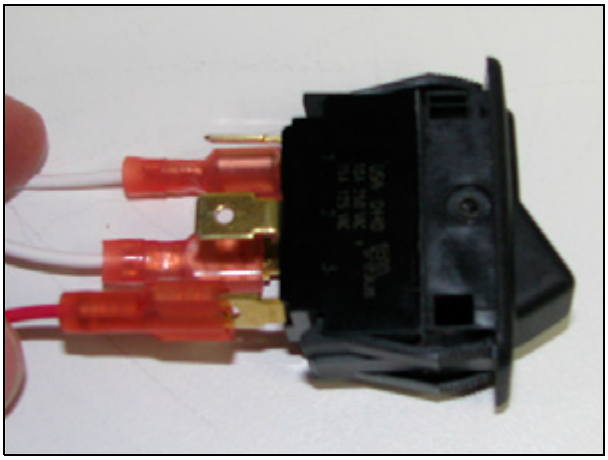
NOTE – Polarity is important.



Step 3

Connect a separate wire to pin 3 on the switch using a spade connector. Route the wire and then connect it to the vehicle switched power.

NOTE – This additional wire is required to allow the switch to illuminate.

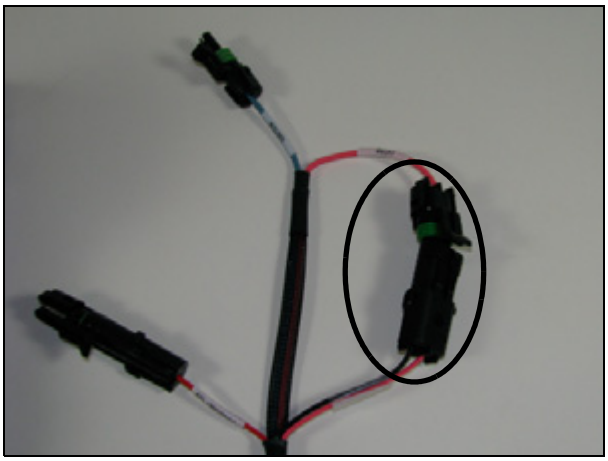


Ignition is used to turn on the Autopilot system

NOTE – For more information on how to use the ignition sensing option, see the FmX Integrated Display User Guide.

Step 1

Connect the 2-pin connectors labeled **R2** and **P2** on the power bus.

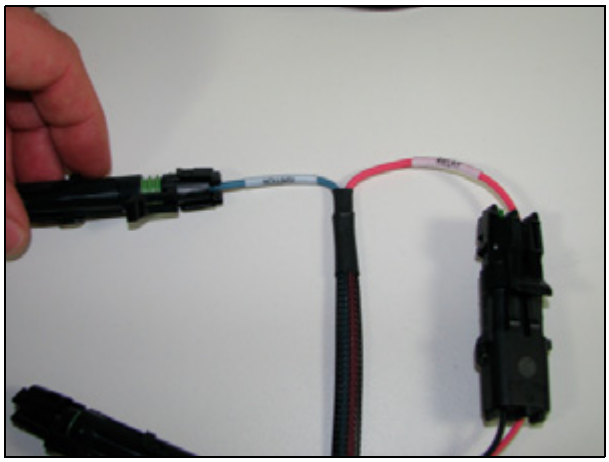


Step 2

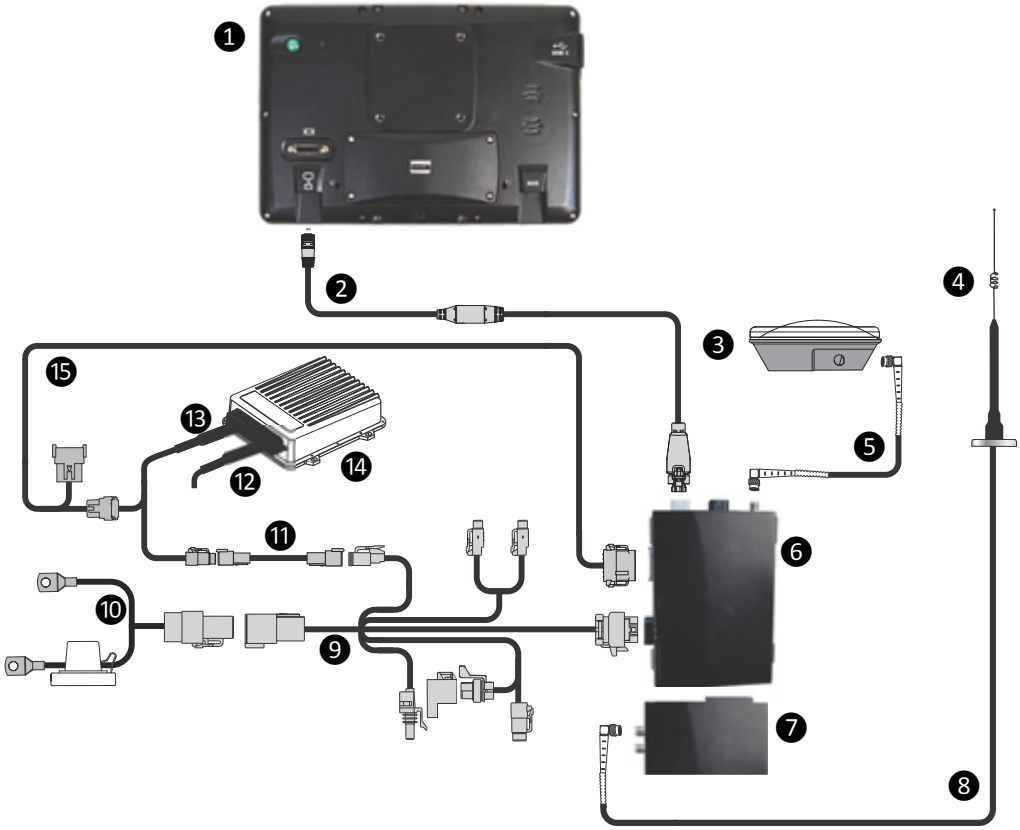
Connect the cable labeled **R8 Ignition** (included with the power bus) to connector P3 Ignition on the power bus.

Step 3

Route the cable to the vehicles ignition.



TMX-2050 display: Components



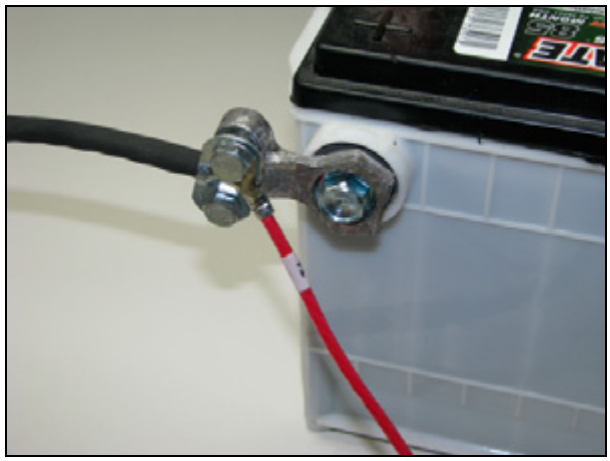
Item	Description	Trimble part number
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2	TM-200 module to display cable	93843
3	AG-25 GNSS antenna	77038-00
4	900 MHz radio antenna kit	22882-10
5	8 m GNSS TNC/TNC RT angle cable	50449
6	TM-200 module	95060-00
7	AG-815 radio	
8	NMO-to-TNC 20 ft antenna 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: Installing the power harness

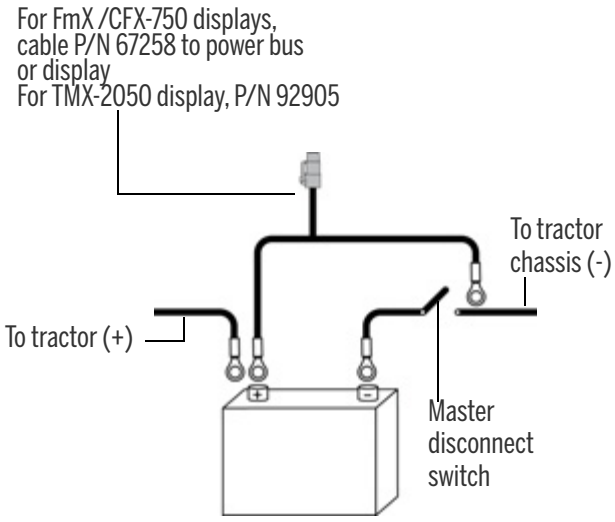
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information.

Step 1

Connect the basic power cable to the vehicle battery and then route the cable into the cab.



⚠ **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.



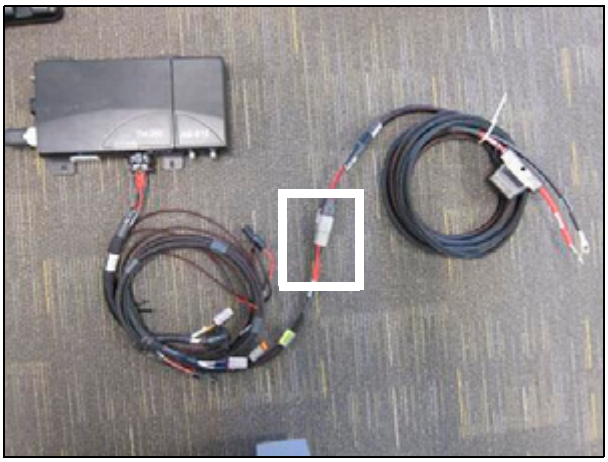
Step 2

Connect the power I/O cable P/N 92676 to the power port on the TM-200 module.



Step 3

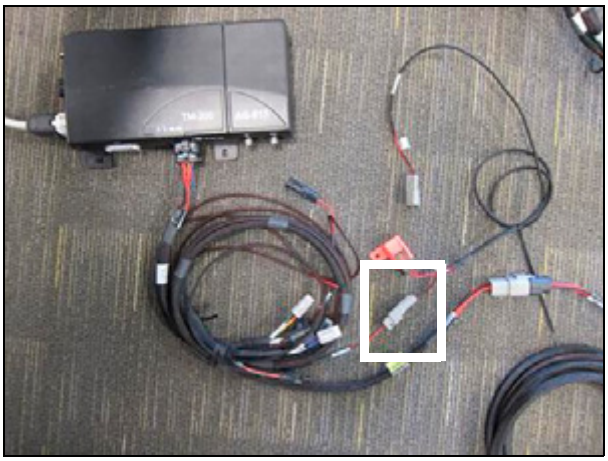
Route the power cable P/N 92905 that you previously connected to the battery and connect it to the R3 power in plug on the P/N 92676 cable.



Step 4

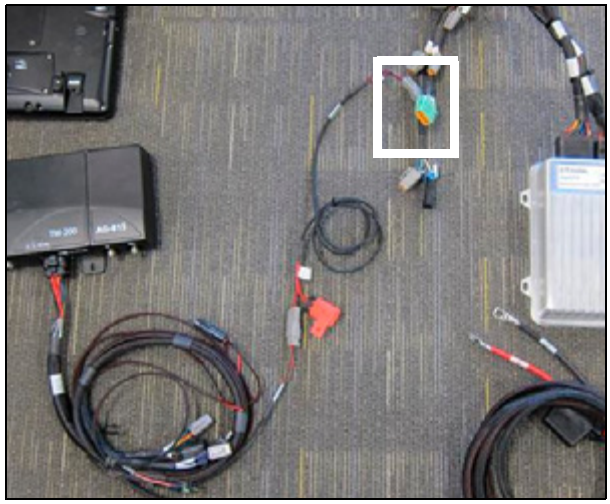
Connect the 2-pin DTM to 2-pin DT power adaptor P/N 67095 to the P2 power out connector on the P/N 92676 cable.

Route the other end to the NavController harness P/N 54601.



Step 5

Connect the other end of the P/N 67095 cable to the P2 power plug on the P/N 54601 cable.



TMX-2050 display: Configuring the power options

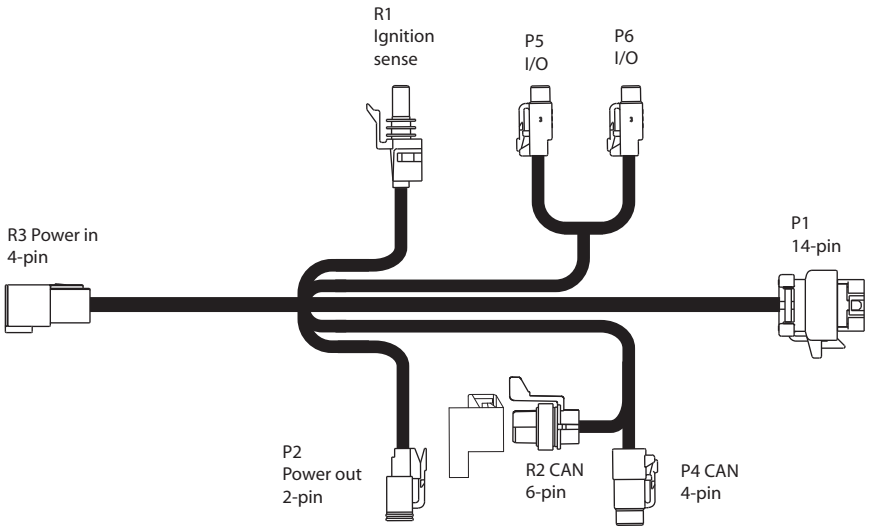
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information.

When you use the power bus cable, use one of the following methods to turn on the Autopilot system on the Trimble TMX-2050 displays:

- The display power button. No further changes need to be made to the power cables.
- Ignition sensing. See below.

Ignition sensing

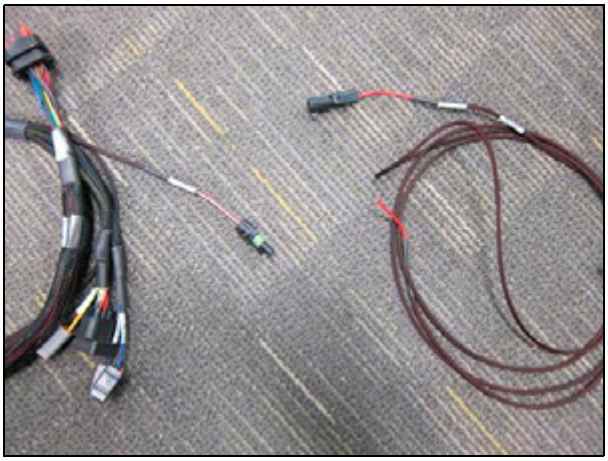
For ignition sensing with the TMX-2050 display, connect the ignition on the power supply to the R1 connector on the harness, P/N 92676.



For more information on how to use the ignition sensing option, refer to the *TMX-2050 Display User Guide*.

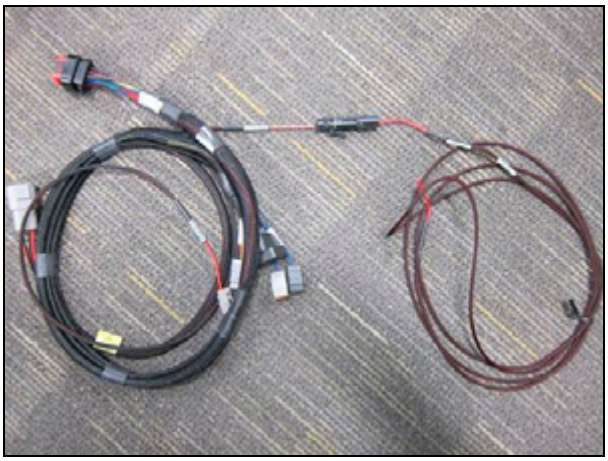
Step 1

Locate the R1 ignition sensing plug on the P/N 92676 cable; also locate the ignition sensing wire provided with the P/N 92676 cable.



Step 2

Connect the red ignition sense wire to the vehicle ignition source then route to the plug on the harness and then connect it.



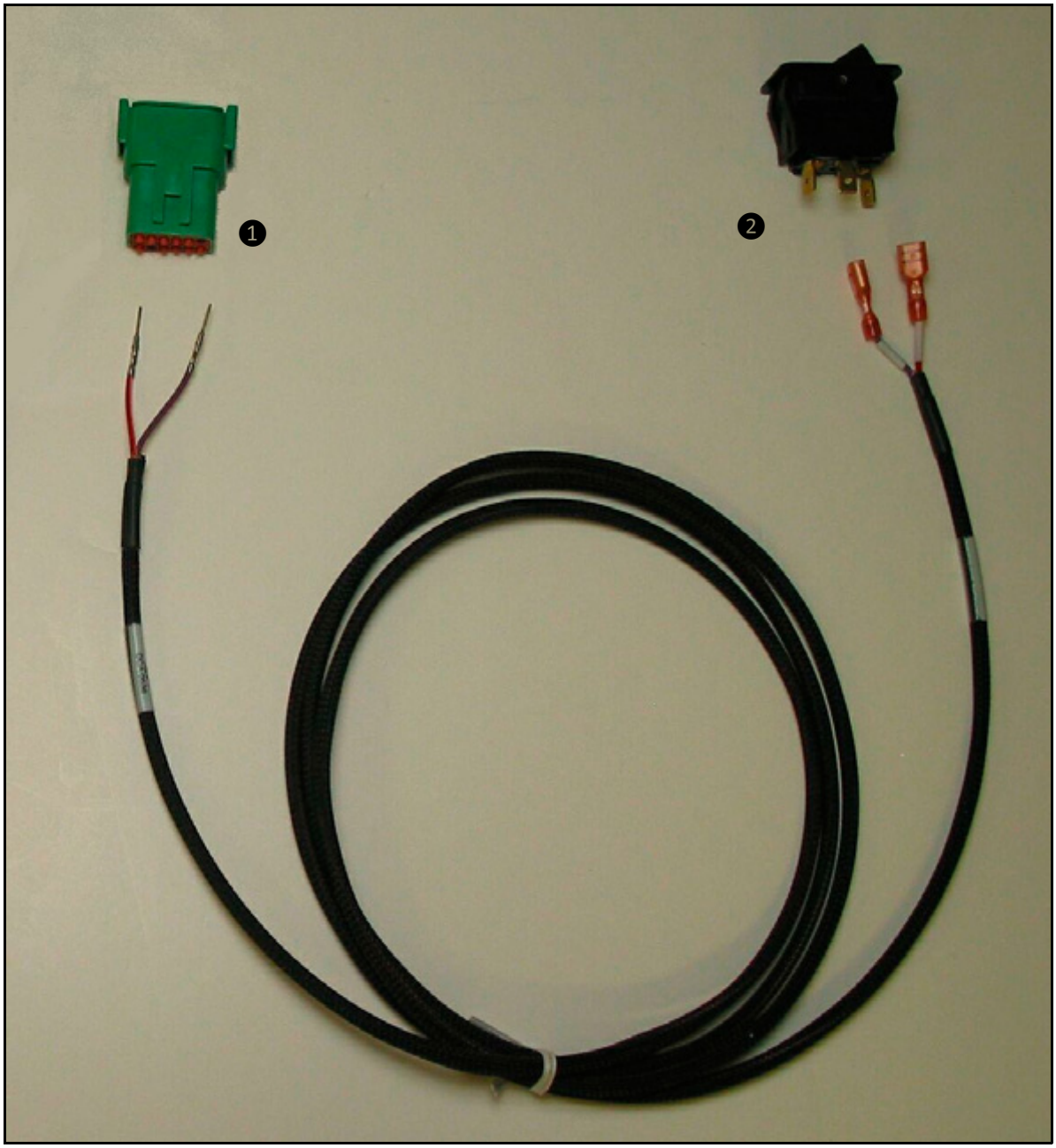
7

Remote Engage Switch Installation

- Remote engage switch components: Rocker switch
- Remote engage switch components: Foot switch
- Preparing the remote engage cable
- Using the remote engage switch

This chapter describes how to install the remote engage switch.

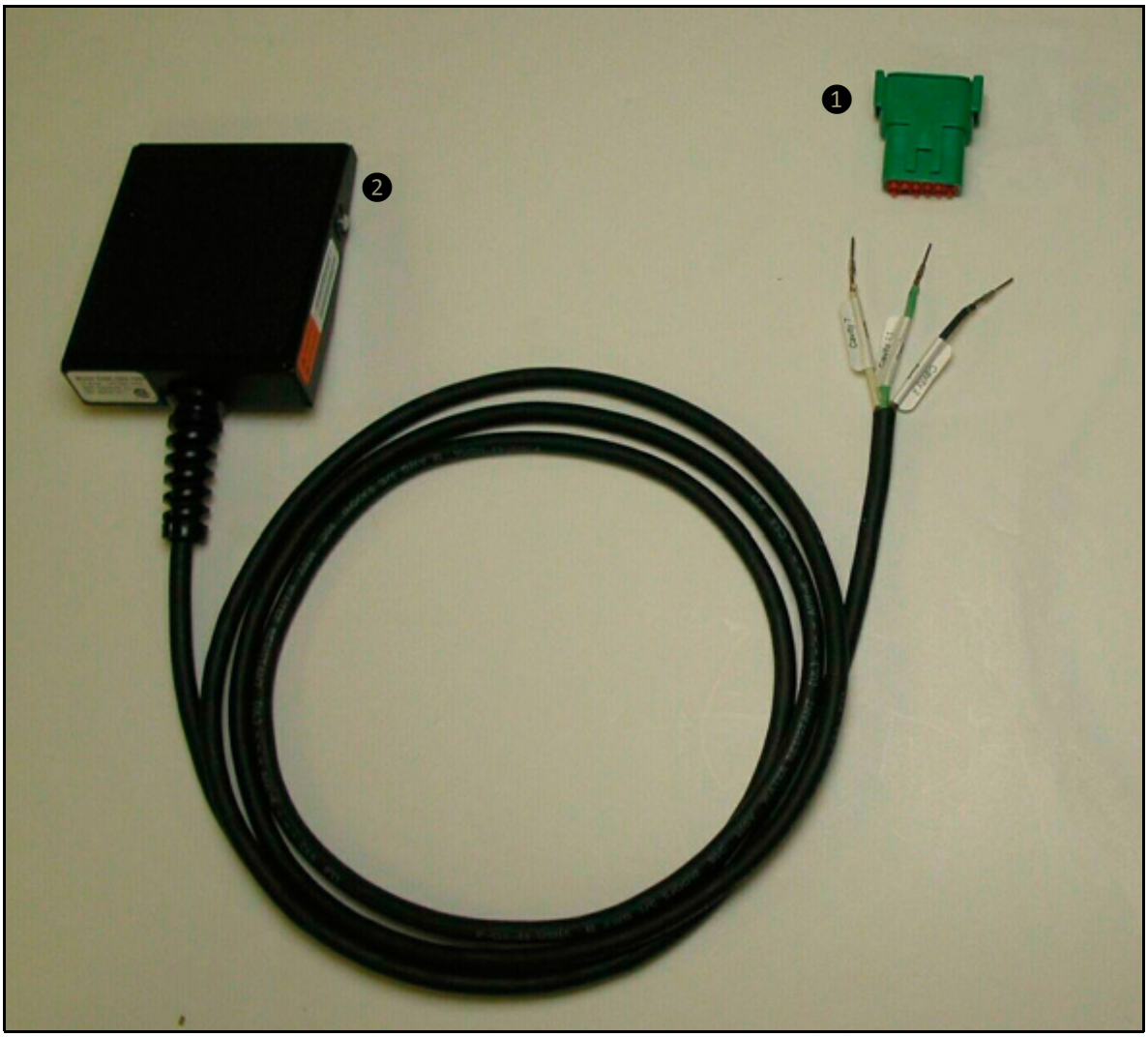
Remote engage switch components: Rocker switch



Item	Description
1	DTM receptacle
2	Remote engage rocker switch

NOTE – This is a Full or Standard Euro switch, depending on the kit ordered.

Remote engage switch components: Foot switch

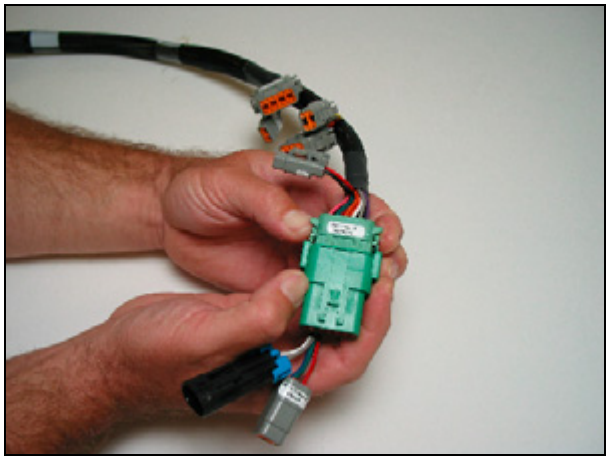


Item	Description
1	DTM receptacle
2	Remote engage foot switch

Preparing the remote engage cable

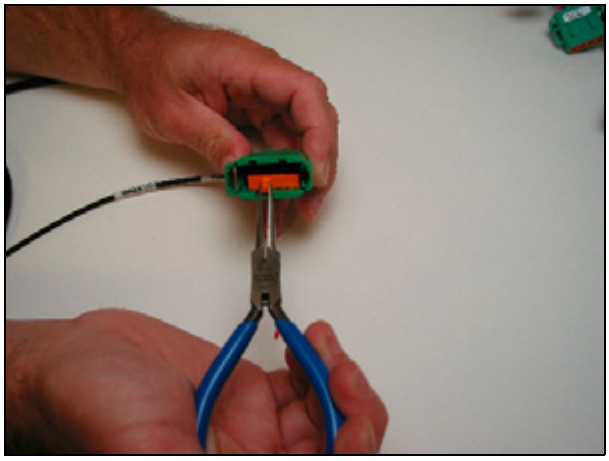
Step 1

Locate the green 12-pin Deutsch receptacle on the P5 leg of the main controller harness. For more information, see Chapter 8, Controller Installation.



Step 2

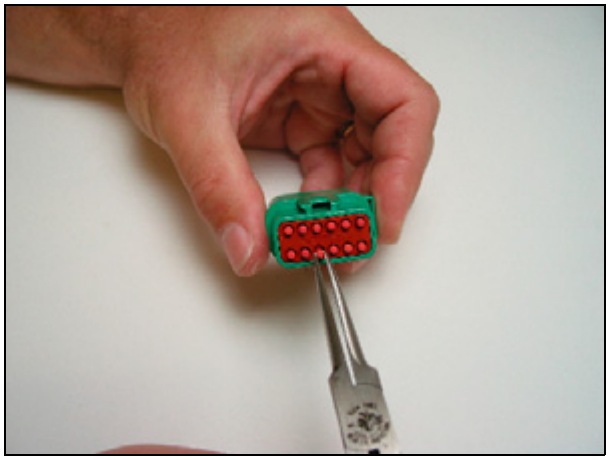
Remove the wedge from the connector.



Step 3

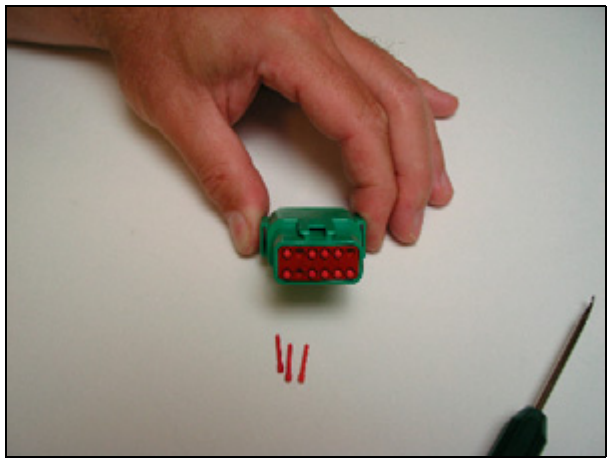
Rocker switch only

Remove the plugs from cavity 2 and cavity 7.



Foot Switch Only

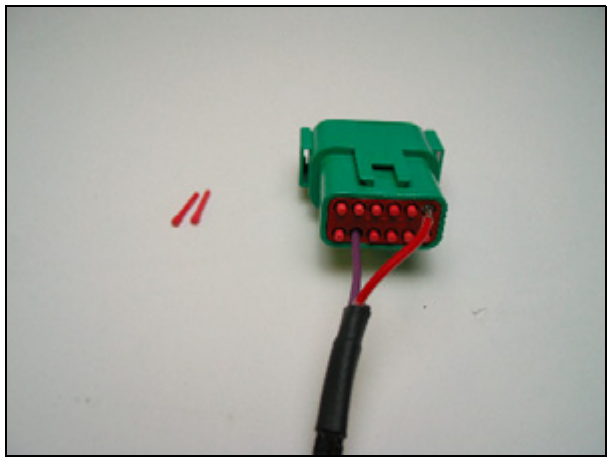
Remove the plugs from cavity 2, cavity 7, and cavity 11.



Step 4

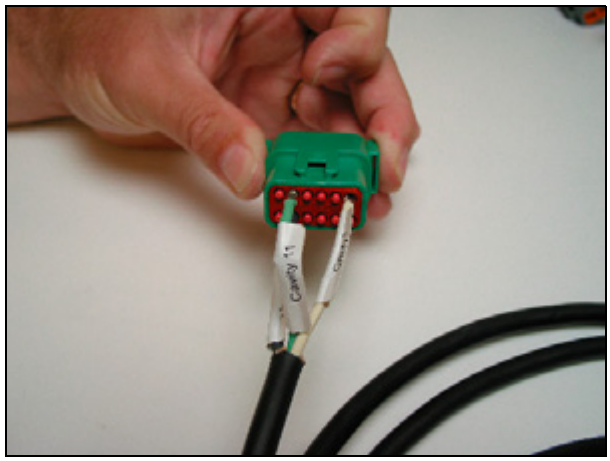
Rocker switch only

Insert the DTM pins into cavity 2 and cavity 7, according to the labels on the wires.



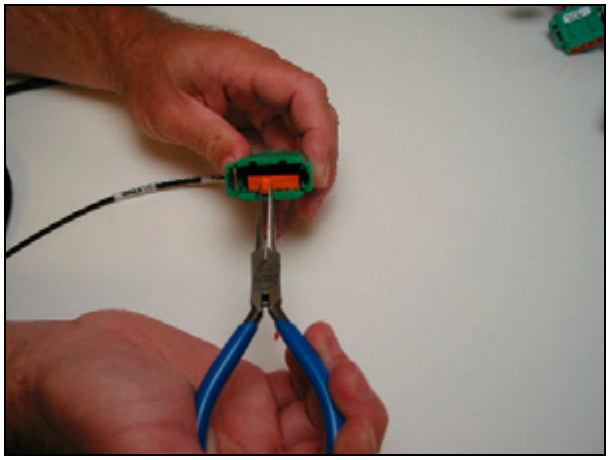
Foot switch only

Insert the DTM pins into cavity 2, cavity 7, and cavity 11, according to the labels on the wires.



Step 5

Pull on the wires to seat them in place and then replace the wedge in the connector.



Step 6

Replace the receptacle on the P5 plug of the NavController II harness.

Step 7

Rocker switch only

Run the spade ends of the cable to a knockout location in the operator console.



Foot switch only

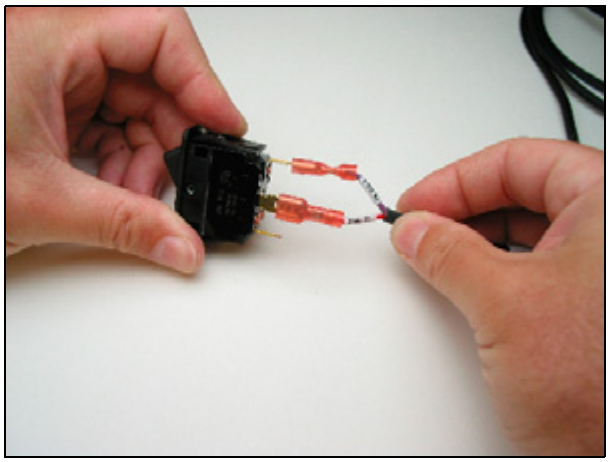
Run the cable to a clear location on the floor board. Use double-sided tape to secure the pedal. Route the cable under the floor mat.



Step 8

Rocker Switch Only

Connect the wires to the switch. Match the print on the switch body with the labels on the wires.



Step 9

Rocker Switch Only

Place the switch in the console.



Using the remote engage switch

To use NavController II to engage the system:

- For firmware versions 5.20 and earlier: Hold down the remote engage switch for longer than 0.5 seconds and less than 4 seconds.
- For firmware 5.21 and later: Hold the switch down for longer than 0.15 seconds and less than 4 seconds.

The system engages when you release the switch.

8

Controller Installation

- Installing the NavController II
- Controller connections

This chapter describes how to install the controller unit.

Installing the NavController II

⚠ **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

Locate the NavController II mounting plate and then mount the controller to the plate.



Step 2

The NavController II will be located to the left of the driver's seat in the locations shown here.



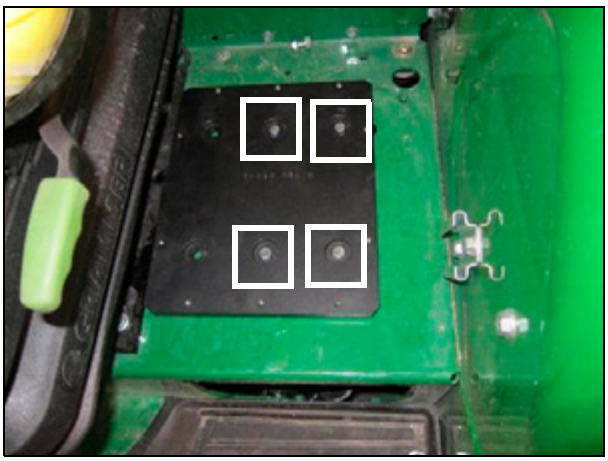
Open cab models



Closed cab models

Step 3

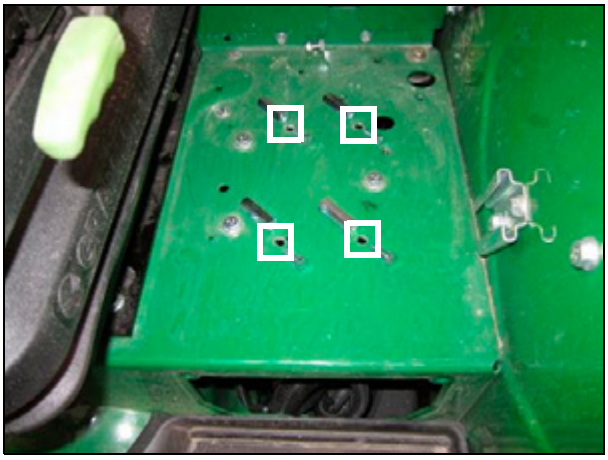
Use the controller mounting plate as a template to mark the location of four 5/16" mounting holes.



Step 4

Remove the access cover to make sure that you will not damage anything under the floor when the holes are drilled.

Drill the 4 mounting holes.



Step 5

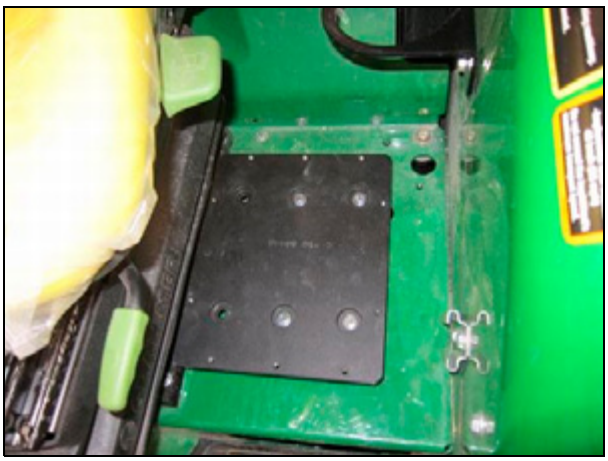
If there are bolts in the mounting location, you can use the supplied stand-offs to mount the NavController mounting plate.

If there are no bolts, continue with Step 6 and install the plate directly to the machine.



Step 6

Use the provided ¼'' hardware to mount the NavController mounting plate to the machine.



Step 7

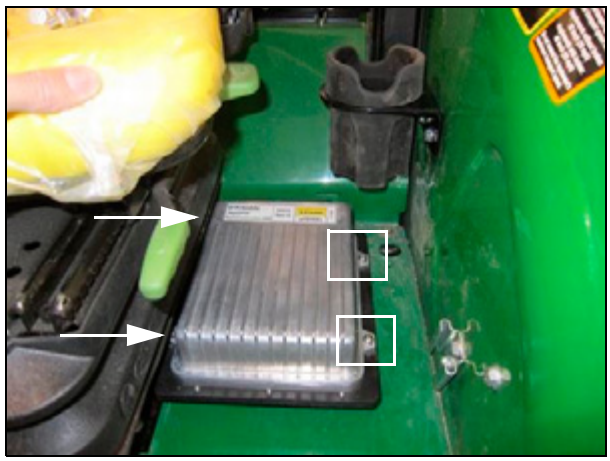
Before you install the controller, attach the main and auxiliary cable harnesses. Use an Allen wrench to secure the connectors to the controller.



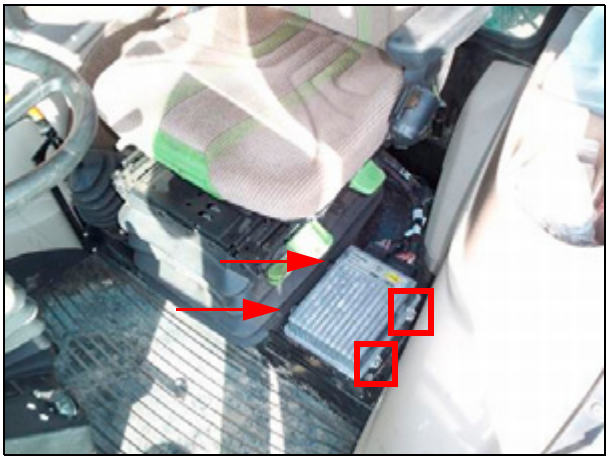


Step 8

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

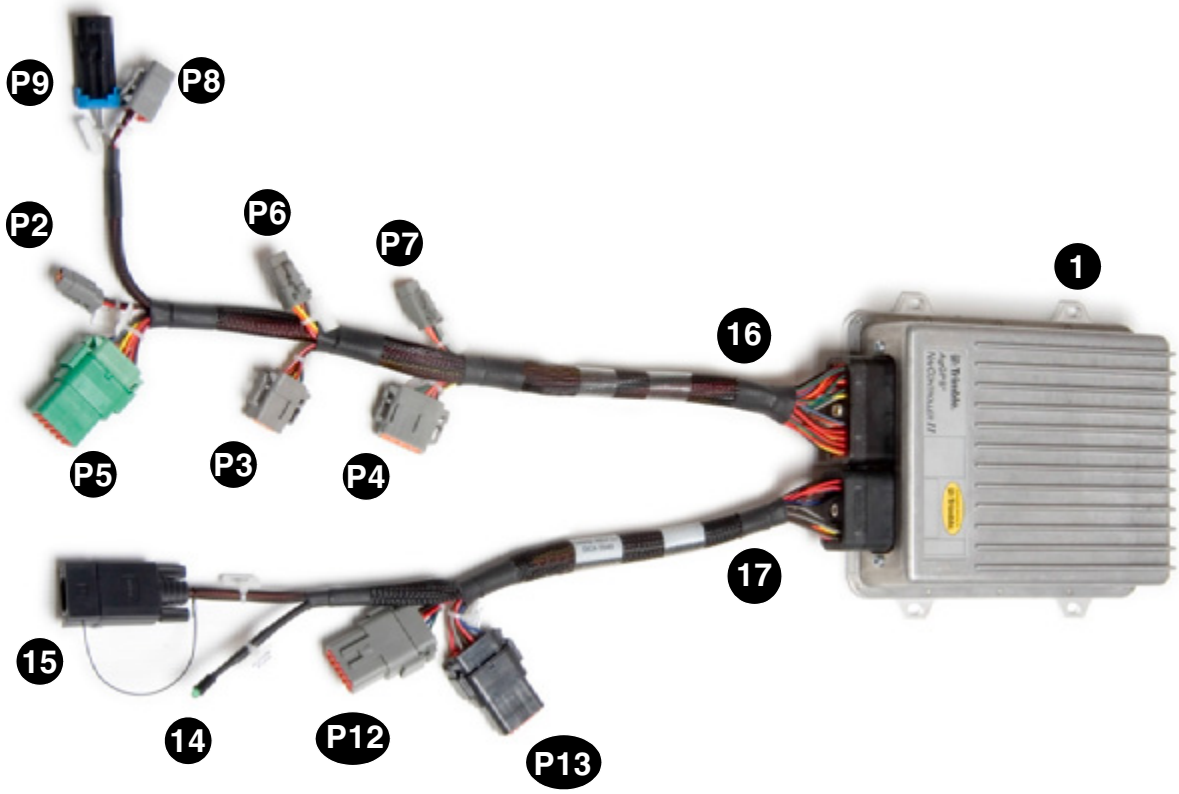


Open cab models



Closed cab models

Controller connections

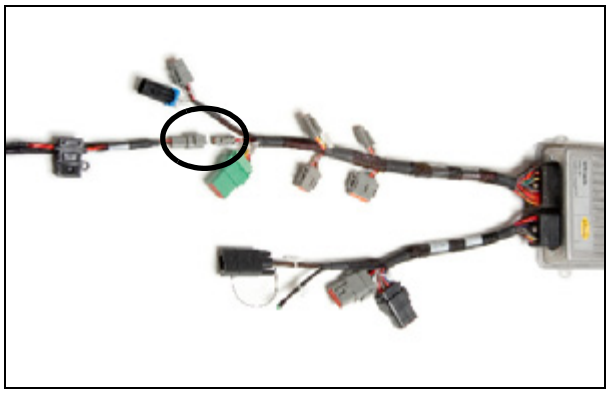


Item	Description	Item	Description
1	NavController II	P9	Sonalert connector
P2	Power connector	P12	Lightbar/spare connector
P3	GNSS connector	P13	Spare sensors connector
P4	Display connector	14	Status indicator
P5	Vehicle sensors connector	15	Laptop connector
P6	Steering sensor connector	16	Main harness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

Step 1

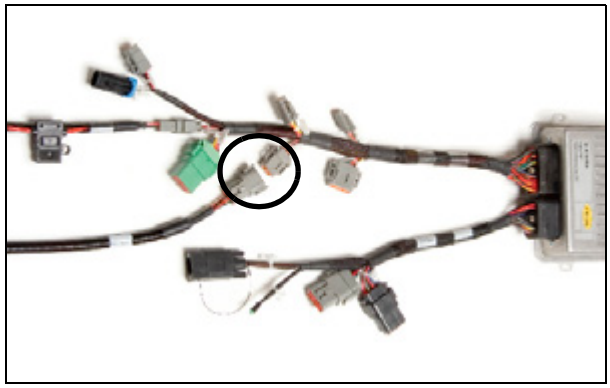
Connect the power cable connection to P2, which is labeled **Power**. P2 is located on the main wiring harness.

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



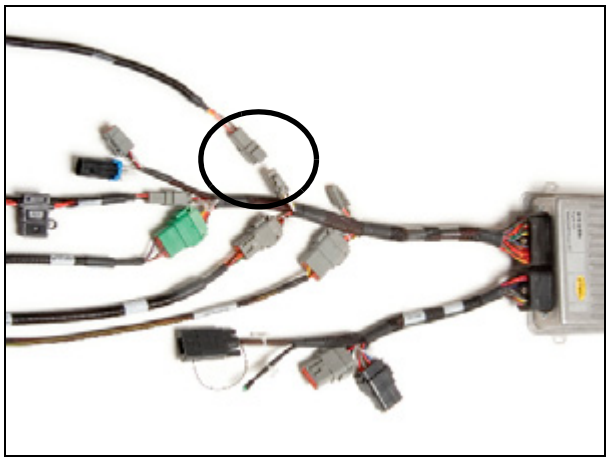
Step 2

Connect the CFX-750 display or FmX integrated display to P3, which is labeled **GPS**. P3 is located on the main wiring harness.



Step 3

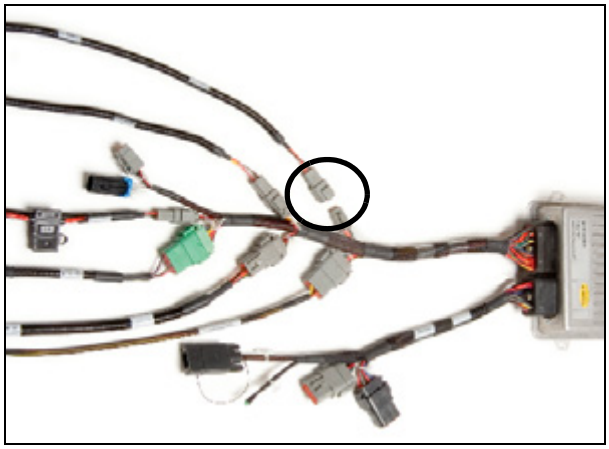
Connect the steering sensor cable connection to P6, which is labeled **Steering Sensor**. P6 is located on the main wiring harness.



Step 4

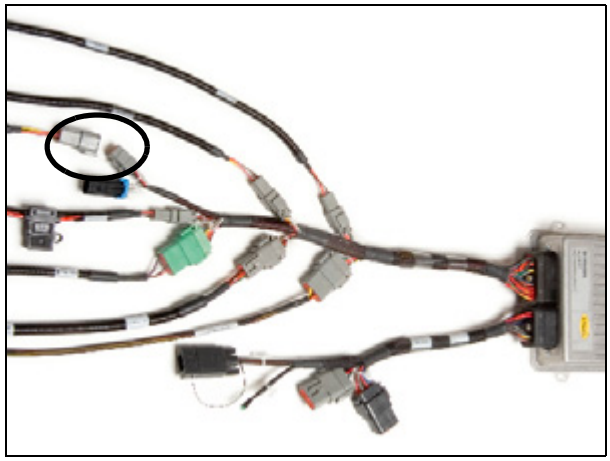
Connect the manual override cable connection to P7, which is labeled **Manual Override**. P7 is located on the main wiring harness.

NOTE – When you install the remote engage harness, add the pins to the existing connector.



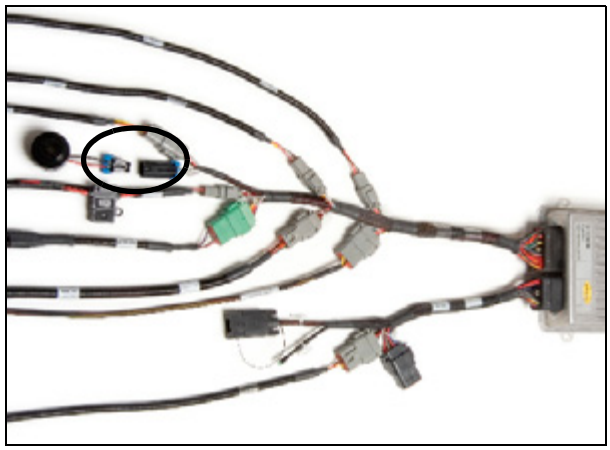
Step 5

Connect the hydraulic steering valve cable connection to P8, which is labeled **Hydraulic Valve**. P8 is located on the main wiring harness.



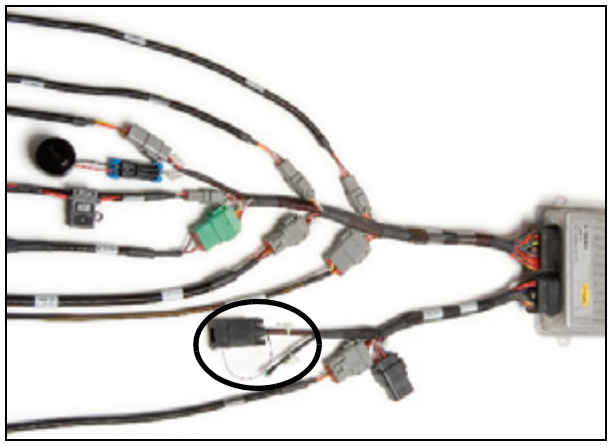
Step 6

Connect the Sonalert P9 to the two 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 7

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 8

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.

9

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. Start the machine and check for hydraulic leaks. Correct as needed.
3. Update the Trimble display and the Autopilot NavController II 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.
4. Load the correct configuration file into the Autopilot NavController II 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 3.00 or later to load the configuration file into the Autopilot controller. You can download the Autopilot Toolbox II software from http://agpartners.trimble.com.
5. Calibrate the Autopilot system using the Trimble display or Autopilot Toolbox II software version 3.00 or later. Depending on your machine type, the following items must be calibrated before you can use the Autopilot system:
   - NavController II mounting orientation
   - Manual override
   - AutoSense mounting orientation
   - Valve deadzone
   - Autopilot P-gain
   - Antenna height/Antenna axle offset, and Roll offset
   - OnSwath line acquisition