Autopilot

AUTOMATED STEERING SYSTEM

INSTALLATION INSTRUCTIONS

Massey Ferguson S Series

- MF 5709 S / 5710 S / 5711 S / 5712 S / 5712 S / 5713 S
- MF 6713 S / 6714 S / 6715 S / 6716 S / 6718 S
- MF 7715 S / 7716 S / 7718 S / 7719 S / 7720 S / 7722 S / 7724 S / 7726 S
- MF 8727 S / 8730 S / 8732 S / 8735 S / 8737 S / 8740 S

Version 8.00
Revision B
September, 2022
P/N 54035-66-E08-B

Trimble Agriculture

Legal Notices

Agriculture Business Area

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Release Notice

This is the September 2022 release (Revision B) of the *Autopilot Automated Steering System Installation Instructions*, part number 54035-66-E08-B. It applies to version 8.00 of the Autopilot automated steering system.

Notice to Our European Union Customers

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



Safety Information

Always follow the instructions that accompany a Warning or Caution. The information they provide is intended to minimize the risk of personal injury and/or damage to property. In particular, observe safety instructions that are presented in the following format:

⚠ **WARNING –** This alert warns of a potential hazard, which, if not avoided, can cause severe injury.

⚠ **CAUTION –** This alert warns of a hazard or unsafe practice which, if not avoided, can cause injury or damage.

NOTE – An absence of specific alerts does not mean that there are no safety risks involved.

Warnings

⚠ **WARNING –** When you are working on the vehicle's hydraulic systems, vehicle attachments that are suspended can drop. If you are working around the vehicle, you could suffer serious injury if an attachment dropped on you. To avoid this risk, lower all vehicle attachments to the ground before you begin work.

⚠ **WARNING –** If someone else attempts to drive the vehicle while you are working on or under it, you can suffer serious or fatal injuries. To avoid this possibility, install a lockout box on the battery terminal to prevent the battery from being reconnected, remove the key from the vehicle's ignition switch, and attach a "Do not operate" tag in the cab.

⚠ **WARNING –** Agricultural chemicals can pose serious health risks. If the vehicle has been used to apply agricultural chemicals, steam clean the vehicle to remove any chemical residue from the areas of the vehicle where you will be working.

⚠ **WARNING –** Vehicle cabs can be quite high in the air. To avoid potentially serious injury through falling from this height, always use the steps and handrails, and face the vehicle, when you enter or exit it.

Cautions

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

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

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

CAUTION – Always wear protective equipment appropriate to the job conditions and the nature of the vehicle. This includes wearing protective glasses when you use pressurized air or water, and correct protective welder's clothing when welding. Avoid wearing loose clothing or jewelry that can catch on machine parts or tools.

CAUTION – Parts of the vehicle may be under pressure. To avoid injury from pressurized parts, relieve all pressure in oil, air, and water systems before you disconnect any lines, fittings, or related items. To avoid being sprayed by pressurized liquids, hold a rag over fill caps, breathers, or hose connections when you remove them. Do not use your bare hands to check for hydraulic leaks. Use a board or cardboard instead.

CAUTION – Do not direct pressurized water at:
- Electronic or electrical components or connectors
- Bearings
- Hydraulic seals
- Fuel injection pumps
- Any other sensitive parts or components



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

CAUTION – To prevent damage to the system, make sure that no wires or hoses interfere with or catch on any mechanical linkages, or contact any machine parts that get hot.

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

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Introduction

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

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

Even if you have used other Global Navigation Satellite System (GNSS) such as the United States', Trimble recommends that you spend some time reading this manual to learn about the special features of this product. If you are not familiar with GNSS, visit 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.
3. Complete the form and then click **Submit Feedback.**

Manual system upgrade to Autopilot

Trimble displays

Retain
CFX-750™ display: P/N 94110-xx
Power cable CFX-750 display: P/N 77282
Antenna for display: P/N 60600-02 (DGPS) or 77038-00 (OmniSTAR®/RTK)
Antenna to receiver cable: P/N 50449
Basic cable (CFX-750 display): P/N 67258
TMX-2050™ display: P/N 96700-00
TM-200 Module: P/N 95060-00
TM-200 Module to display cable: P/N 93843
TM-200 Module power I/O cable: P/N 92676
TM-200 Module battery cable: P/N 92905

Required components

Kits required	Special tools
Platform kit: P/N 54035-66	Drill
TMX-2050/CFX -750 installations: P/N 64425-07	5/16'' drill bit
	2" hole saw
	8mm socket wrench
	30mm or 1 3/16 socket wrench

Antenna mounting kits

Kits required
AG-15 antenna mounting plate: P/N 62034
Bracket, GPS - V base plate indexing: P/N 62388-02
Optional spar mounts (must measure application for proper part number):
P/N 64898: Bracket, GPS Spar 16.5"– 28.5"
P/N 55349: Bracket, GPS Spar 27.5"– 37.5"
P/N 53676: Bracket, GPS Spar 36.5"– 46.5"
P/N 55348: Bracket, GPS Spar 45"– 55"
P/N 66774: Bracket, GPS Spar 54"– 64"

Accessory kits

Accessory options
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
Remote engage push button: P/N 101250

Autopilot hardware organization: As shipped

Hardware	Component	See...
Platform kit: P/N 54035-66	Steering control valve cable and lock out	Chapter 2
	Manual override cable	
	Power switch	Chapter 4
	Bolt kit controller	Chapter 6
Common parts	Controller	Chapter 6
	Controller mounting bracket	
	Cable kit: • Main wiring harness • Power bus auxiliary wiring harness • Sonalert alarm	
GNSS	GNSS antenna	Chapter 3
	RTK radio, cable, and radio antenna	
Display	CFX-750 display	Chapter 3
	TMX-2050 display	
	Display cable	
	Mounting bracket	
Roof bracket kit: P/N 62388-02	Roof brackets	Chapter 3
	Bolt kit, roof bracket	

Preparing the vehicle for installation

1. Park the vehicle on a hard, level surface. Block the front and rear wheels.
2. Align the steering straight ahead. On an articulated vehicle, install the articulation locks.
3. Remove all dirt and debris from the areas of the vehicle where the 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.

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

2

Guidance Harness Connections

Controller CAN bus connections

Step 1

Remove the diagnostic connector cover to the right of the driver's seat.



Step 2

Locate and remove the X888 connector from the panel's mounting hole.





Step 3

Plug the X888 connector into P1 on cable P/N 122812 as shown.



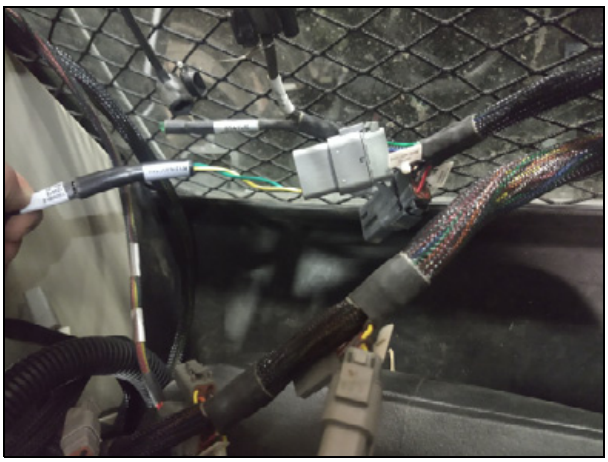
Step 4

Insert R1 from cable P/N 122812 into the panel where the connector X888 was. Use the jam nut that was removed in Step 2 to secure R1 in place.



Step 5

Route R12 from cable P/N 122812 to P12 on the NavController harness P/N 54602.

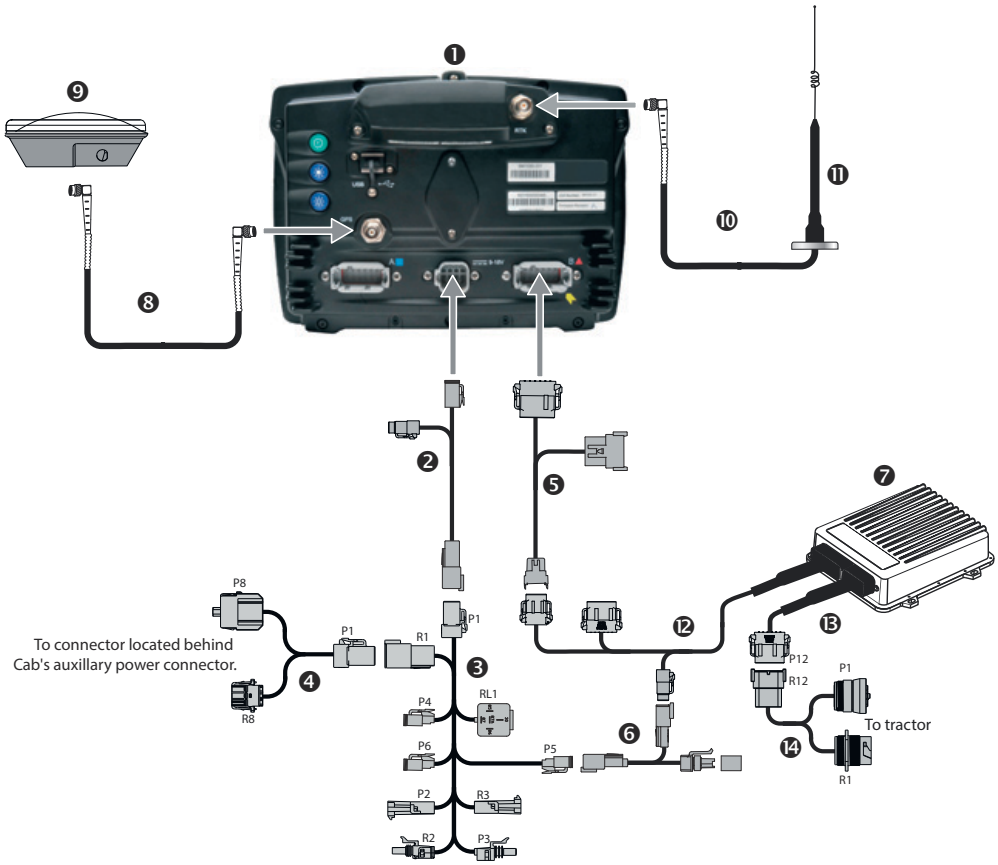


3

Display Installation

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

CFX-750 display: Components



⚠ **CAUTION –** Connecting the Port Replicator on the CFX-750 to NavController cable ❺ to the P4 or P12 connector of the NavController harness ⓬ will result in damage to the display, and will void the warranty.

Item	Description	Trimble part number
1	CFX-750 display **NOTE –** RTK password required.	93100-02
2	Cable Assy, Power Bus Power/CAN, CFX-750/FM-750™	77282
3	CFX-750 power cable with relay and switch (power bus) - optional	67259
4	Cable Assy, AGCO, FmX®, CFX, GFX-750™, TMX Power Jumper	118053
5	CFX-750 to NavController cable with port replicator	75741
6	2 pin DTM to 2 pin DT power adaptor	67095
7	NavController III	64425-07
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 cable	54601
13	Cbl Assy, Diagnostic, NavController II	54602
14	Cable Assy, Autopilot, Massey Ferguson, NavController III	122812

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

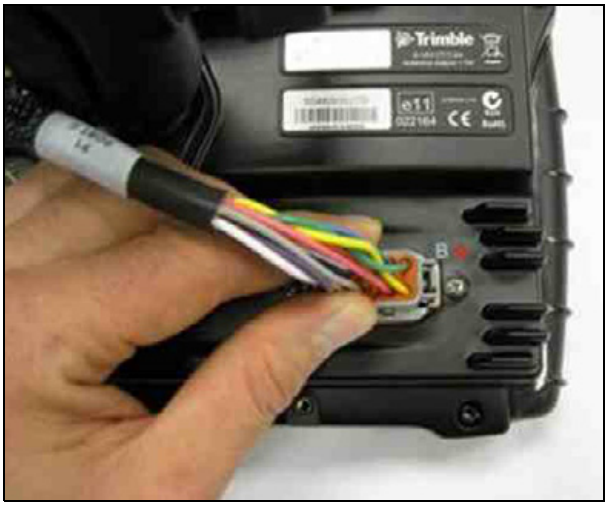
Decide where you will mount the display in the vehicle cab and then use the provided bolts to attach the bar mount to the rail.

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 6, Controller Installation.



CFX-750 display: Installing the wiring harness

Step 1

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

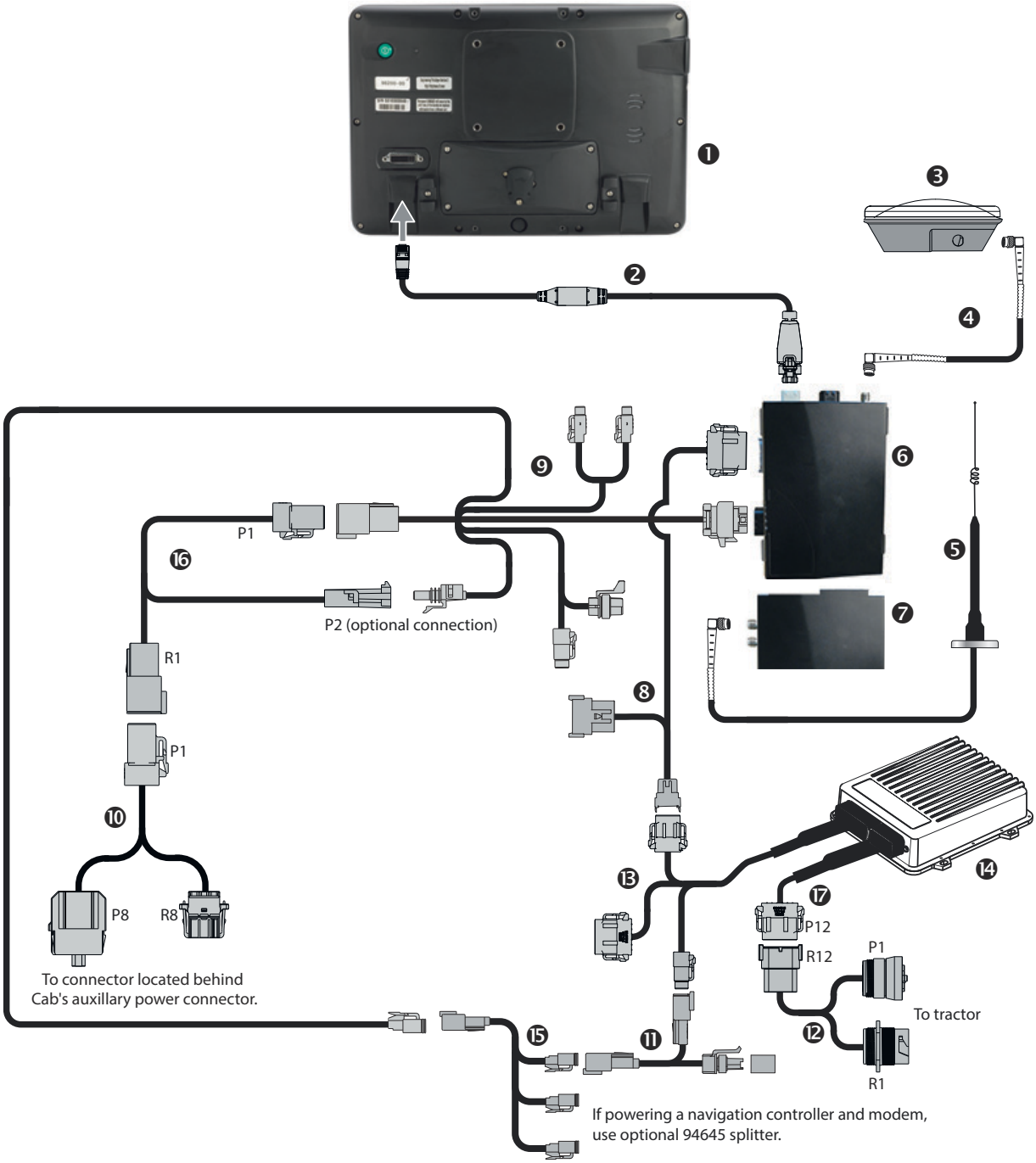
Step 2

Connect the cable to the P3 connector on the NavController main harness and then route the cable from the NavController to the mounting location on the CFX-750 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	Cable Assy, TMX/XCN-2050™, Display to TM-200	93843
3	AG-25 GNSS antenna	77038-00

Item	Description	Trimble part number
4	8 m GNSS TNC/TNC RT angle cable	50449
5	900 MHz radio antenna kit	22882-10
	NMO-to-TNC 20 ft antenna cable and base	62120
6	TM-200 Module	95060-00
7	AG-815 radio	
8	TM-200 Module to NavController cable with port replicator	75741
9	TM-200 Module power and I/O cable	92676
10	Cable Assy, AGCO, FmX, CFX, GFX, TMX Power Jumper	118053
11	2-pin DTM to 2-pin DT power adapter cable	67095
12	Cable Assy, Autopilot, Massey Ferguson, NAV-III	122812
13	Main NavController cable	54601
14	NavController III	55566-00
15	Cable Assy, TMX-2050/XCN-2050, Multi Power Accessory	94645
16	Cable, TMX-2050, display to OEM power harness adapter	95918
17	Cable, NavController diagnostic	54602

TMX-2050 display: Preparation

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

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

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

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

Installing the display and mount

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

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

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

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

.

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



Step 1

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



Step 2

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





Step 3

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



Step 4

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

Step 5

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

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

Step 6

Connect the display cable to the display.



Step 7

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



TMX-2050 display: Installing the wiring harness

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

Step 1

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

Step 2

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



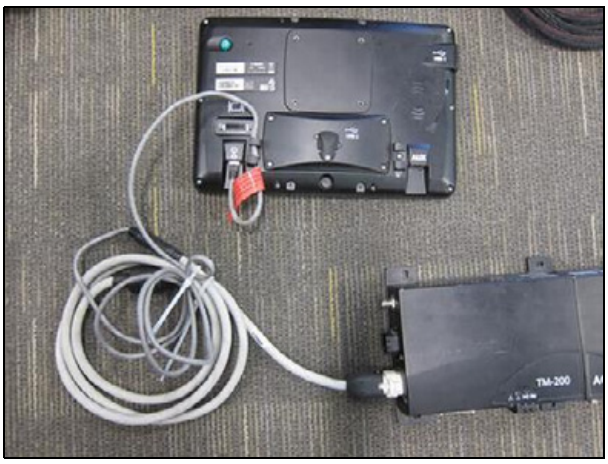
Step 3

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



Step 4

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



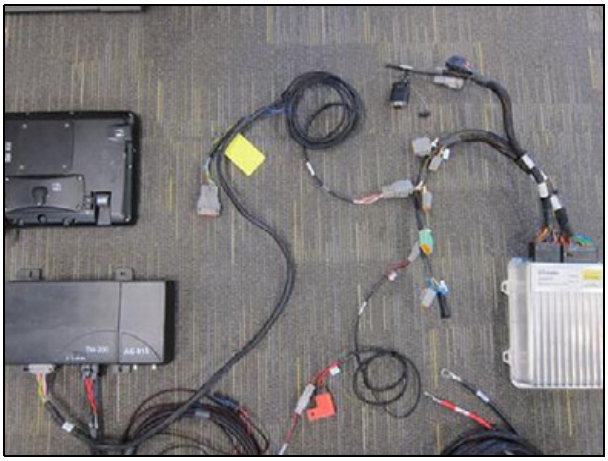
Step 5

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



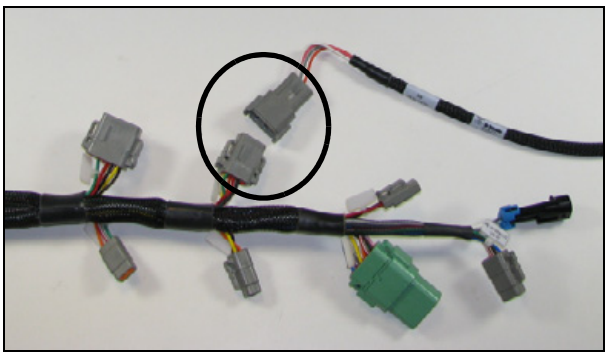
Step 6

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



Step 7

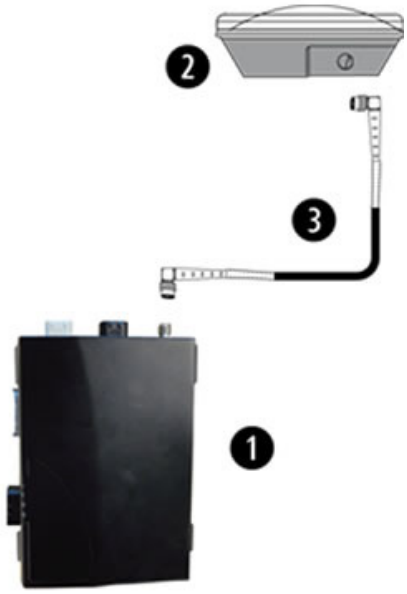
Connect the cable to the P3 connector on the NavController main harness.



TMX-2050 display: AG-25 GNSS antenna

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

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



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

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

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

CFX-750 and TMX-2050 displays: Installing the GNSS antenna and plate

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

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

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

NOTE – The V plate antenna bracket is available on the Autopilot price list. See Antenna mounting kits, page 8.

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. 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:

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

VHB adhesive method

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

- **GLONASS, RTK, OmniSTAR, DGPS applications** – To use this method for high accuracy, the surface must be rigid and free of "oil panning". For RTK or OmniSTAR HP corrections, the 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. Apply force to the roof to find a firm location.

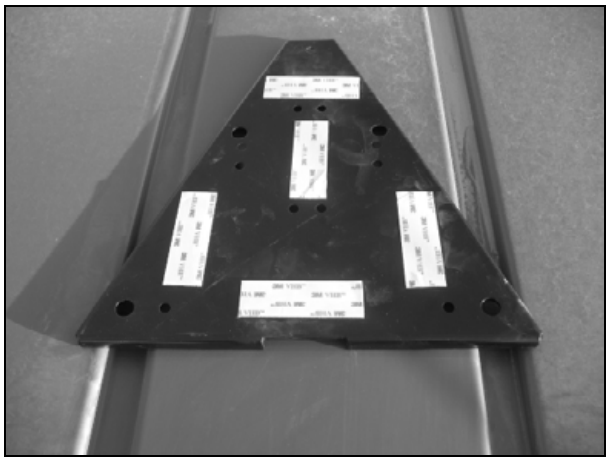


Step 2

V plate only

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

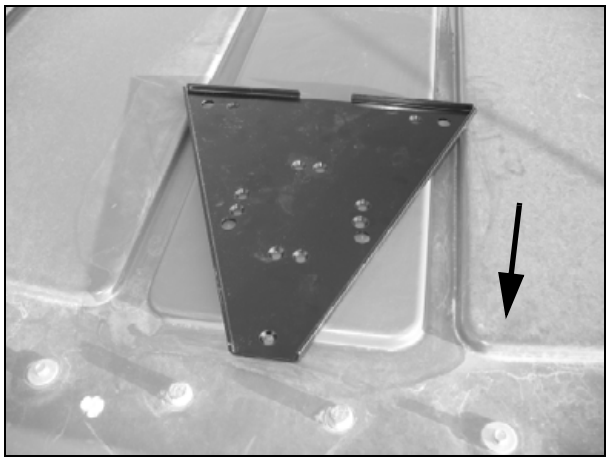
NOTE – The VHB strips are pre-applied to the P/N 62034 plate.



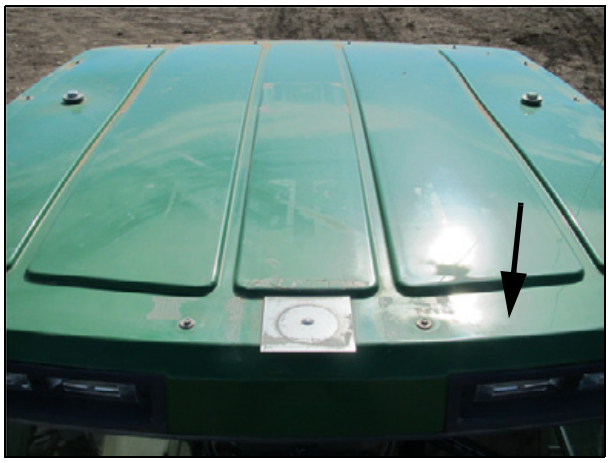
Step 3

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

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



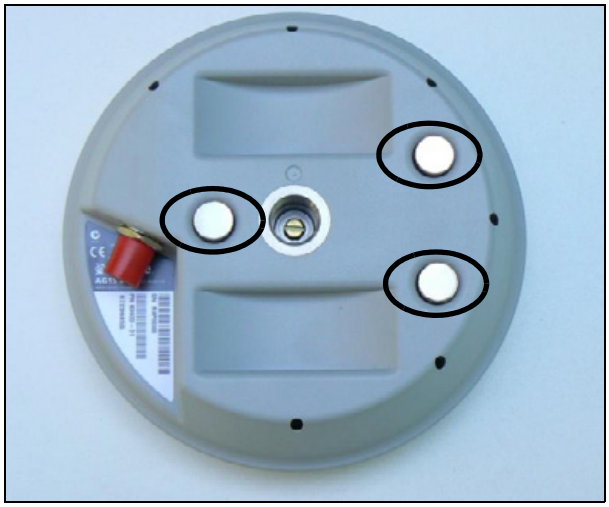
V plate



P/N 62034 plate

Step 4

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



Otherwise, attach the large magnet with a 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 P/N 62034 plate.



Step 6

Both models

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



CFX-750 and TMX-2050 displays: Installing the RTK radio antenna

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

Step 1

Connect the radio antenna to the magnetic antenna base.



Step 2

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



Step 3

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

Step 4

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

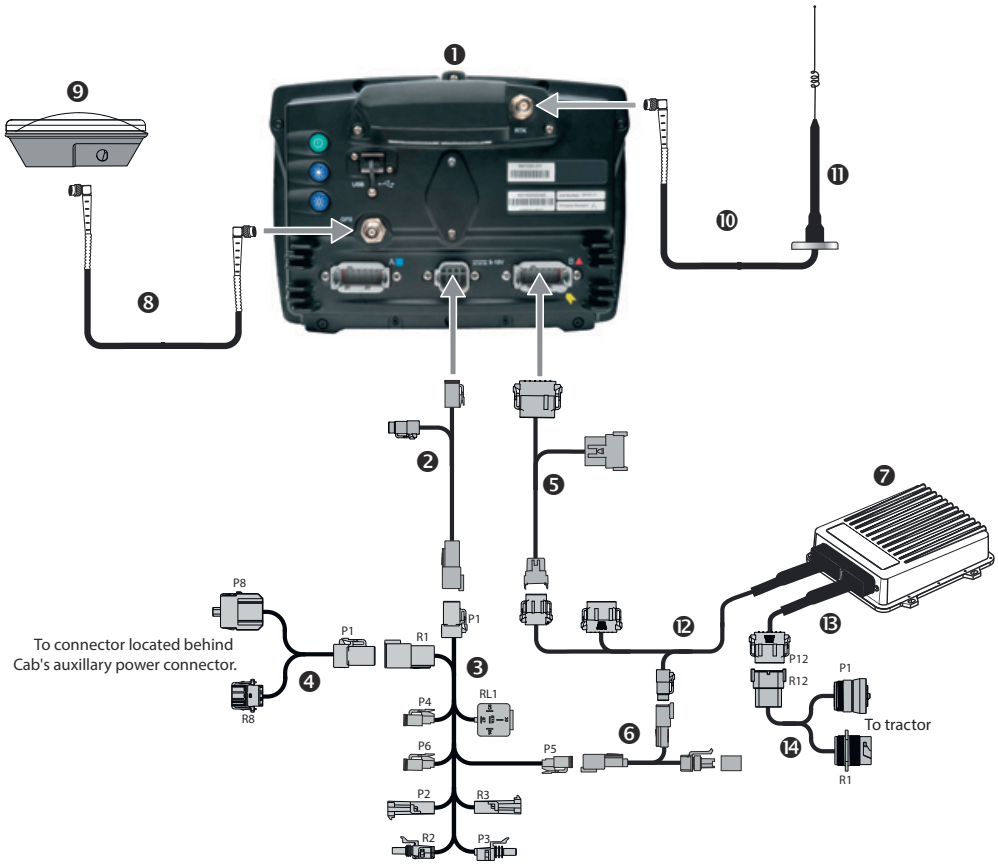


4

Power Harness Installation

- CFX-750 display: Components
- CFX-750 display: Installing the power harness
- CFX-750 display: Configuring the power bus options
- TMX-2050 display: Components
- TMX-2050 display: Installing the power harness
- TMX-2050 display: Configuring the power options

CFX-750 display: Components



⚠ **CAUTION –** Connecting the Port Replicator on the CFX-750 to NavController cable ❺ to the P4 or P12 connector of the NavController harness ⓬ will result in damage to the display, and will void the warranty.

Item	Description	Trimble part number
1	CFX-750 display **NOTE –** RTK password required.	93100-02
2	Cable Assy, Power Bus Power/CAN, CFX-750/FM-750	77282
3	CFX-750 power cable with relay and switch (power bus) - optional	67259
4	Cable Assy, AGCO, FmX, CFX, GFX, TMX Power Jumper	118053
5	CFX-750 to NavController cable with port replicator	75741
6	2 pin DTM to 2 pin DT power adaptor	67095
7	NavController III	64425-07
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 cable	54601
13	Cbl Assy, Diagnostic, NavController II	54602
14	Cable Assy, Autopilot, Massey Ferguson, NavController III	122812

CFX-750 display: Installing the power harness

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

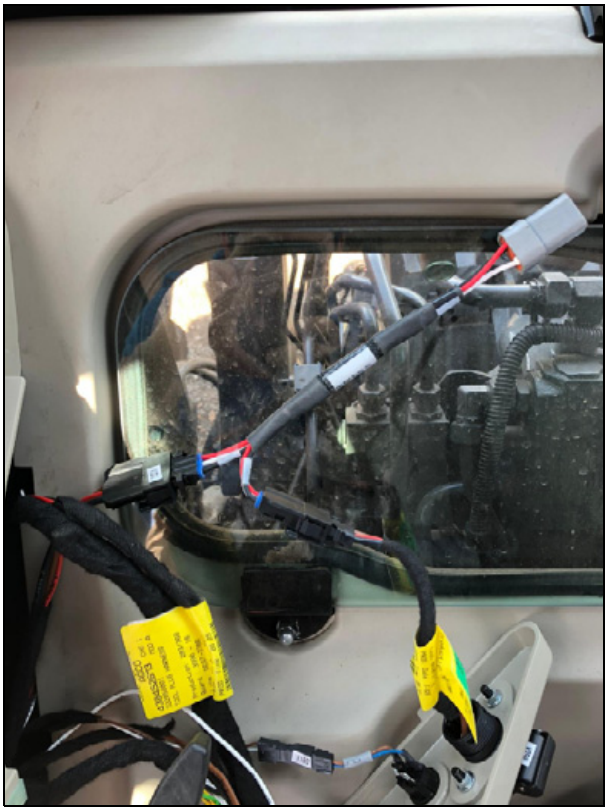
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information chapter.

Step 1

Locate and remove the panel containing a power auxiliary power connector on the right side of the machine.

Tee connectors P8 and R8 on cable P/N 118053 into X150 or X151 to provide power to the display and NavController.





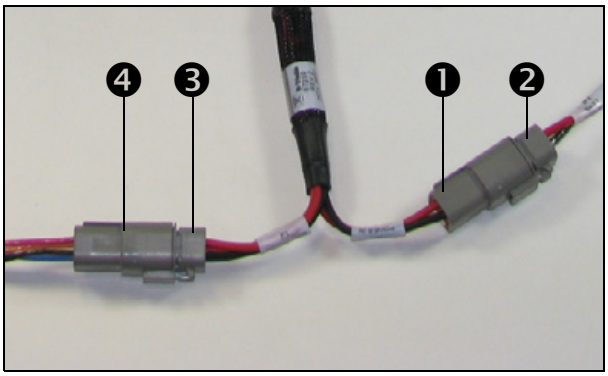
Power break-out installed (secondary option)



Alternate location

Step 2

Locate and connect the 4-pin Deutsch DTP receptacle on the power bus ❶ 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.



CFX-750 display

CFX-750 display: Configuring the power bus options

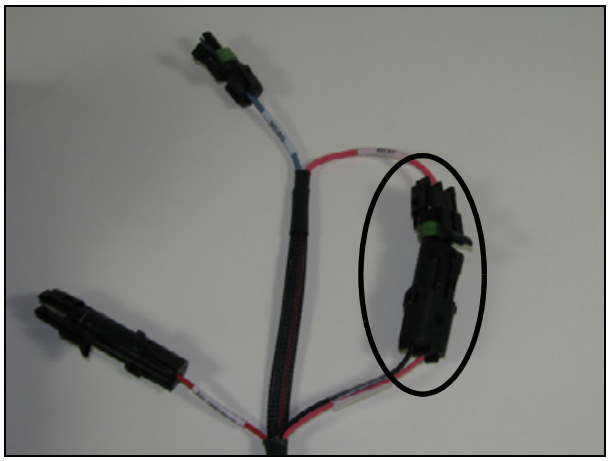
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information chapter.

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.

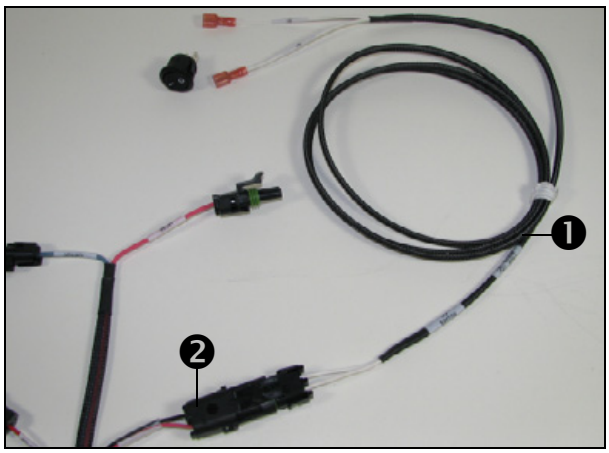


External switch is used to turn on the Autopilot system

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.

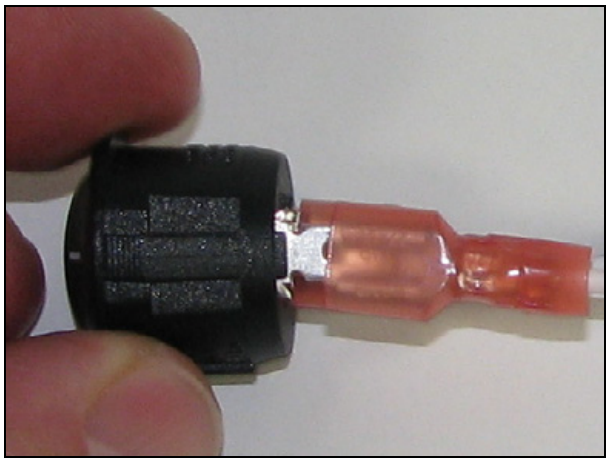
NOTE – To install the switch provided, drill a ¾" hole.



Step 2

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

NOTE – Polarity is not important.

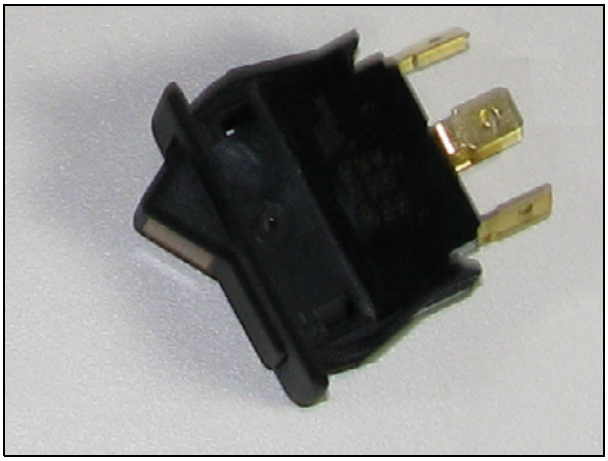


Installing the optional illuminated full or standard Euro switch

Step 1

Find an available knockout location on the vehicle console.

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

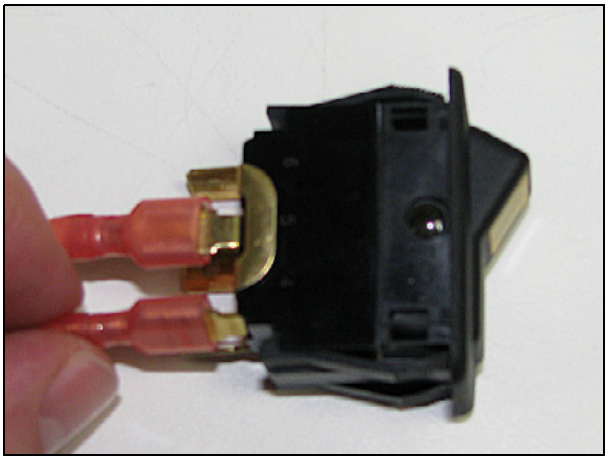


Step 2

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.

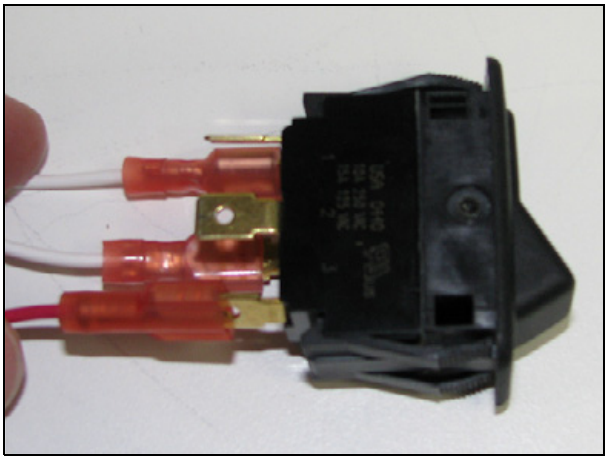
NOTE – Polarity is important.



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.

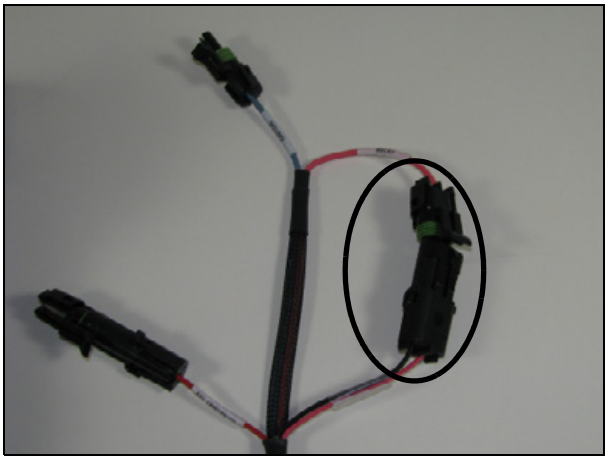
NOTE – This additional wire is required to allow the switch to illuminate.



Ignition is used to turn on the Autopilot system

Step 1

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

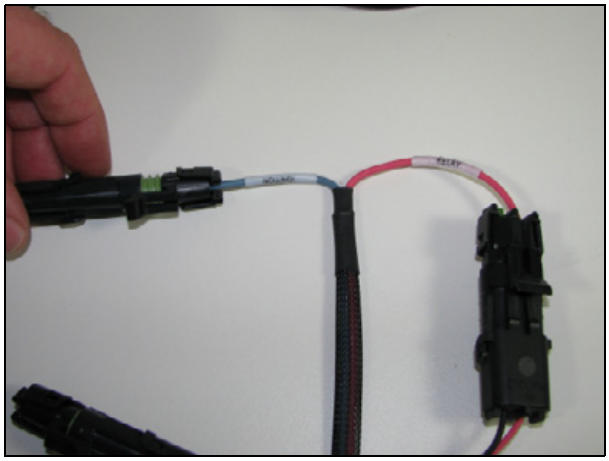


Step 2

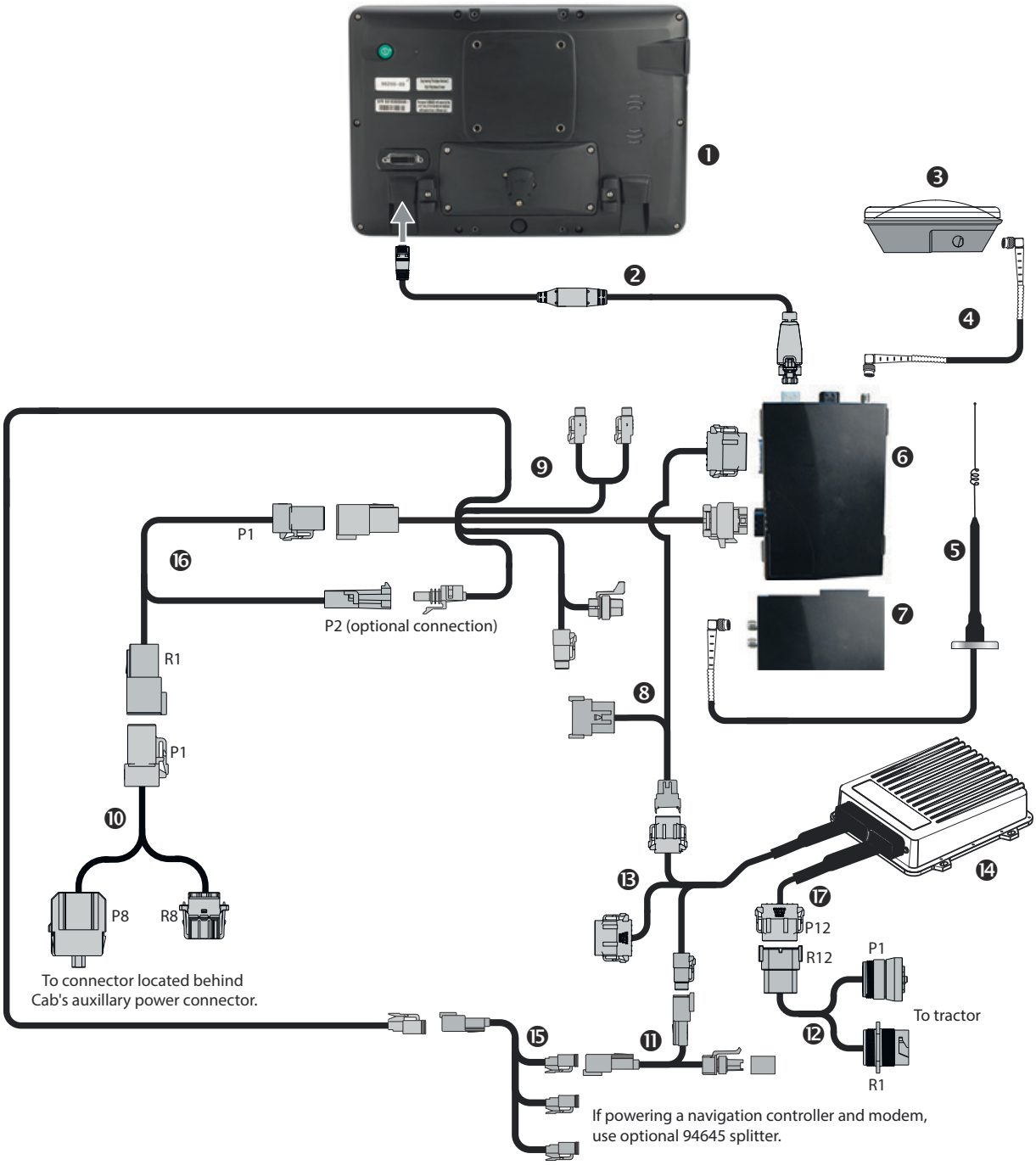
Connect the cable labeled **R8 Ignition** (included with the power bus) to connector **P3 Ignition** on the power bus.

Step 3

Route the cable to the vehicles ignition.



TMX-2050 display: Components



Item	Description	Trimble part number
1	TMX-2050 display	96700-00
2	Cable Assy, TMX/XCN-2050, Display to TM-200	93843
3	AG-25 GNSS antenna	77038-00
4	8 m GNSS TNC/TNC RT angle cable	50449

Item	Description	Trimble part number
5	900 MHz radio antenna kit	22882-10
	NMO-to-TNC 20 ft antenna cable and base	62120
6	TM-200 Module	95060-00
7	AG-815 radio	
8	TM-200 Module to NavController cable with port replicator	75741
9	TM-200 Module power and I/O cable	92676
10	Cable Assy, AGCO, FMX, CFX, GFX, TMX Power Jumper	118053
11	2-pin DTM to 2-pin DT power adapter cable	67095
12	Cable Assy, Autopilot, Massey Ferguson, NAV-III	122812
13	Main NavController cable	54601
14	NavController III	55566-00
15	Cable Assy, TMX-2050/XCN-2050, Multi Power Accessory	94645
16	Cable, TMX-2050, display to OEM power harness adapter	95918
17	Cable, NavController diagnostic	54602

TMX-2050 display: Installing the power harness

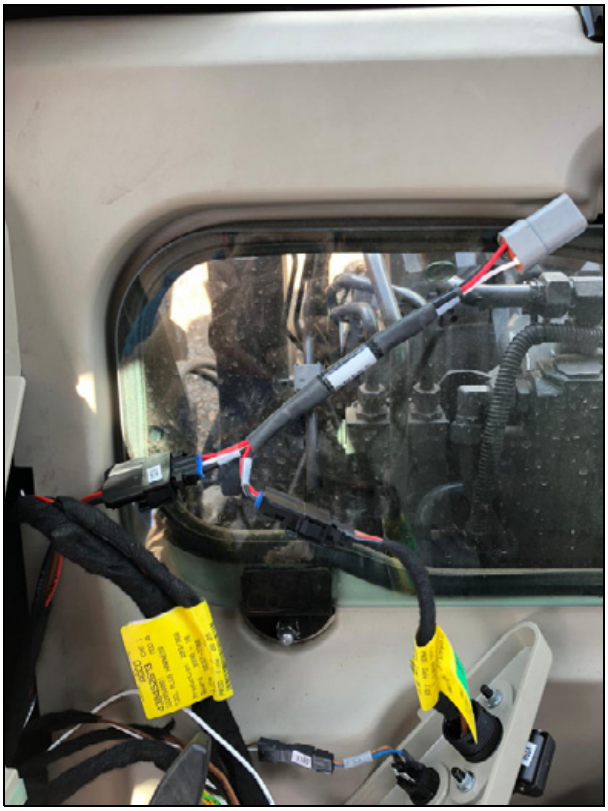
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information.

Step 1

Locate and remove the panel containing a power auxiliary power connector on the right side of the machine.

Tee connectors P8 and R8 on cable P/N 118053 into X150 or X151 to provide power to the display and NavController.





Power break-out installed (secondary option)



Alternate location

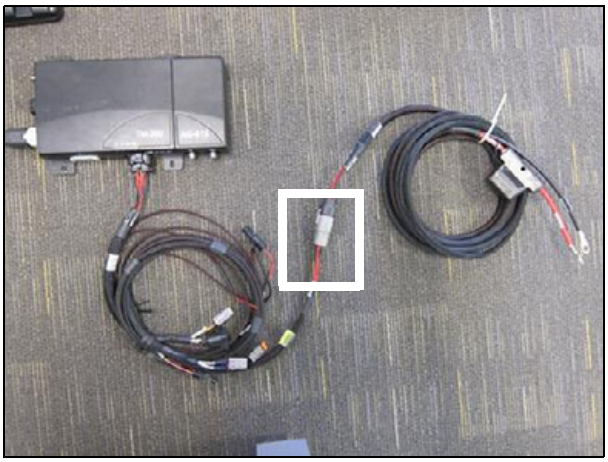
Step 2

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



Step 3

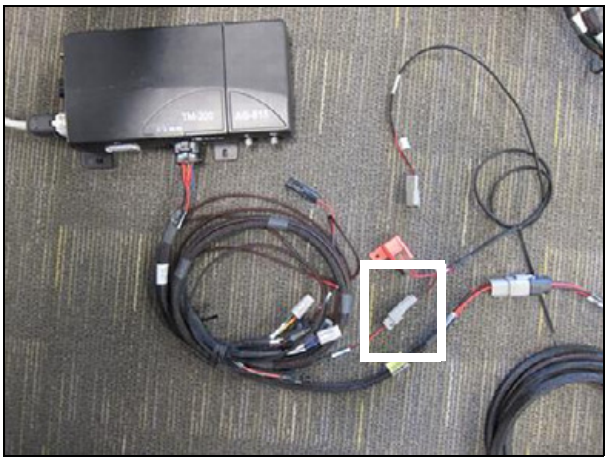
Route the power cable P/N 92905 that you previously connected to the battery and connect it to the R3 power in plug on the P/N 92676 cable.



Step 4

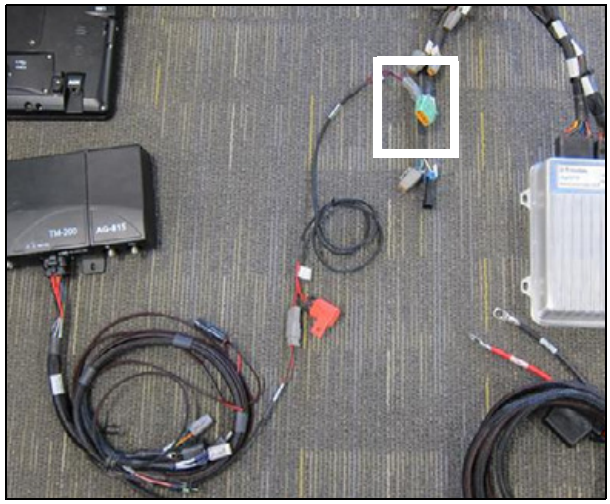
Connect the 2-pin DTM to 2-pin DT power adaptor P/N 67095 to the P2 power out connector on the P/N 92676 cable.

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

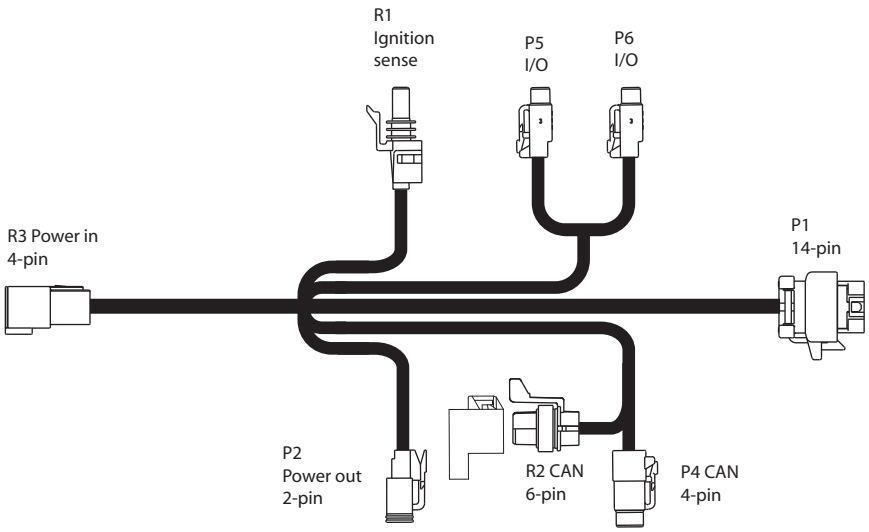
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information.

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

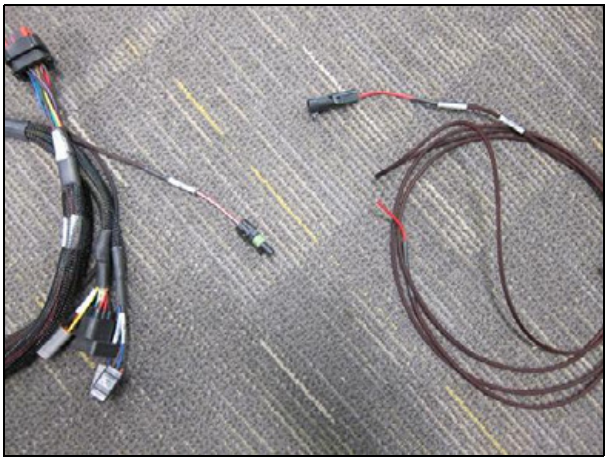
For ignition sensing with the TMX-2050 display, connect the ignition on the power supply to the R1 connector on the harness, P/N 92676.



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

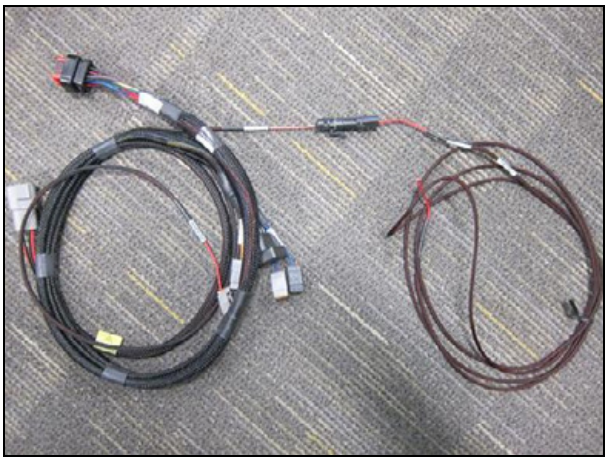
Step 1

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.



5

Remote Engage Switch Installation

- Remote engage switch components: Rocker switch
- Remote engage switch components: Foot switch
- Preparing the remote engage cable
- Installing the Remote Engage push button (P/N 101250)
- Using the remote engage switch

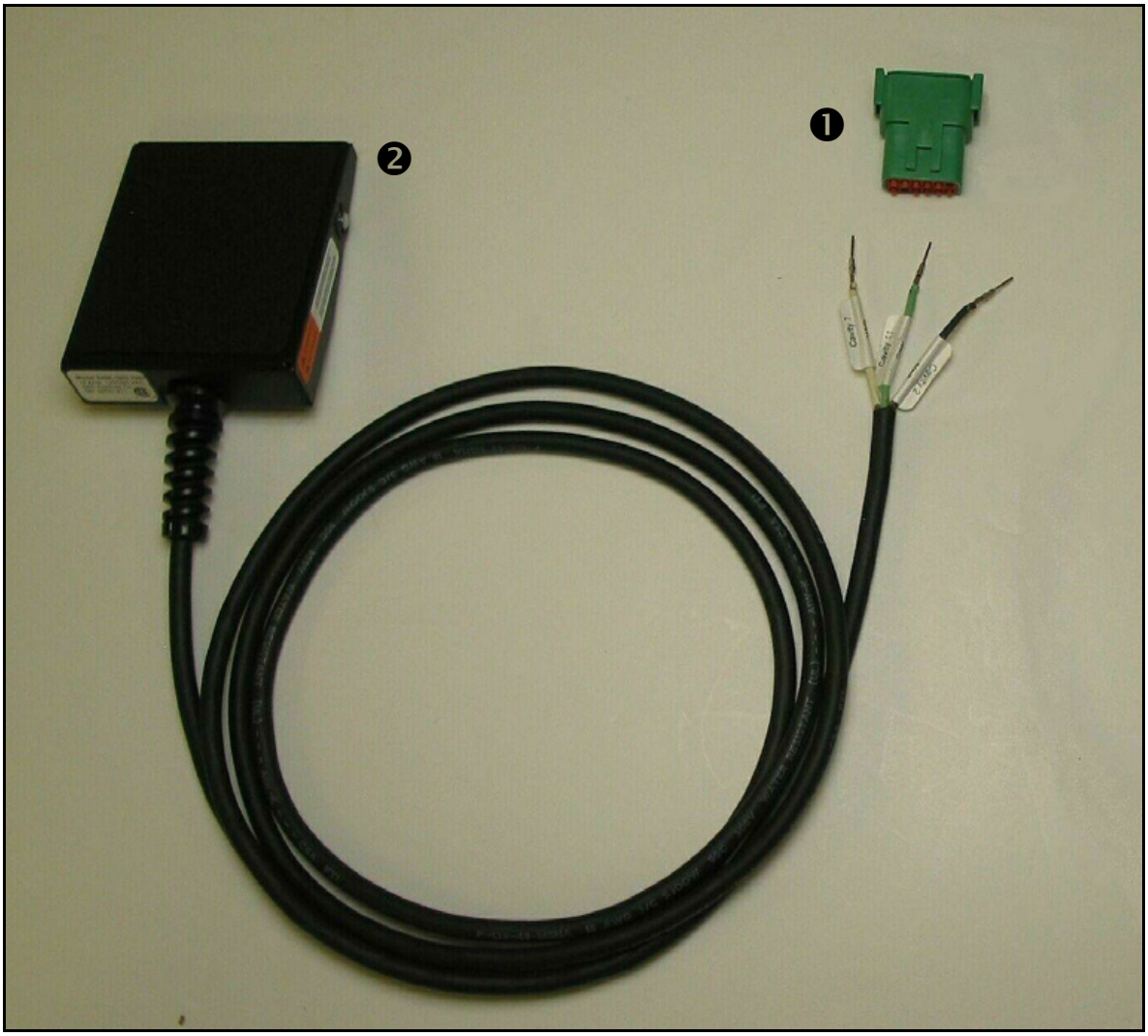
Remote engage switch components: Rocker switch



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

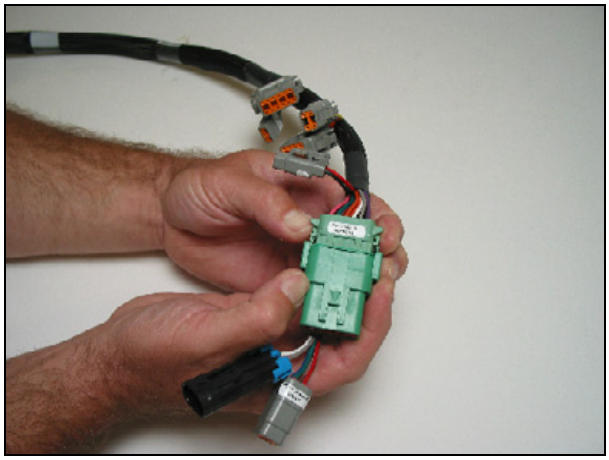


Item	Description
1	DTM receptacle
2	Remote engage foot switch

Preparing the remote engage cable

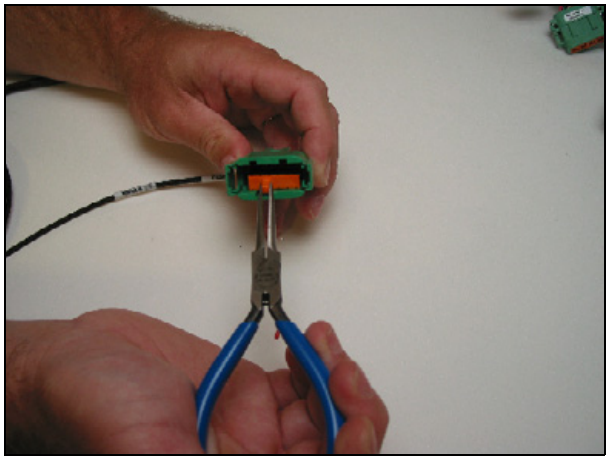
Step 1

Locate the green 12-pin Deutsch receptacle on the P-5 leg of the main controller harness. For more information, see Controller connections, page 62.



Step 2

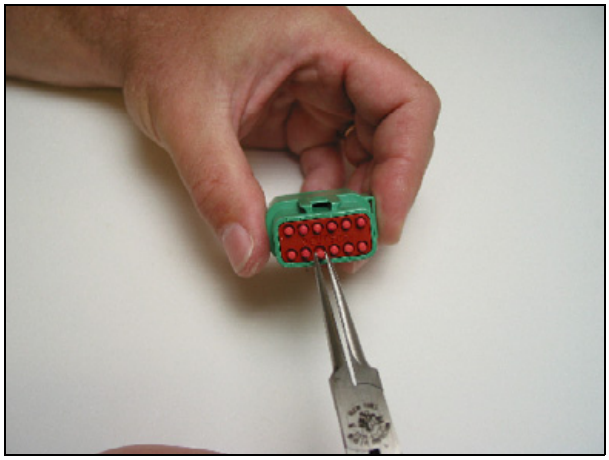
Remove the wedge from the connector.



Step 3

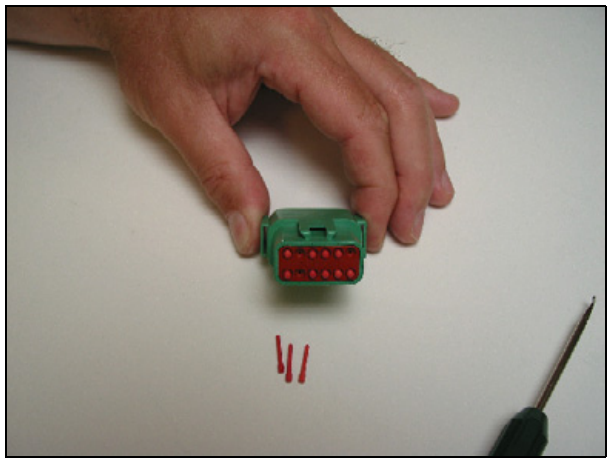
Rocker switch only

Remove the plugs from cavity 2 and cavity 7.



Foot Switch Only

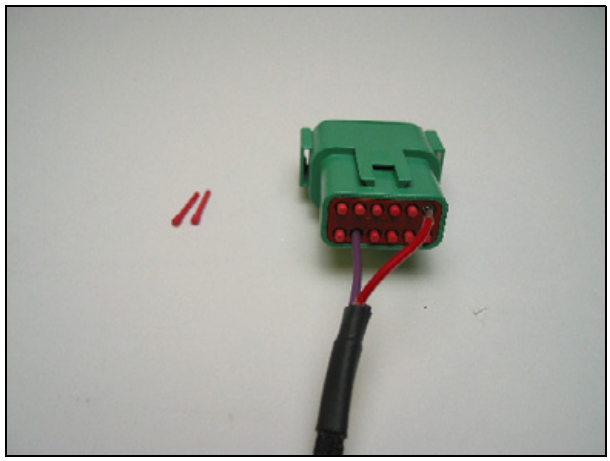
Remove the plugs from cavity 2, cavity 7, and cavity 11.



Step 4

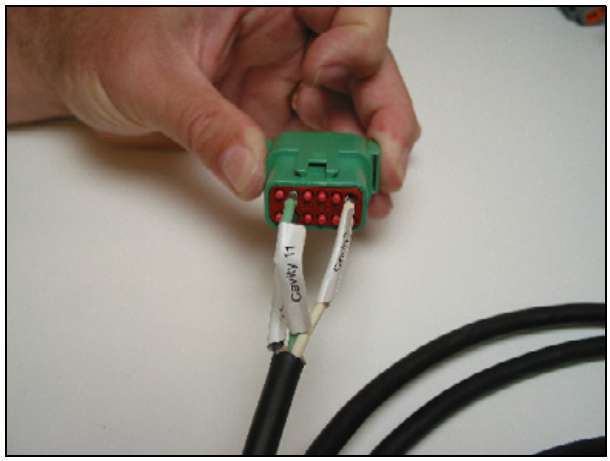
Rocker switch only

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



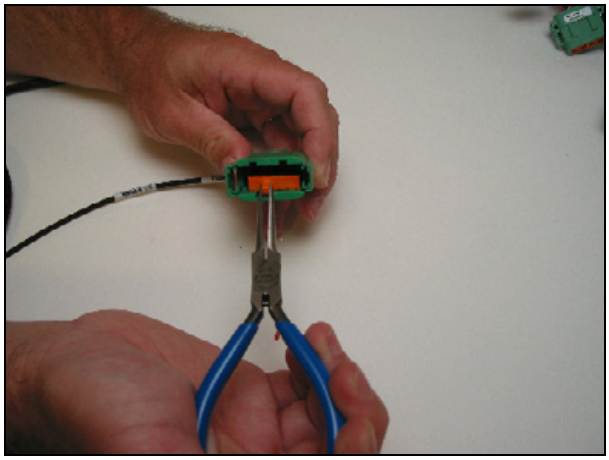
Foot switch only

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 III harness.

Step 7

Rocker switch only

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



Foot switch only

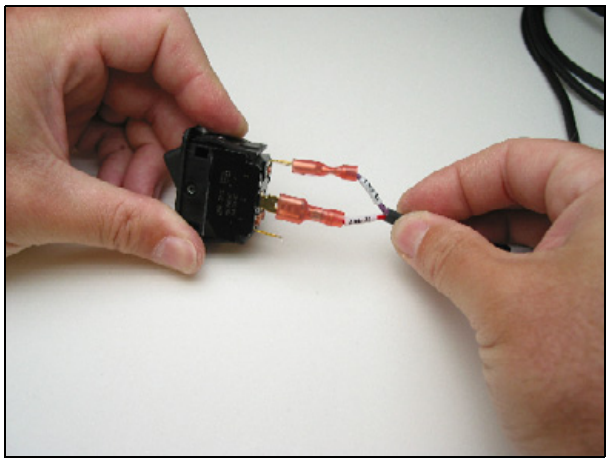
Run the cable to a clear location on the floor board. Use double-sided tape to secure the pedal. Route the cable under the floor mat.



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

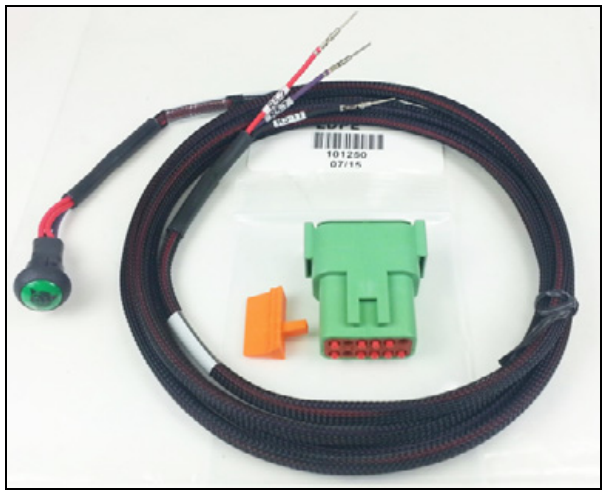
Place the switch in the console.



Installing the Remote Engage push button (P/N 101250)

Step 1

Locate the push button cable assembly (P/N 101250) and verify that the 12-pin green Deutsch connector, wedgelock, and seal are included in the small Ziploc bag.



Step 2

Locate a convenient location on the machine to install the switch. It should be easily accessible while driving but should not interfere with any other machine controls.



Step 3

Remove the panel from the desired installation location to verify that there is adequate clearance for the switch and cable. Take care that the cable will not interfere with any gear levers.



Step 4

Drill a ½" hole for the switch.



Step 5

Thread the cable through the clear round seal, and slide it up until it reaches the switch.



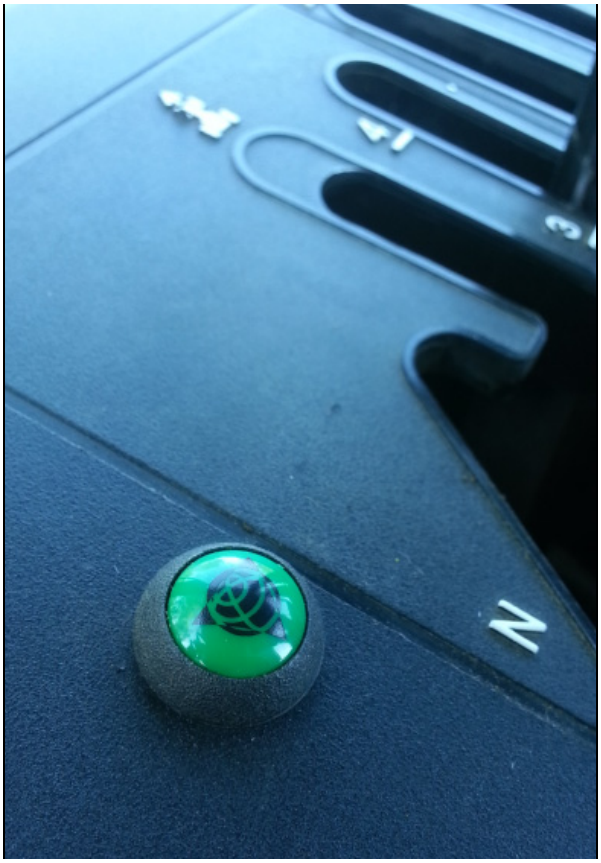
Step 6

Thread the cable through the hole in the instrument panel.



Step 7

Push the button down until it seats. The locking tabs will hold it securely in place.



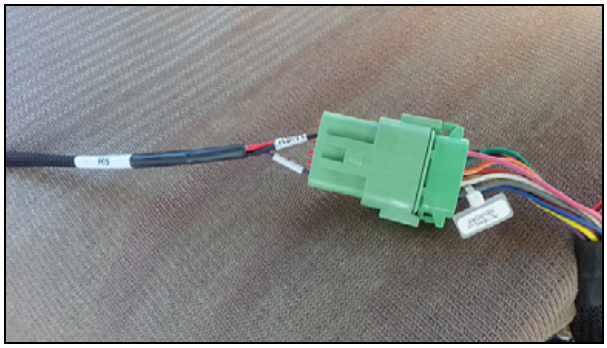
Step 8

Route the cable as desired, and insert the contacts into the 12-pin connector as labeled.



Step 9

Plug the 12-pin receptacle into the mating green plug (P5) on the NavController main harness (P/N 54601). Verify that the button works properly before proceeding. In dim lighting, the button has an LED backlight which will be visible whenever the NavController is powered on.



Step 10

Reinstall the panel and secure loose cables with wire ties.



Using the remote engage switch

To engage a system using NavController III do one of the following:

- Firmware versions 5.20 and earlier: Hold down the remote engage switch for longer than 0.5 seconds and less than 4 seconds.
- 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.

6

Controller Installation

- Installing the controller
- Controller connections

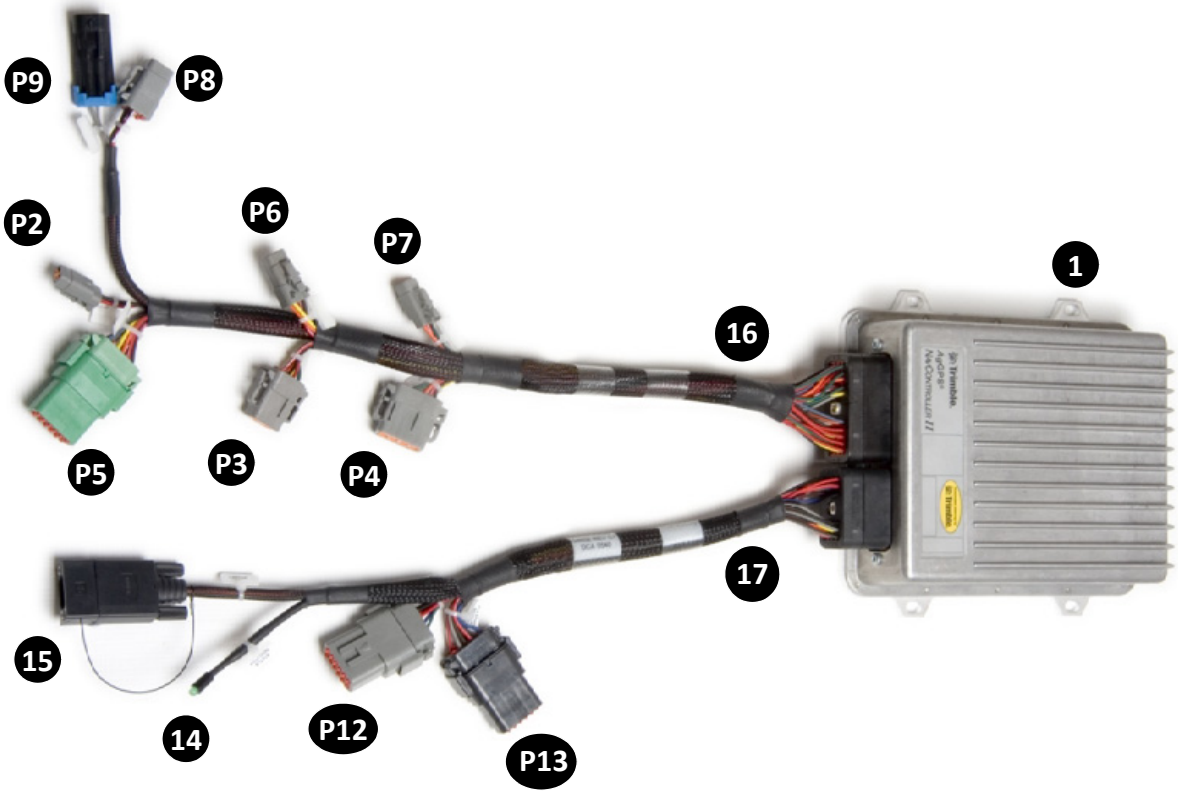
Installing the controller

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

Mount the NavController to the right front cab floor. Point the connectors to the rear of the vehicle. Use the supplied mounting plate (P/N 54828) to provide a firm mounting surface for the controller. Use washers and standoffs to properly level the NavController.



Controller connections

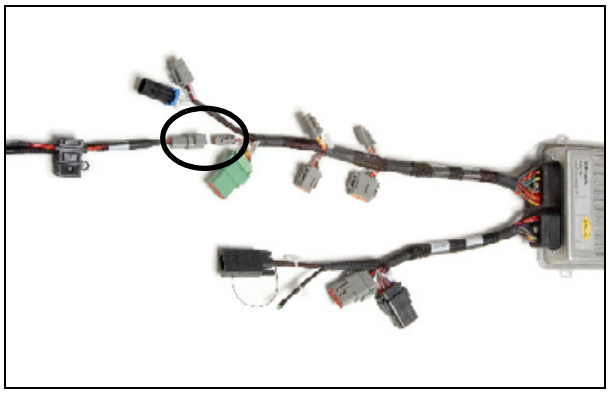


Item	Description	Item	Description
1	NavController III	**P9**	Sonalert connector
P2	Power connector	**P12**	Lightbar/spare connector
P3	GNSS connector	**P13**	Spare sensors connector
P4	Display connector	**14**	Status indicator
P5	Vehicle sensors connector	**15**	Laptop connector
P6	Steering sensor connector	**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.

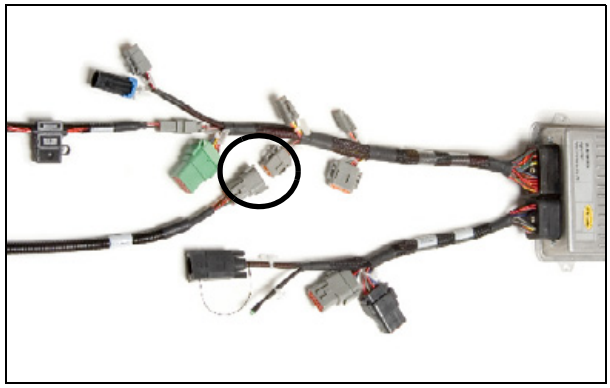
NOTE – The power connection supplies power through the controller to all connected devices, including GNSS and displays.



Step 2

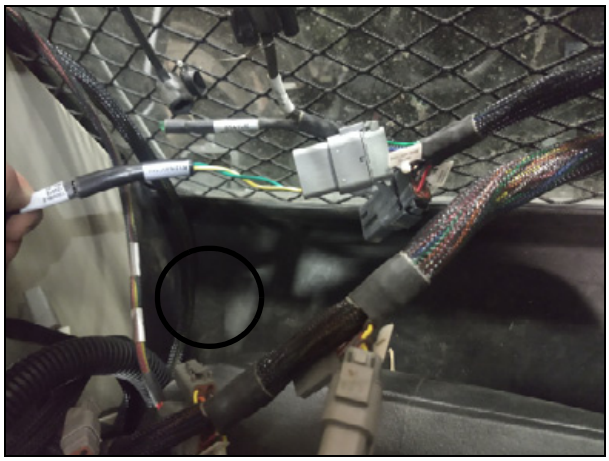
Connect the GNSS cable connection to P3, which is labeled **GPS**. P3 is located on the main wiring harness.

NOTE – If you are installing a CFX-750 or TMX-2050 display, plug the display here, using cable P/N 75741.



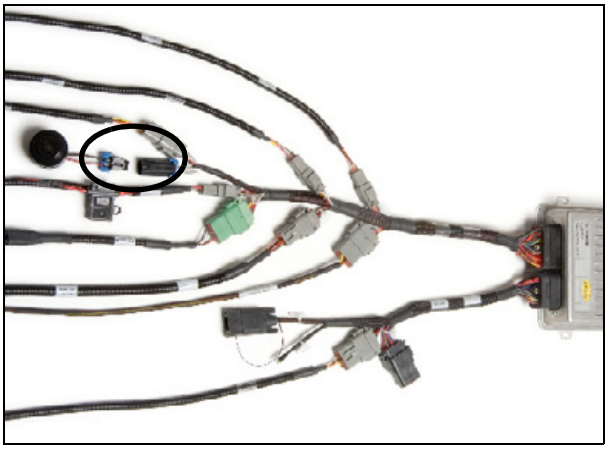
Step 3

Plug R12 from cable P/N 122812 into P12 on the diagnostic harness, P/N 54602.



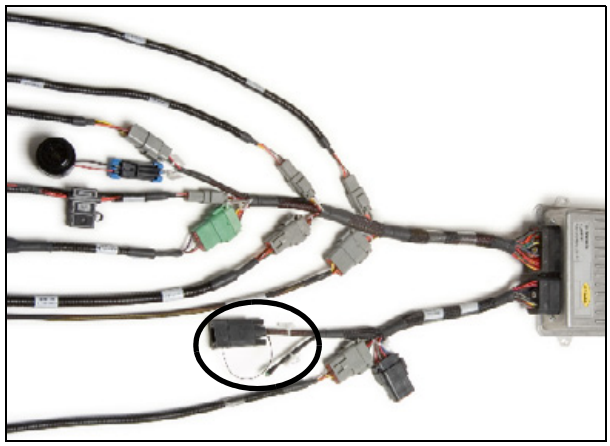
Step 4

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



Step 5

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 6

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.

7

Final Machine Check

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

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 III to the latest firmware from http://www.agpartners.trimble.com.

   You can use FlashLoader 200 software version 3.35 to update the Autopilot controller: Download it from http://agpartners.trimble.com.
4. Load the correct configuration file into the Autopilot NavControllerII for the vehicle model being used.

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

   You can use Autopilot Toolbox II software version 3.3 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 the Autopilot Toolbox II software. Depending on your machine type, the following items must be calibrated before you can use the Autopilot system:
   - NavController III mounting orientation
   - Manual override
   - AutoSense mounting orientation
   - Valve deadzone
   - Autopilot P-gain
   - Antenna height/Antenna axle offset, and Roll offset

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