Autopilot

AUTOMATED STEERING SYSTEM

INSTALLATION INSTRUCTIONS

Case IH

- MX 180 Magnum
- MX 200 Magnum
- MX 210 Magnum
- MX 215 Magnum
- MX 220 Magnum
- MX 230 Magnum
- MX 240 Magnum
- MX 245 Magnum
- MX 255 Magnum
- MX 270 Magnum
- MX 275 Magnum
- MX 285 Magnum
- MX 305 Magnum
- MX 335 Magnum

New Holland

- TG 210
- TG 215
- TG 230
- TG 245
- TG 255
- TG 275
- TG 285
- TG 305
- T8010
- T8020
- T8030
- T8040
- T8050

Version 8.00
Revision B
March, 2020
P/N 54035-1125-E08-B

Trimble

Legal Notices

Agriculture Business Area

Trimble Agriculture Division
10368 Westmoor Drive
Westminster, CO 80021-2712
USA
www.trimble.com

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Official Language

THE OFFICIAL LANGUAGE OF THESE TERMS AND CONDITIONS IS ENGLISH. IN THE EVENT OF A CONFLICT BETWEEN ENGLISH AND OTHER LANGUAGE VERSIONS, THE ENGLISH LANGUAGE SHALL CONTROL.

Release Notice

This is the March 2020 release (Revision B) of the Autopilot Automated Steering System Installation Instructions, part number 54035-1125-E08-B. It applies to version 8.00 of the Autopilot automated steering system.
The following limited warranties give you specific legal rights. You may have others, which vary from state/jurisdiction to state/jurisdiction.

Product Limited Warranty

Trimble warrants that this Trimble product and its internal components (the "Product") shall be free from defects in materials and workmanship and will substantially conform to Trimble's applicable published specifications for the Product for a period of one (1) year, starting from the earlier of (i) the date of installation, or (ii) six (6) months from the date of product shipment from Trimble. This warranty applies only to the Product if installed by Trimble or a distributor authorized by Trimble to perform Product installation services.

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All Product software components (sometimes hereinafter also referred to as "Software") are licensed and not sold. Any Software accompanied by a separate End User License Agreement ("EULA") shall be governed by the terms, conditions, restrictions and limited warranty terms of such EULA notwithstanding the preceding paragraph. During the limited warranty period you will be entitled to receive, at no additional charge, such Fix Updates and Minor Updates to the Product software as Trimble may develop for general release, subject to the procedures for delivery to purchasers of Trimble products generally. If you have purchased the Product from an authorized Trimble distributor rather than from Trimble directly, Trimble may, at its option, forward the software Fix Update or Minor Update to the Trimble distributor for final distribution to you. Major Upgrades, new products, or substantially new software releases, as identified by Trimble are expressly excused from this enhancement process and limited warranty. Receipt of software updates shall not serve to extend the limited warranty period.
For purposes of this warranty the following definitions shall apply: (1) "Fix Update" means an error correction or other update created to fix a previous software version that does not substantially conform to its published specifications; (2) "Minor Update" occurs when enhancements are made to current features in a software program; and (3) "Major Upgrade" occurs when significant new features are added to software, or when a new product containing new features replaces the further development of a current product line. Trimble reserves the right to determine, in its sole discretion, what constitutes a significant new feature and Major Upgrade.

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Trimble's sole liability and your exclusive remedy under the warranties set forth above shall be, at Trimble's option, to repair or replace any Product that fails to confirm to such warranty ("Nonconforming Product"), and/or issue a cash refund up to the purchase price paid by you for any such Nonconforming Product, excluding costs of installation, upon your return of the Nonconforming Product to Trimble in accordance with Trimble's standard return material authorization process.
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Class B Statement – Notice to Users. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This

equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

Reorient or relocate the receiving antenna.

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

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

Notice to Our European Union Customers

For product recycling instructions and more information, please go to:
http://www.trimble.com/Corporate/Environmental_Compliance.aspx

Recycling in Europe: To recycle Trimble WEEE, Call
+31 497 53 2430, and ask for the "WEEE Associate"
Or
Mail a request for recycling instructions to:
Trimble Europe BV
c/o Menlo Worldwide Logistics
Meerheide 45
5521 DZ Eersel, NL

Safety Information

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

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

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

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

Warnings

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

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

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

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

Cautions

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

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

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

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

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

Contents

1

Introduction

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

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

Technical assistance

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

1. Go to the Trimble website (www.trimble.com).
2. Click the **Support & Training** link at the top of the screen, select **Support** and then select **Support A–Z list of products**.
3. Scroll to the bottom of the list.
4. Click the **submit an inquiry** link. A form appears.
5. Complete the form and then click **Send**.

Your comments

Your feedback about the supporting documentation helps us to improve it with each revision. Email your comments to ReaderFeedback@trimble.com.

Manual system upgrade to Autopilot

Displays

Retain
TMX-2050™ integrated display: P/N 96500-xx
CFX-750™ display: P/N 94110-xx
Antenna to receiver cable: P/N 50449
Power cable: P/N 67258 & 66694
GFX-750™/XCN-1050: P/N 121000-XX
Power cable GFX-750/XCN-1050: P/N 110551
Base power cable: P/N 67258
NAV-900 guidance controller: P/N 108993-05
GFX-750 to NAV-900 Comms cable: P/N 110540

Required components

Kits required	Special tools
Platform kit: P/N 54035-1125-ENG Hydraulic hose kit: - P/N 67097-1000 non isolation, - P/N 67097-2000 with isolation (requires P/N 114161, sold separately) TMX-2050/CFX -750 installations: P/N 64425-07 GFX-750 Installations: P/N 64425-08	¾" and $1\frac{5}{8}$" hole saw $\frac{5}{16}$" drill bit 5000 psi hydraulic gauge and extension hose Allen wrench set (metric and SAE)

NOTE – New Holland tractors equipped with the mega flow option must also have the power beyond option installed. The power beyond option is available from New Holland.

Antenna mounting kits

Antenna options
Antenna V plate mount and *Ag*GPS 262 receiver magnetic mount: P/N 62388-01 (includes magnets for quick release of the *Ag*GPS 262 receiver – see Chapter 4, Antenna/Receiver Installation). Optional spar mounts (must measure application for proper part number): • P/N 64898: Bracket, GPS Spar 16.5"– 28.5" • P/N 55349: Bracket, GPS Spar 27.5"– 37.5" • P/N 53676: Bracket, GPS Spar 36.5"– 46.5" • P/N 55348: Bracket, GPS Spar 45"– 55" • P/N 66774: Bracket, GPS Spar 54"– 64" **NOTE –** For quick release mounting of the NAV-900 to a Spar mount, use P/N 110308: Bracket, NAV-900, Spar Quick Release Adapter For vehicles with the CNH 262/372 factory mount, you may optionally mount the NAV-900 with P/N 111339: NAV-900, Mount, CNH Quick Release Adapter

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

Autopilot hardware organization: As shipped

Hardware	Component	See...
Platform kit (P/N 54035-1125)	Hydraulic valve	Chapter 2
	Hydraulic manifold	
	Transducer flow switch	
	Manual override cable	
	Hydraulic brackets and bolt kits	
	Hydraulic valve cable	
	IMD-900 steering device and cabling	Chapter 3
	IMD-900 mounting bracket and hardware	
	Power switch	Chapter 6
	Bolt kit controller	Chapter 8

Hardware	Component	See...
Common parts	Controller (as part of 64425-07 or 64425-08)	Chapter 8
	Controller mounting bracket	
	Cable kit: • Main wiring harness • Auxiliary wiring harness • Sonalert alarm • Power bus/cable and switch	
GPS receiver	GPS receiver	Chapter 4
	GPS antenna	
	GPS receiver mounting bracket	
	GPS receiver power/data cable	
	RTK radio, cable, and radio antenna	
Display	CFX-750 display, GFX-750, TMX-2050 display	Chapter 5
	Display cable	
	Mounting bracket	
Hydraulic hose kit (P/N 67097-1000, -2000)	Hydraulic hoses	Chapter 2
	Hydraulic adaptors	
Roof bracket kit (varies between applications. See optional antenna brackets above)	Roof brackets	Chapter 4
	Bolt kit, roof bracket	

Autopilot hardware organization: As installed

Hardware	Component	See...
Hydraulics	• Hydraulic valve, manifold, pressure transducer, or flow switch • Hydraulic valve cable • Manual override cable • Hydraulic brackets and bolt kits	Chapter 2
IMD-900 steering device	• IMD-900 steering device and cabling • IMD-900 mounting brackets and hardware	Chapter 3
GPS receiver	• GPS receiver • GPS antenna • GPS receiver mounting bracket • GPS receiver power/data cable • Roof brackets	Chapter 4
Display	• CFX-750 display, GFX-750 display, TMX-2050 display • Display cable(s) • Mounting bracket	Chapter 5
Power	• Power cable and switch	Chapter 6
Controller	• Controller • Mounting plate • Bolt kit – controller • Main wiring harness • Aux. wiring harness • Sonalert alarm	Chapter 8

Preparing the vehicle for installation

Step 1

Park the vehicle on a hard, level surface. Block the front and rear wheels.

Step 2

Align the steering straight ahead. On an articulated vehicle, install the articulation locks.

Step 3

Remove all dirt and debris from the areas of the vehicle where the Autopilot system will be installed.

Step 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.

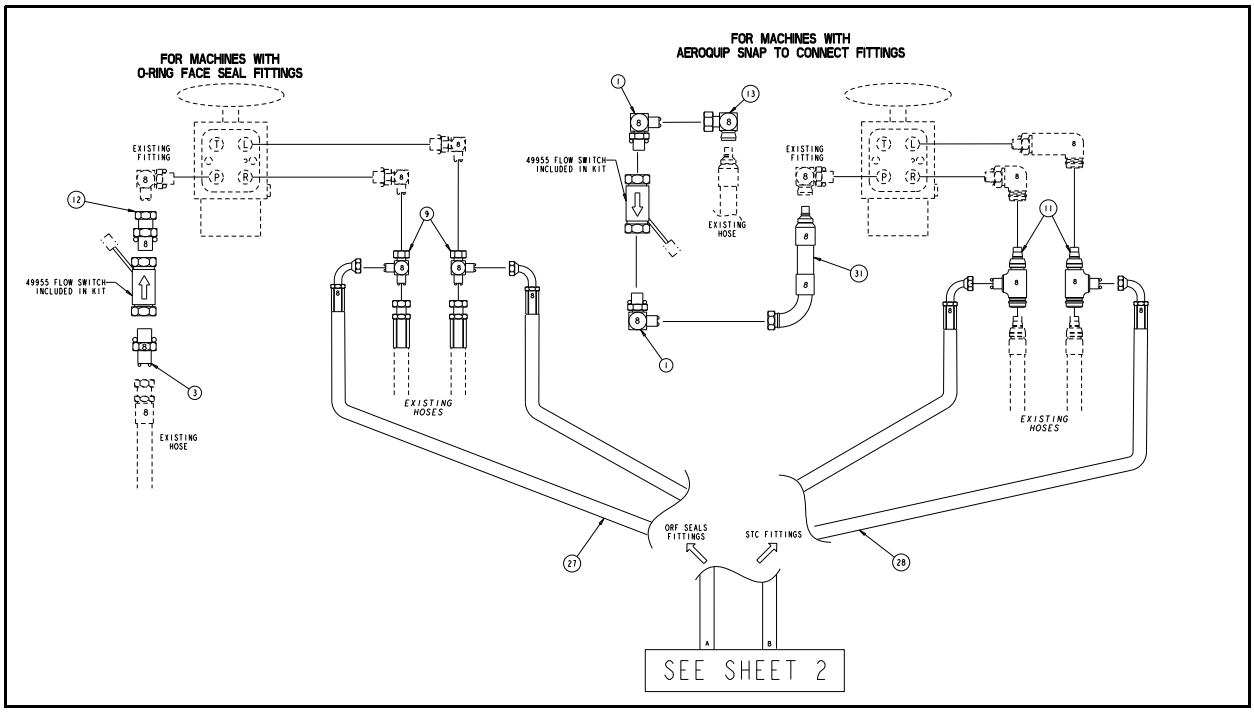
NOTE – The left and right sides of the vehicle are referenced while standing behind the unit, facing the normal direction of travel.

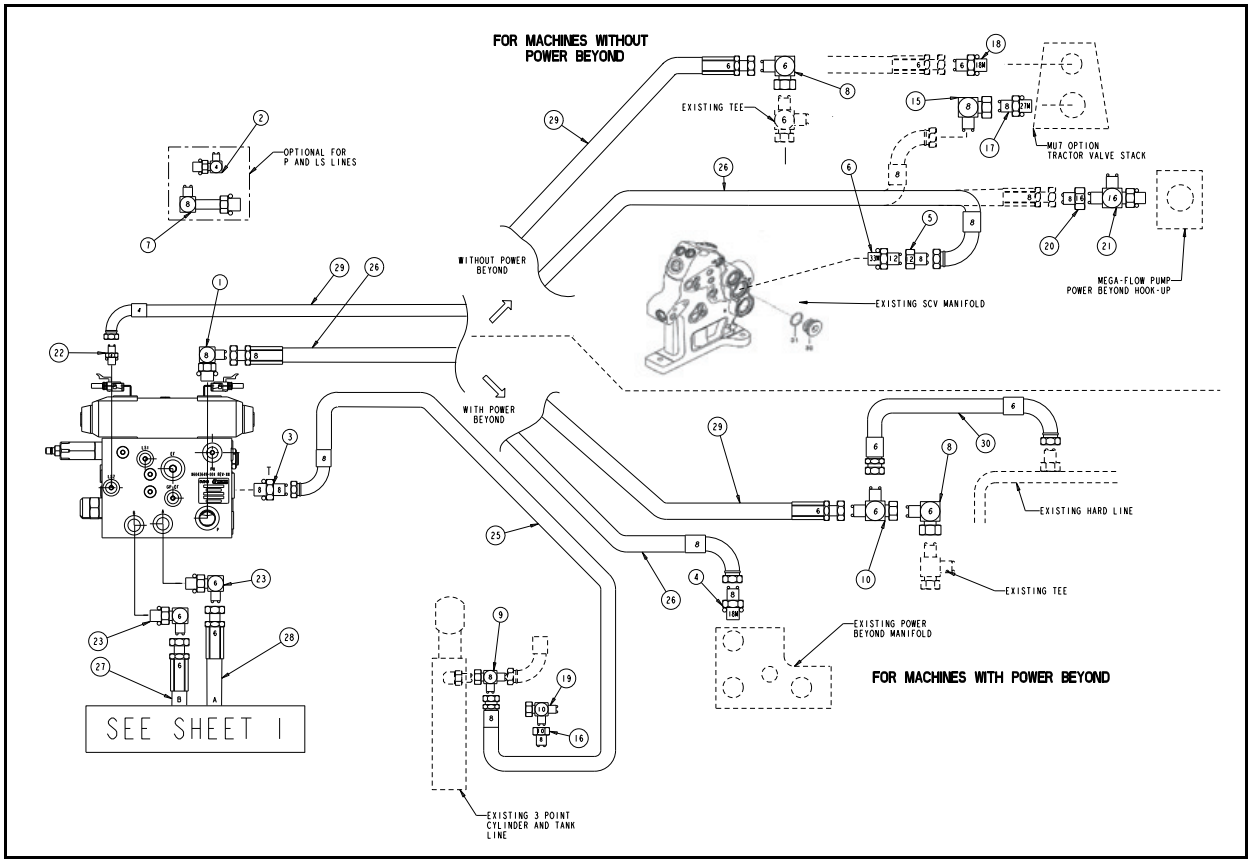
2

Hydraulic Control Valve Installation

Hydraulic components

67097-1000 hose kit





Fittings

Item	Part number	Quantity
1	8 C5OLO	3
2	4 C5OLO	1
3	8 F5OLO	2
4	8M18F87OMLO	1
5	12-8TRLON	1
6	12M33F87OMLO	1
7	8 CC5OLO	1
8	6 C6LO	1
9	8 R6LO	3
10	6 R6LO	1
11	N/A	2
12	8 F65LO	1

Item	Part number	Quantity
13	N/A	1
14	STC removal tool	1
15	8 C6LO	1
16	10-8TRLON	1
17	08M27F87OMLO	1
18	06M18F87OMLO	1
19	10 R6LO	1
20	16-8TRLON	1
21	16 R5OLO	1
22	4 F5OLO	1
23	6 C5OLO	2

Hoses

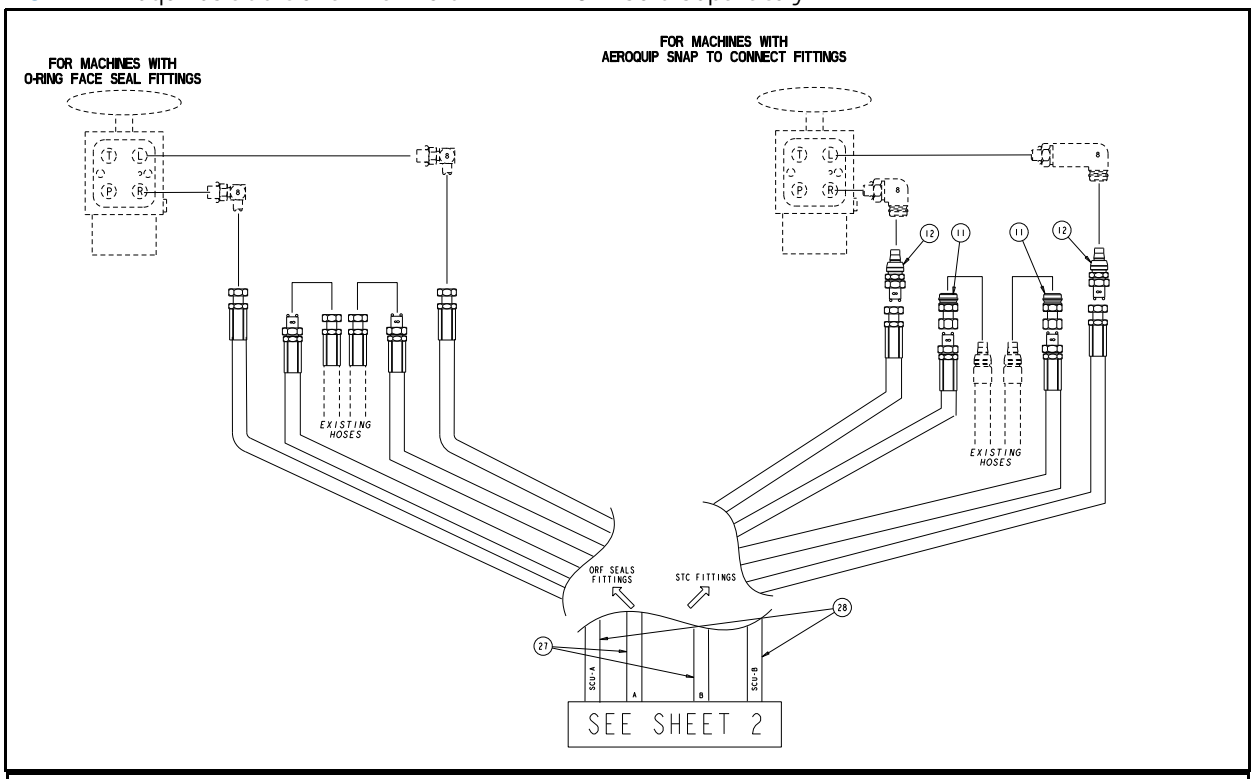
Item	Length (Inches)	Part number	Line	Quantity
25	42''	F451TCJSJ9080808-42"	T	1
26	30''	F451TCJSJ9080808-30"	P	1
27	114''	F451TCJSJ9080808-114"	A	1
28	114''	F451TCJSJ9080808-114"	B	1
29	24''	F451TCJSJ9060404-24"	LS2	1
30	18''	F451TCJSJ9060604-18"	LS2 (PWR BYND)	1
31	6''	N/A	M.O.	1

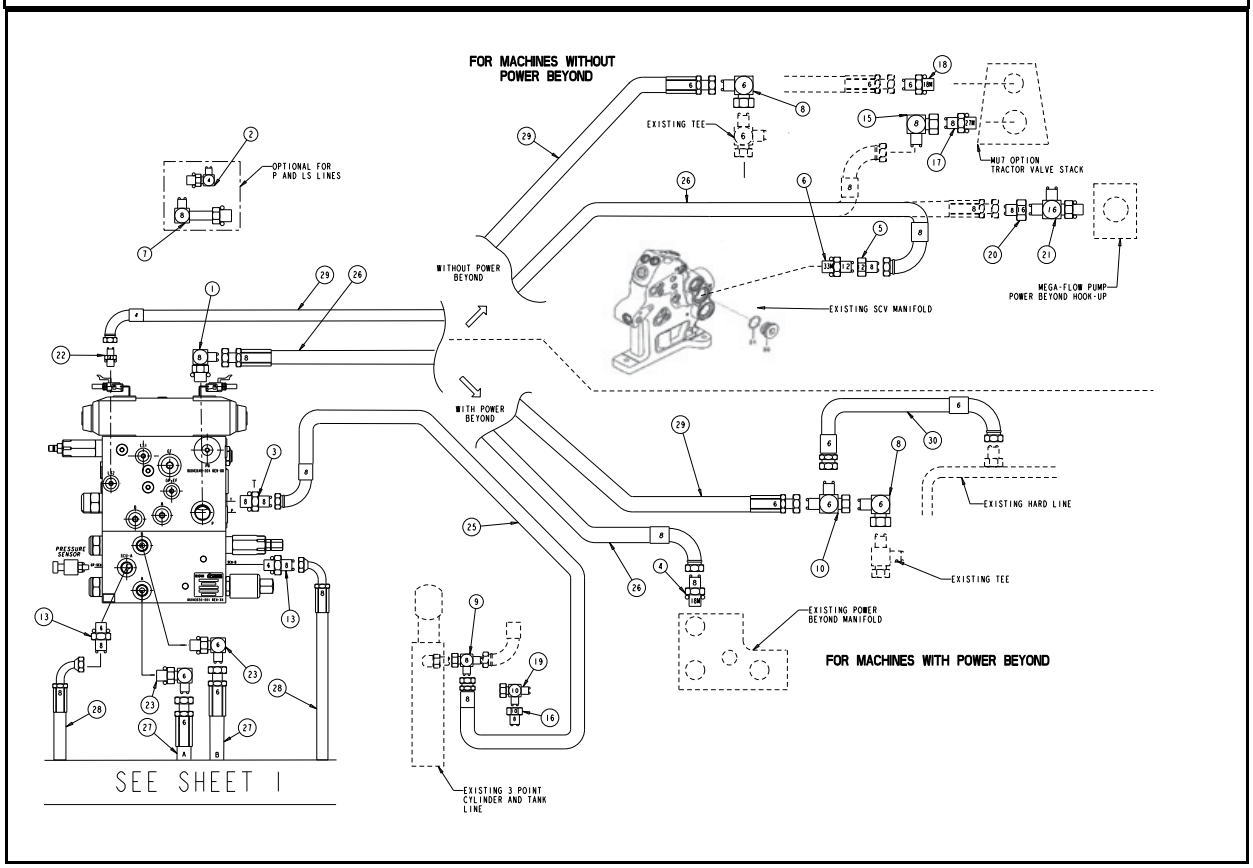
NOTE – Part numbers are Parker numbers and are for reference only.

NOTE – New Holland tractors equipped with the mega flow option must also have the power beyond option installed. The power beyond option is available from New Holland.

67097-2000 hose kit

NOTE – Requires additional manifold P/N 114161 - sold separately





Fittings

Item	Part number	Quantity
1	8 C5OLO	1
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3	8 F5OLO	1
4	8M18F87OMLO	1
5	12-8TRLON	1
6	12M33F87OMLO	1
7	8 CC5OLO	1
8	6 C6LO	1
9	8 R6LO	1
10	6 R6LO	1
11	N/A	2
12	8 F65LO	2

Item	Part number	Quantity
13	N/A	2
14	STC removal tool	1
15	8 C6LO	1
16	10-8TRLON	1
17	08M27F87OMLO	1
18	06M18F87OMLO	1
19	10 R6LO	1
20	16-8TRLON	1
21	16 R5OLO	1
22	4 F5OLO	1
23	6 C5OLO	2

Hoses

Item	Length (Inches)	Part number	Line	Quantity
25	42''	F451TCJSJ9080808-42"	T	1
26	30''	F451TCJSJ9080808-30"	P	1
27	114''	F451TCJSJ9080808-114"	A, B	2
28	114''	F451TCJSJ9080808-114"	SCU-A, SCU-B	2
29	24''	F451TCJSJ9060404-24"	LS2	1
30	18''	F451TCJSJ9060604-18"	LS2 (PWR BYND)	1

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

NOTE – New Holland tractors equipped with the mega flow option must also have the power beyond option installed. The power beyond option is available from New Holland.

Assembling the Hydraulic Control Valve

⚠ **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.

Adding fittings to the P, T, and LS ports fittings for -1000 and -2000 hose kits

Step 1

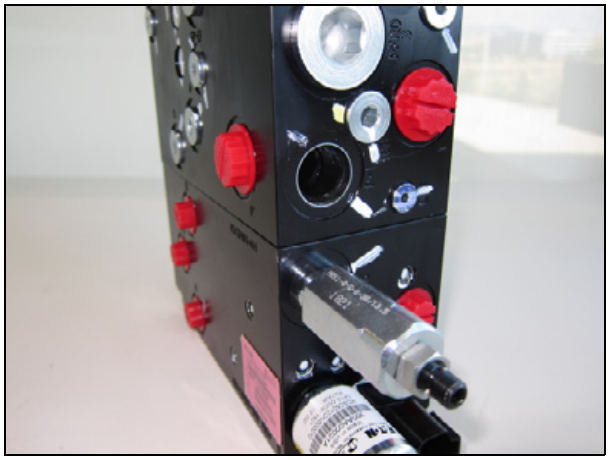
On a clean work surface, gather the manifold and fittings. Remove the red plugs from the manifold.

NOTE – The -2000 manifold configuration is shown here but the pressure tank and LS connections remain the same on the -1000 kit.

Step 2

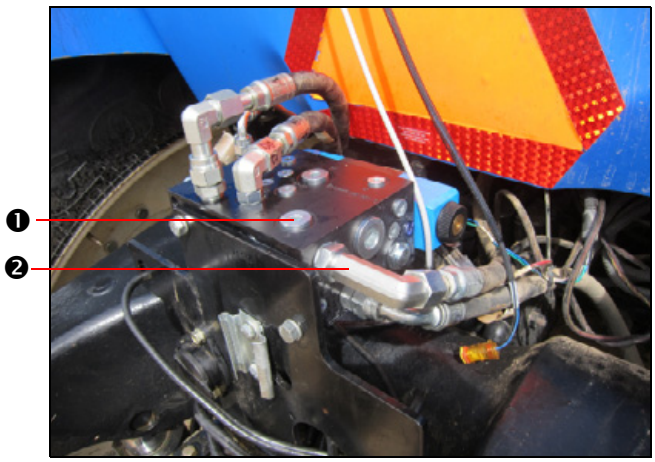
Remove the plug from the P1 port and move it to the P port.

NOTE – The -2000 manifold configuration is shown here but the pressure tank and LS connections remain the same on the -1000 kit.



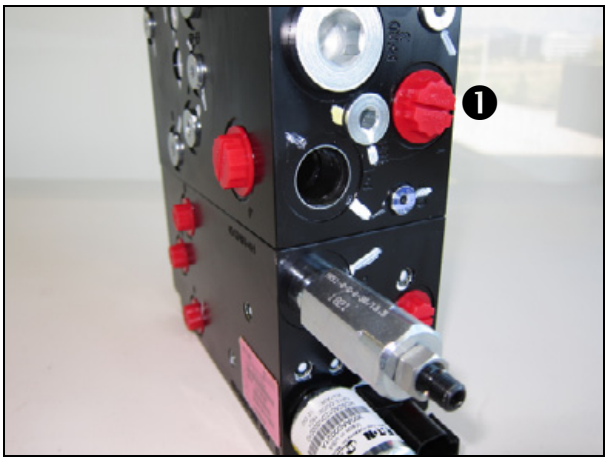
Step 3

Install the provided long 90° -8 ors fitting in the P1 port ❶ as shown, place the plug from the P1 port into the P port ❷ of the manifold.



Step 4

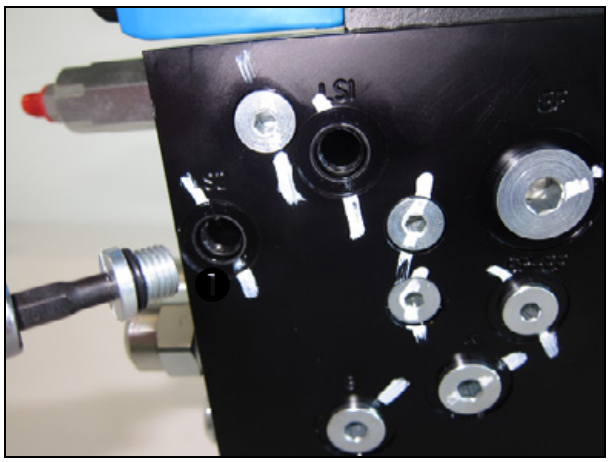
Install the provided -8 ORS straight fitting into the T port of the Autopilot manifold ❶.

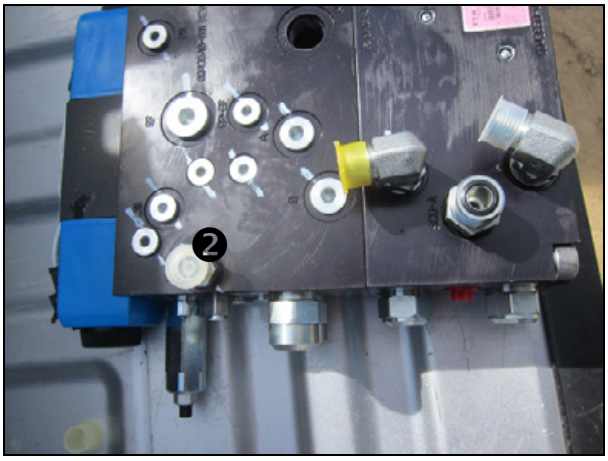


Step 5

Remove the hex plug from the LS2 port of the manifold (❶) and install the -4 ors straight fitting into that port, as shown (❷).

The lower photo shows the manifold with the isolation block. The LS connection is the same for installations with and without the isolation block present.



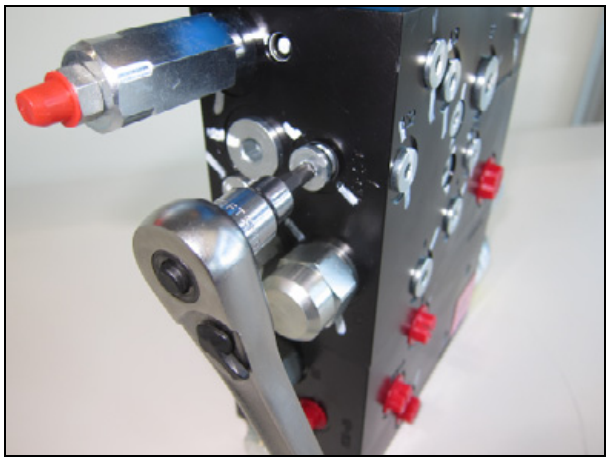


Installing the LS check valve

Step 1

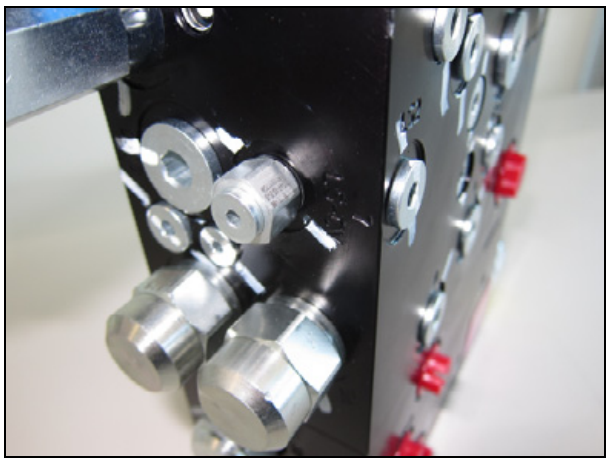
Find and remove the plug from the **LS-CV** port on the manifold, as shown.

TIP – If the plug is tight, tapping on the plug with a hammer before attempting to loosen may help.



Step 2

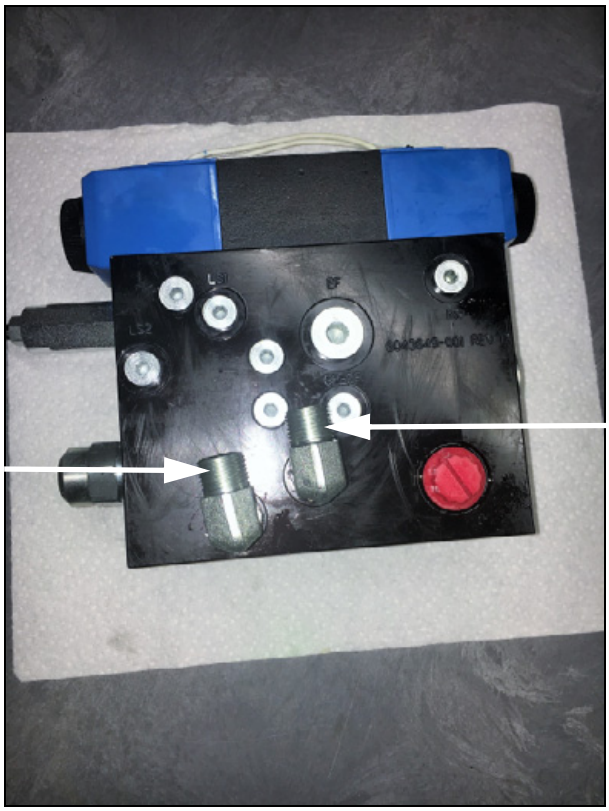
Install the load sense check valve as shown. The LS check valve is Trimble P/N 67113.



Steering line connections without isolation block: 67097-1000 hose kit

Step 1

Install the provided -6 ors 90° fittings into the A and B ports of the manifold as shown.

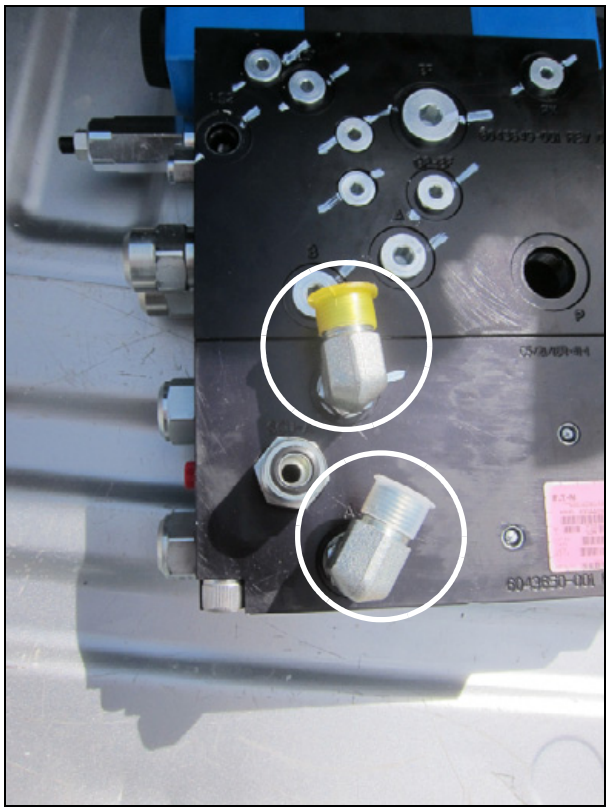


Steering line connections with isolation block: 67097-2000 hose kit

Step 1

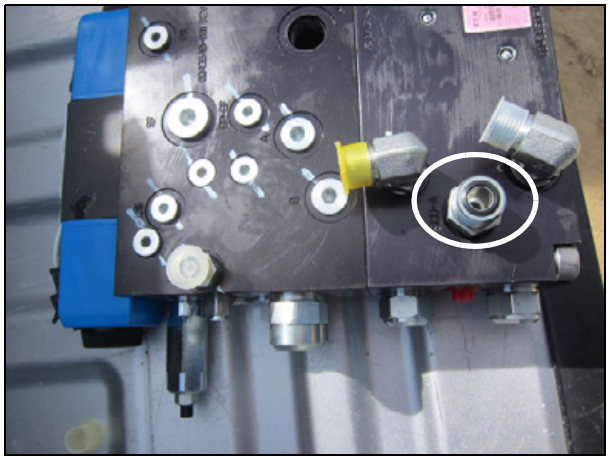
Install the -6 ORS 90° fitting into the B port, as shown.

Install the -6 ORS 90° fitting into the A port, as shown.



Step 2

Install the -8-6 ORS straight fitting into the SCU-A port, as shown.



Step 3

Install the -8-6 ORS straight fitting into the SCU-B port, as shown.

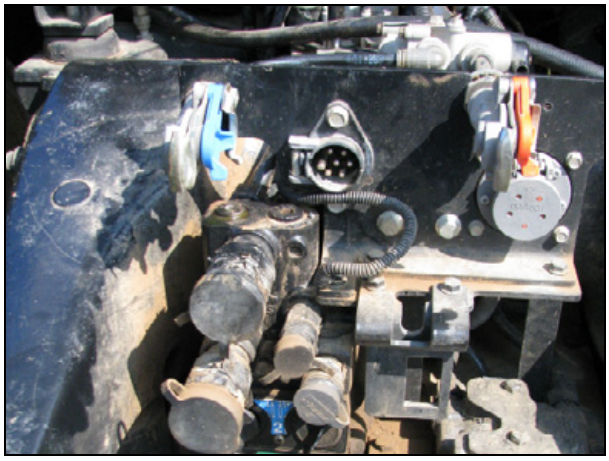
Installing the manifold bracket: 2008 and older models

Applies to both manifold with and without isolation block

Depending on the tractor and options, the bracket containing the trailer connector may be different from the bracket shown. The bracket provided is designed to work for the all current tractor options.

Step 1

Remove the electrical connectors from the current bracket.



Step 2

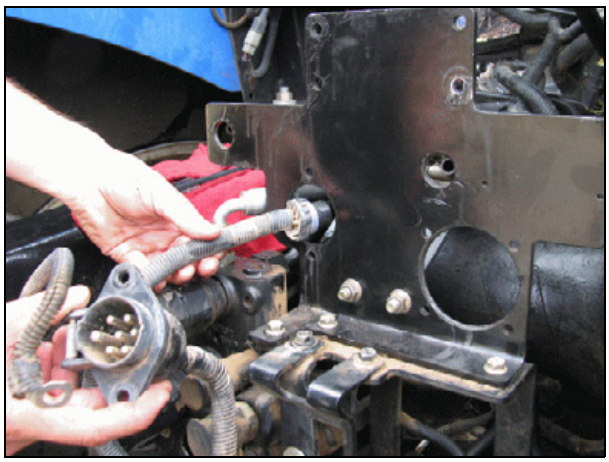
Remove the bolts that hold the trailer to the rear bracket.

Step 3

Disconnect the harness.

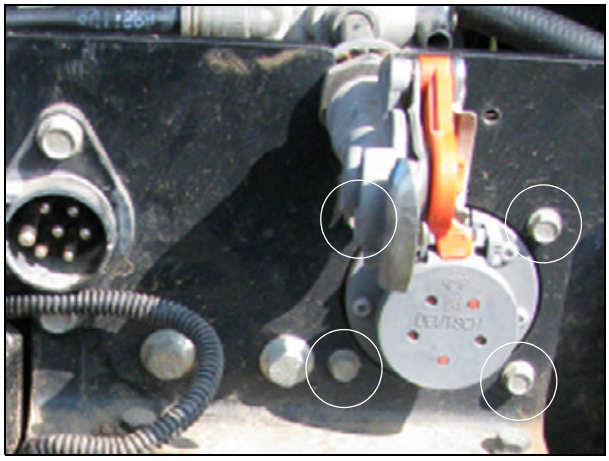
Step 4

Unplug the trailer harness.



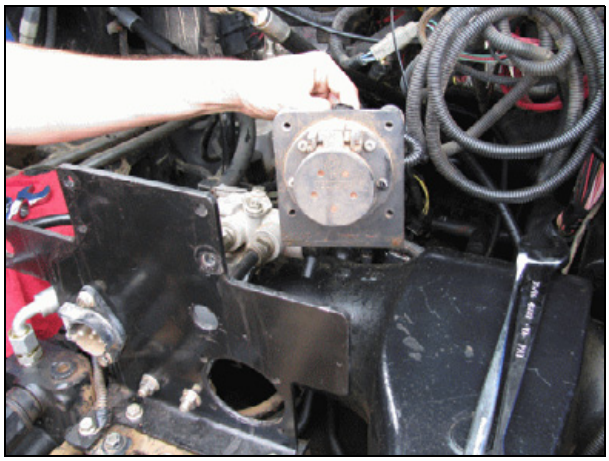
Step 5

Remove the four bolts that hold the large Deutch connector to the bracket.



Step 6

Move the connector to the side.



Step 7

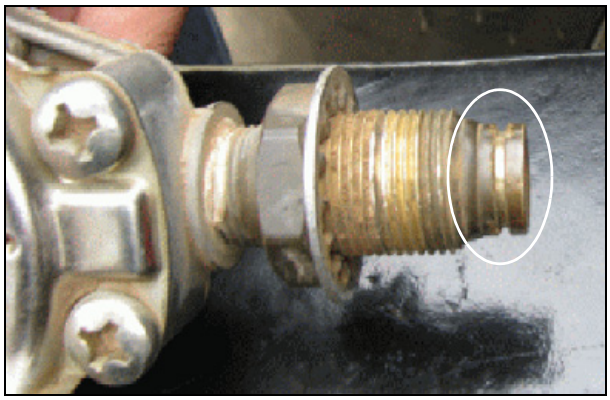
Optional airbrakes

If the tractor is equipped with optional airbrakes, disconnect the airlines from the Glad Hands fitting.

If the tractor does not have optional airbrakes installed, proceed straight to Step 10.

Step 8

Remove the jam nut from the back of the connector and then push back on the collar while pulling out on the airline.



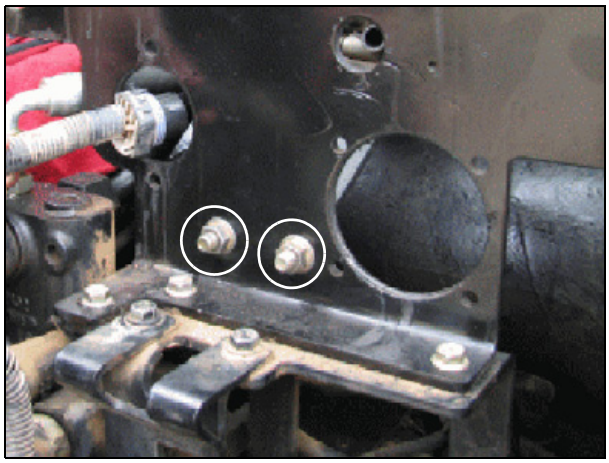
Step 9

Slide the airline out of the fitting.

Step 10

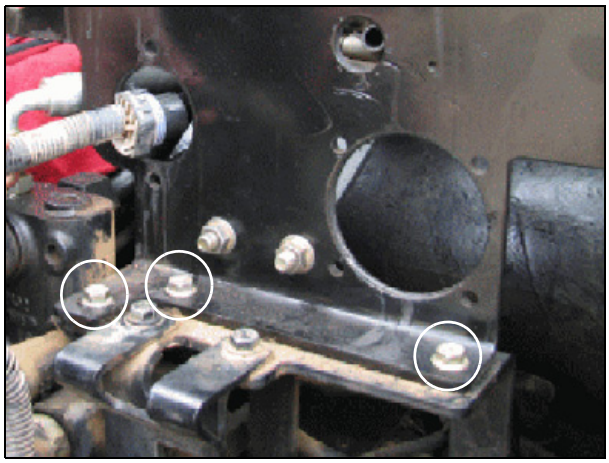
All models

Remove the air distribution valve support bracket by removing the two bolts that attach the bracket to the tractor.



Step 11

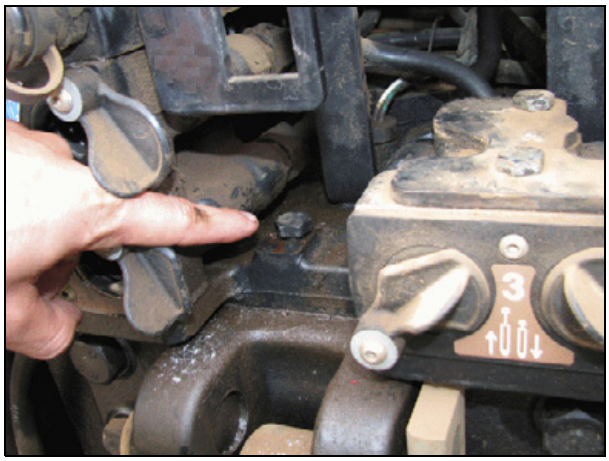
Remove the three bolts that hold the original bracket to the tractor and then use those bolts to attach the new bracket.



Installing the support bracket

Step 1

At the rear of the tractor, remove the existing bolt.

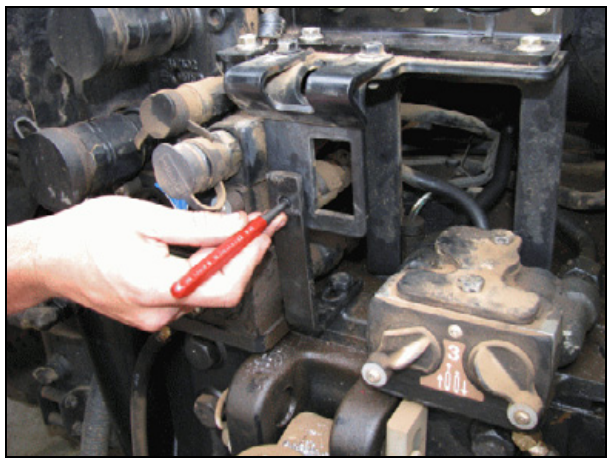


Step 2

Partially thread the M 12 x 55 mm bolt into the hole, and then slide the bracket under the bolt and against the existing bracket on the tractor, as shown.

Step 3

Using a transfer, punch mark the location of the center of the hole.



Step 4

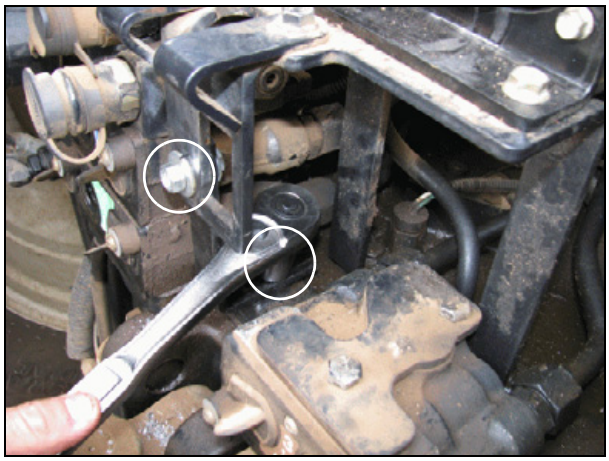
Drill a $^{7}/_{16}$" hole to allow the insertion of a ⅜" bolt.

Step 5

Using the provided ⅜" x 1" bolt, washers, and nut, attach the provided support bracket to the tractor.

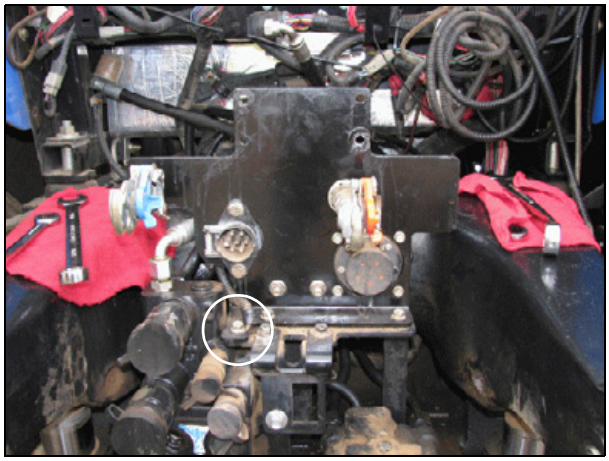
Step 6

Securely tighten both the ⅜" bolt and the M12 bolt.



Step 7

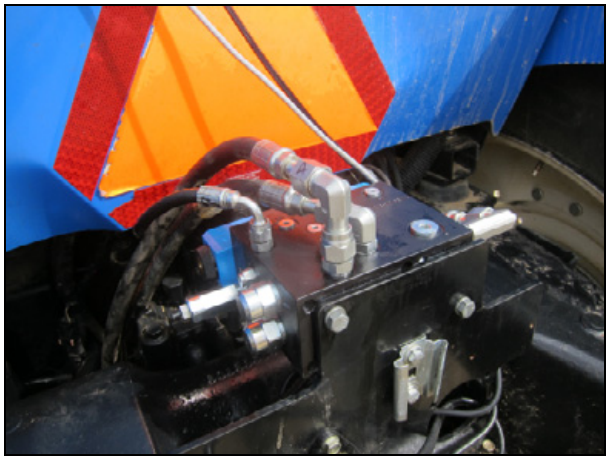
Reattach the connectors and hardware to the new bracket on the tractor, making sure that you connect the trailer ground wire to the mounting bolt of the bracket.



Step 8

Without isolation block

Use the provided hardware to attach the Autopilot manifold to the bracket. Tighten the connections.



With isolation block

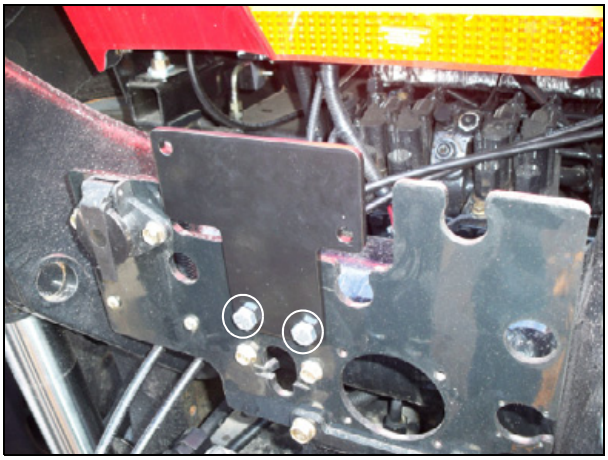
Use the provided hardware to attach the Autopilot manifold to the bracket. Tighten the connections.

Installing the manifold bracket: 2009 and newer models

Applies to both manifold with and without isolation block

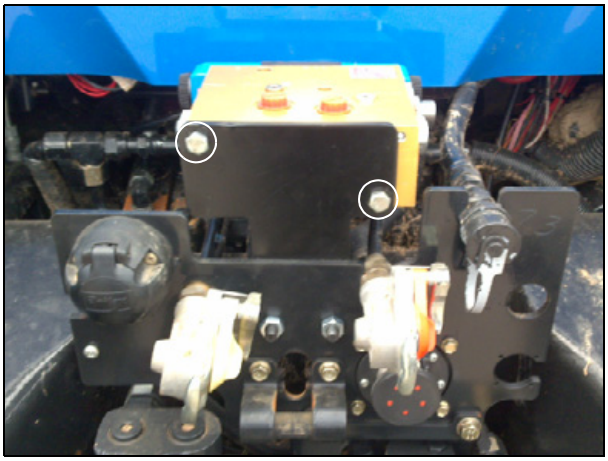
Step 1

Use the supplied M10 hardware to install the bracket.



Step 2

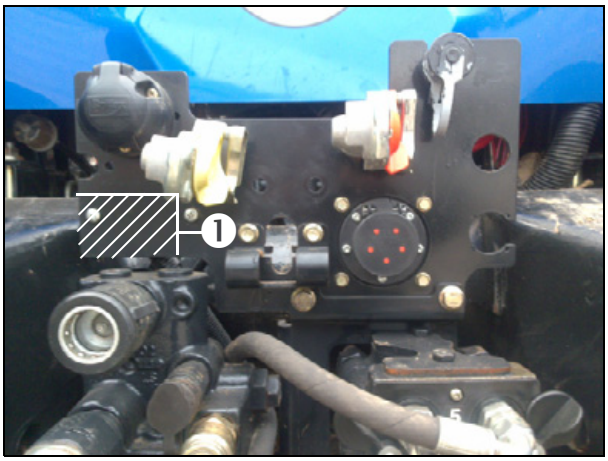
Use the supplied hardware to secure the manifold to the bracket.



Step 3

If the machine is equipped with power beyond, cut away part of the existing bracket (❶) to allow clearance for the pressure hose.

Alternatively, the hose may be run with the loop to the back of the tractor.



Connecting the hand pump: Flow switch (for machines using 67095-1000 hose kit)

Step 1

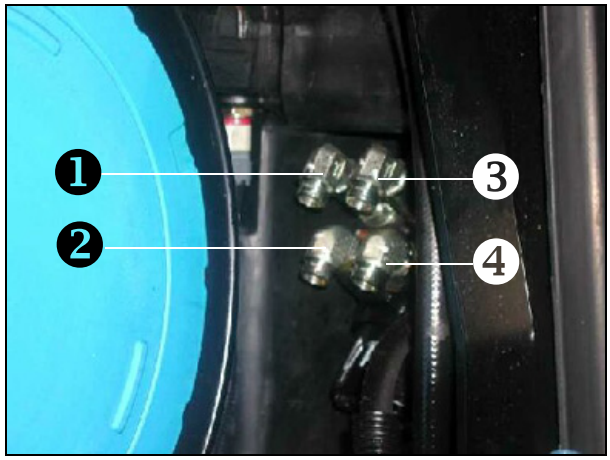
Do one of the following:

- If the machine is equipped with snap-to-connect fittings, assemble the supplied fittings and hose onto the flow switch as shown. Make sure that the arrow on the flow switch points in the right direction.

- If the machine is equipped with O-ring face seal fittings, assemble the supplied fittings onto the flow switch as shown. Make sure that the arrow on the flow switch points in the correct direction.

Step 2

Label all of the connections on the steering hand pump.



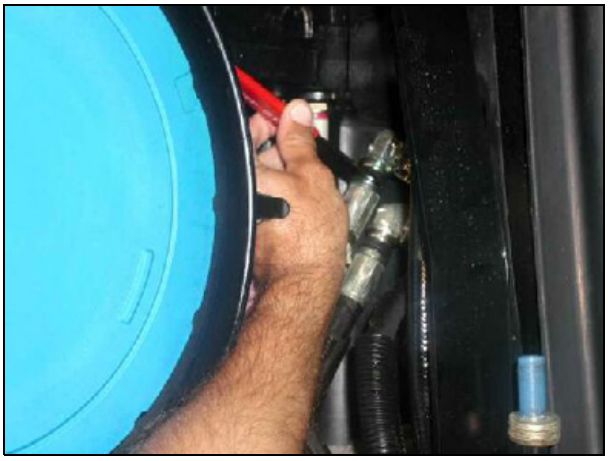
❶ Tank port	❸ Left port
❷ Pressure port	❹ Right port

Step 3

Locate the lower left pressure port on the hand pump: the flow switch will be installed into this line.

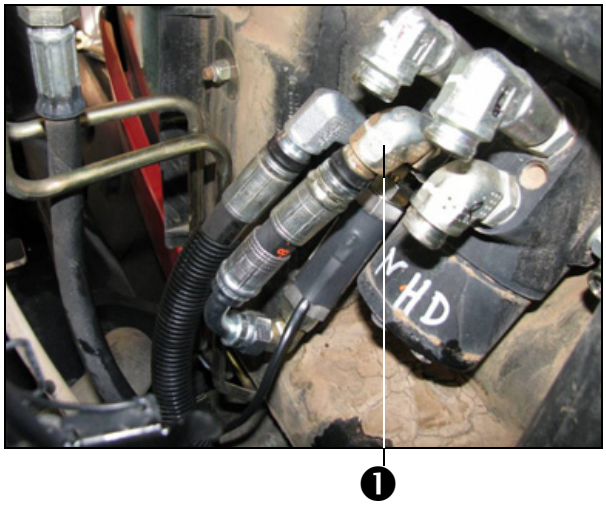
Remove the pressure hose: If the machine is equipped with snap-to-connect fittings (as shown here) use the "Snap to Connect" tool.

NOTE – You may need to remove the surrounding hoses to gain access to the pressure hose.



Step 4

Install the provided flow switch into the pressure port (❶): pull firmly on the hose to ensure that the connection is made.



Step 5

Reconnect the tractor hose to the snap to connect or the ORS connector on the end of the flow switch assembly.

Step 6

If they were removed for access, reconnect the tank, left and right ports to the steering hand pump.

Connecting the hand pump: A and B lines (67095-1000 hose kit)

Step 1

Locate and label the hoses on the hand pump of the tractor and then use the supplied STC tool or a wrench (depending on the type of fittings) to remove the A and B line hoses from the hand pump.

Step 2

Install the provided T into the A line and then connect the hose to the side of the T.

Step 3

Reconnect the T to the hand pump.

Step 4

Install the T fitting into the B line and then connect the B hose to the side of the T.

Step 5

Reconnect the T to the hand pump.

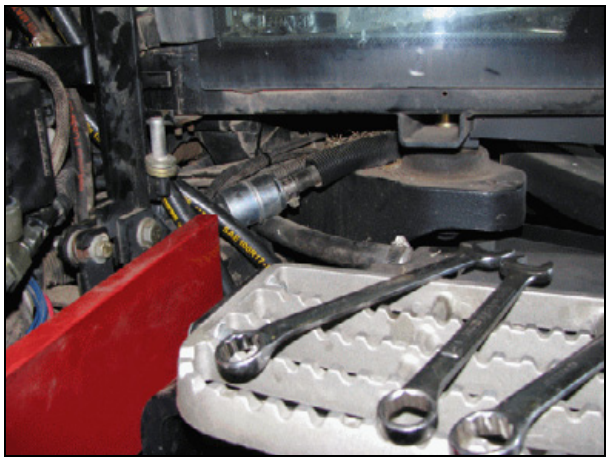
Step 6

To provide more room for routing the A and B lines under the cab of the tractor use a Philips screwdriver to remove the two screws from the cover, as shown.

Step 7

Cover the ends of the hoses and route them under the cab of the tractor to the Autopilot manifold.

Connections to the Autopilot manifold are shown later.



Connecting the A and B lines (67095-2000 hose kit)

Step 1

Locate and label (L- A, R-B) the hoses on the hand pump of the tractor and then use the supplied STC tool or a wrench (depending on the type of fittings) to remove the A and B line hoses from the hand pump.

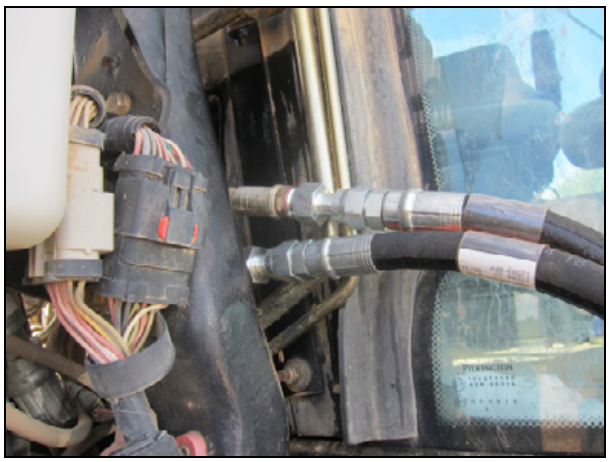
NOTE – Label (L- A, R-B) the ports on the orbital and machine steering hoses A and B so that when connecting to the Autopilot system, the lines are not swapped.

Step 2

Connect the ORS to STC adapter onto the end of the SCU-A and SCU-B hoses, and then connect the hoses to the steering hand pump, as shown.

Step 3

Connect the STC adapters to the ends of the A and B lines. Connect the STC ends to the lines previously removed from the steering hand pump. Connect the A hose to the A line and the B hose to the B line.



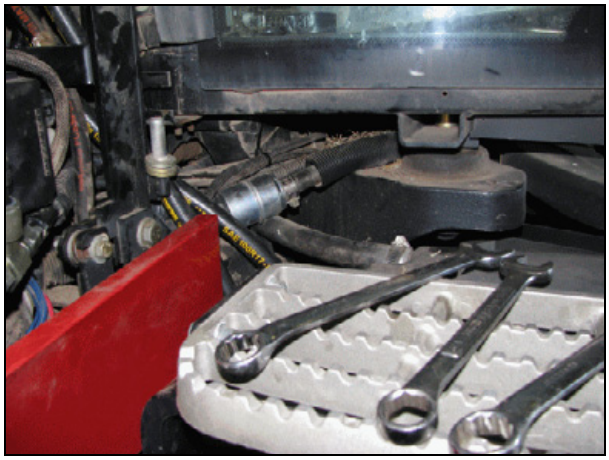
Step 4

To provide more room for routing the A and B lines under the cab of the tractor use a Philips screwdriver to remove the two screws from the cover, as shown.

Step 5

Cover the ends of the hoses and route them under the cab of the tractor to the Autopilot manifold.

Connections to the Autopilot manifold are shown later.



Installing the tractor pressure and load sense hoses (all hose kit types)

Carry out one of the following procedures:

- Rear-of-tractor installation without power beyond, page 41
- Rear-of-tractor installation with power beyond, page 46
- MX 180, 200, 220, 240, and 270 machine installation, page 52

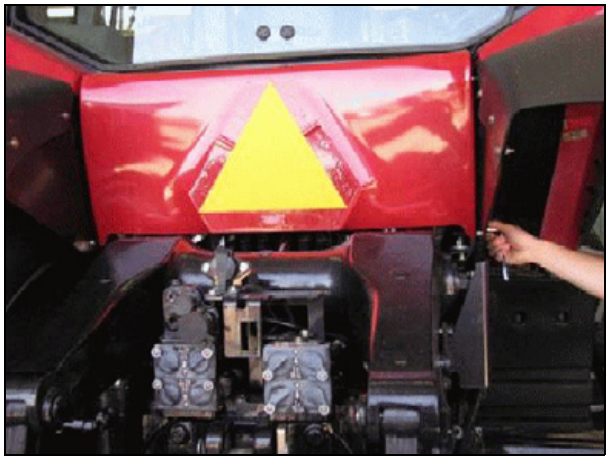
NOTE – New Holland tractors equipped with the mega flow option must also have the power beyond option installed. The power beyond option is available from New Holland.

Rear-of-tractor installation without power beyond

Removing the rear panel

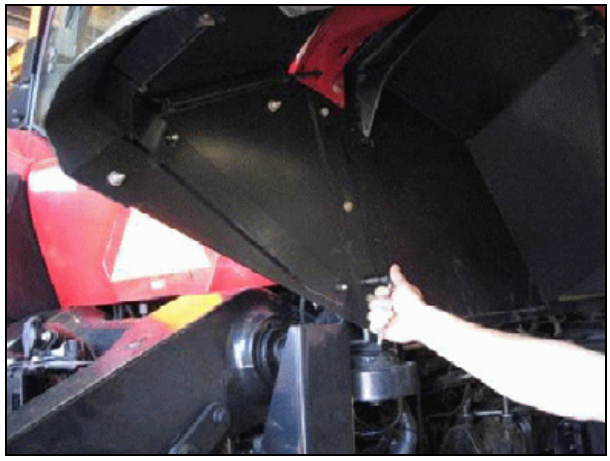
Step 1

Locate and remove the two bolts that attach the rear panel. There is one bolt is on each side of the tractor, in the fender well.



Step 2

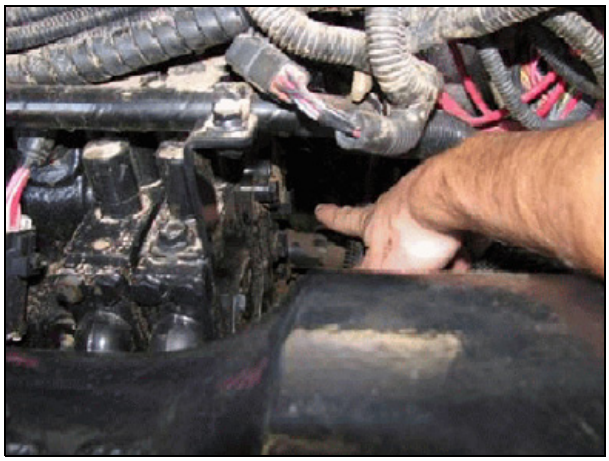
Once the bolts are removed, raise the panel vertically to remove it.



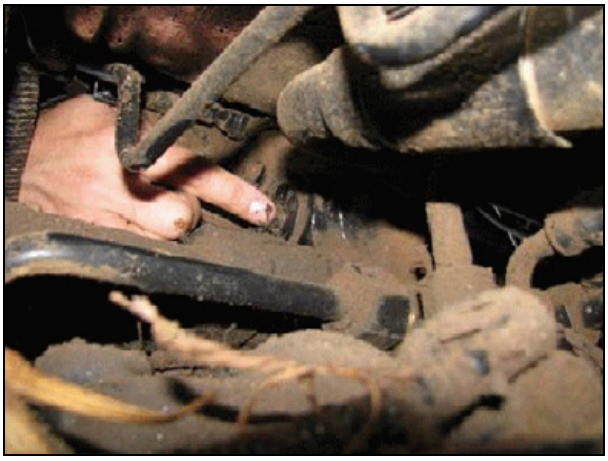
Installing the pressure hose

Step 1

Find the 33 mm plug on the driver's right of the tractor, just forward of the remote valve stack.



NOTE – If the tractor has only 3 remotes or is a MX215, 245, 275, or 305 model, you can access this plug from the rear of the tractor.
If the tractor is an MX210, 230, 255, or 285 model with 4 or 5 remotes, you may need to raise the rear of the cab or remove the right side tire.



Step 2

Clean the area and then remove the plug with a 17 mm Hex driver.

Step 3

For best access to the plug in the fender well, use an extension.

Step 4

To help to loosen the plug, tap it as shown.

Step 5

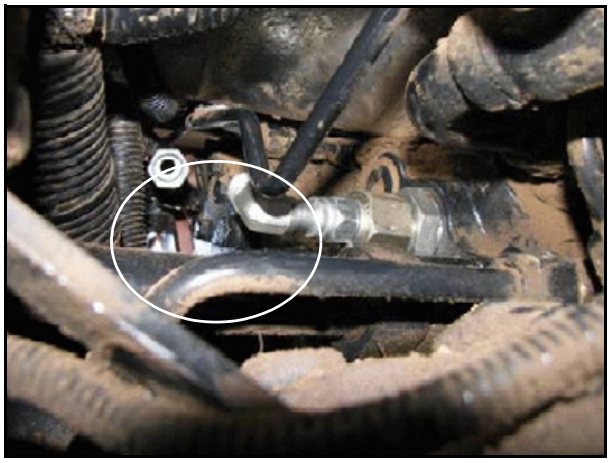
Use a bench vise to attach and tighten the provided 33 mm-to-12 adaptor to the -12 to -8 reducer.

Step 6

Insert the adaptor and reducer into the tractor and then tighten the connections.

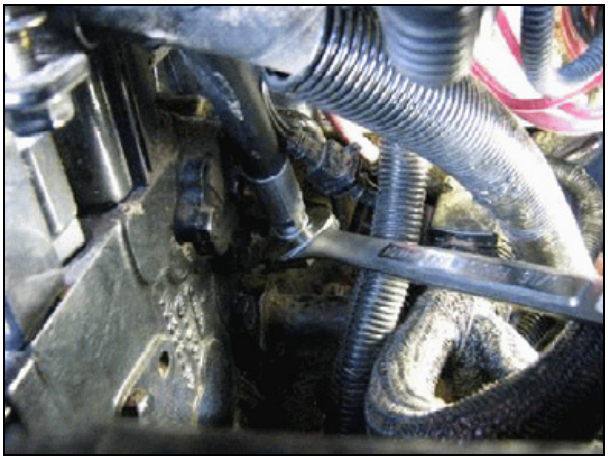
Step 7

Inert the 90° elbow and then tighten it so that it faces up and to the rear of the tractor.



Step 8

Run the hose from the pressure port on the Autopilot manifold to the elbow and then connect the pressure hose to the -8, 90° elbow. Tighten the connection.



Installing the load sense hose

Step 1

Locate the plug on the tee of the load sense, behind the remotes.

Step 2

Remove the plug from the tee.

Step 3

Run the provided hose from the LS2 port on the Autopilot manifold to the tee and then tighten the connection.

Step 4

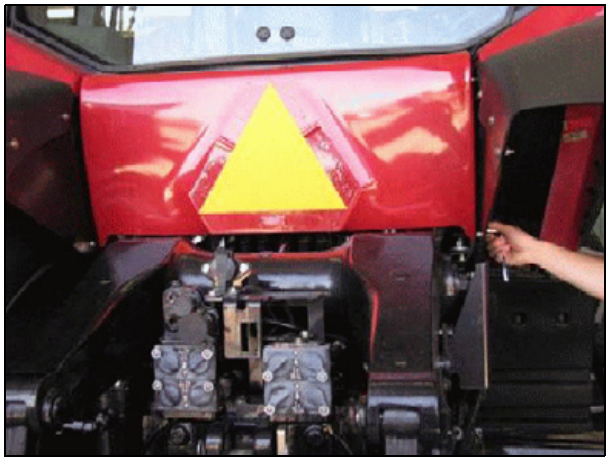
Make sure that all connections are tight and then replace the cover on the back of the tractor.

Rear-of-tractor installation with power beyond

Removing the rear panel

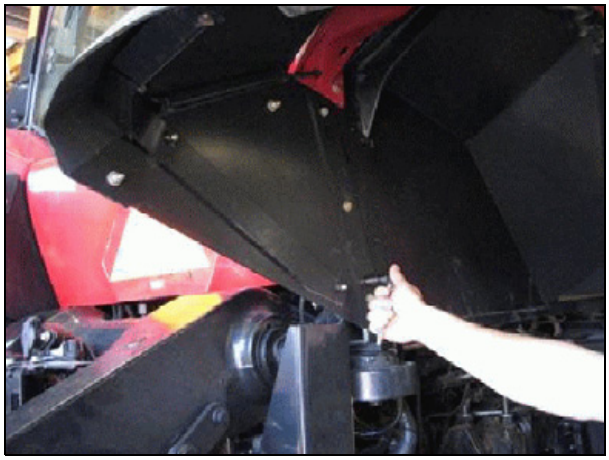
Step 1

Locate and remove the two bolts that attach the rear panel. There is one bolt is on each side of the tractor, in the fender well.



Step 2

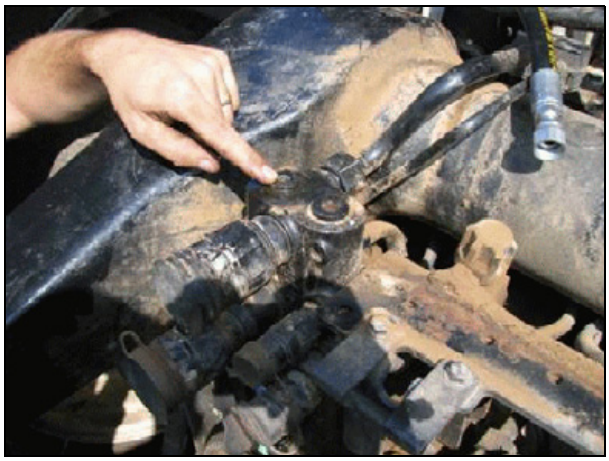
Once the bolts are removed, lift up the panel to remove it.



Installing the pressure hose

Step 1

Locate the socket head plug on the rear of the tractor and the top of the power beyond.



Step 2

Clean the area and then use a hex wrench to remove the plug.

Step 3

Insert and then tighten the provided metric O-ring boss to O-ring face fitting.

Step 4

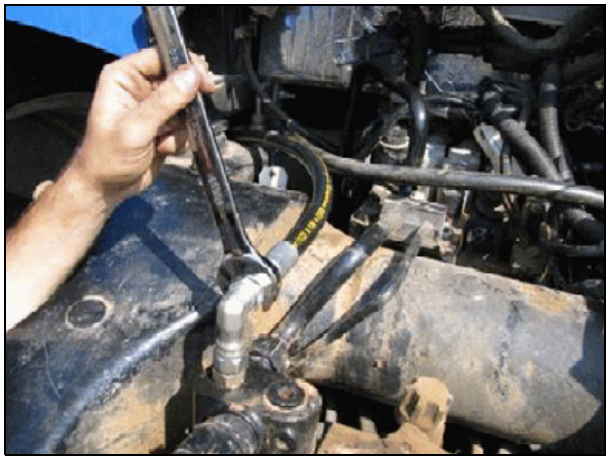
Attach and tighten the elbow to the fitting, with the fitting facing the front of the tractor, as shown.

Step 5

Route the pressure hose from the P port on the Autopilot manifold to the elbow.

Step 6

Attach and tighten the hose to the elbow.



Installing the Load Sense hose

Step 1

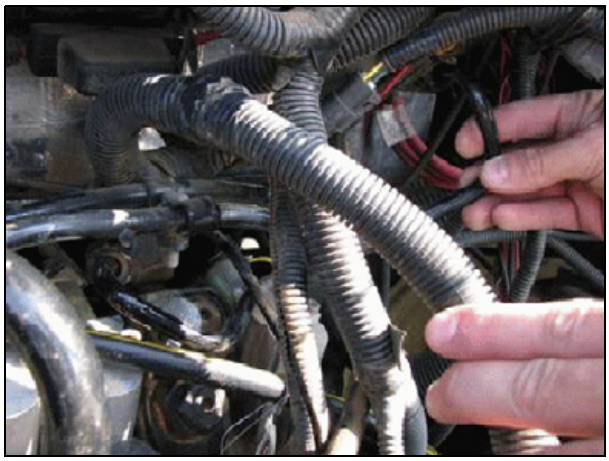
Locate the Load Sense hard line (hose) at the back of the tractor.

Step 2

Use a ⅞" wrench to loosen and remove the fittings that hold the Load Sense hard line in place.

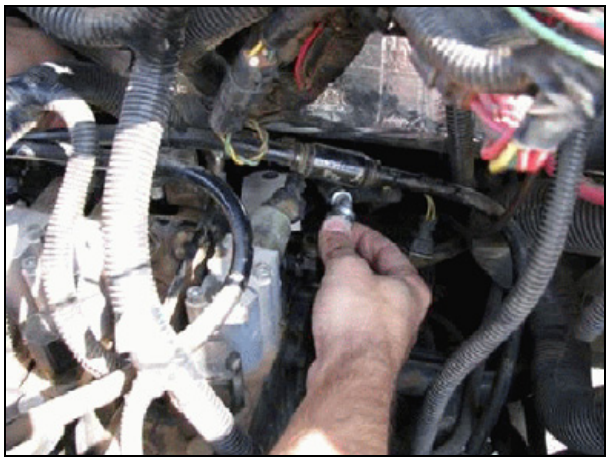
Step 3

Remove the hard line from the tractor.



Step 4

Route the provided hard line replacement hose behind the valve stack of the tractor.

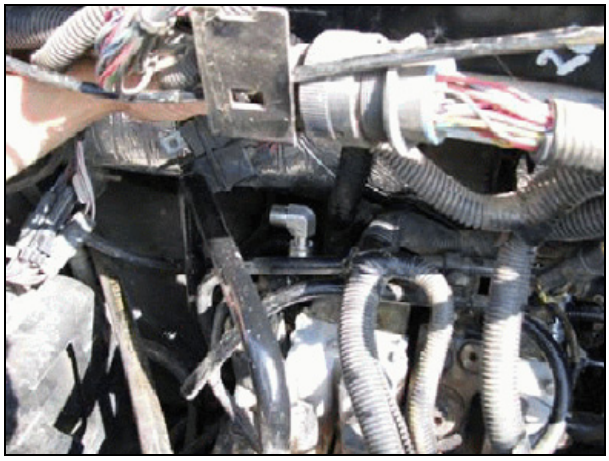


Step 5

Attach and tighten the elbow end of the hose to the right side fitting of the existing tractor hard line.

Step 6

Attach and tighten the provided elbow onto the right side fitting of the tractor, with the fitting facing forward and to the side of the tractor.

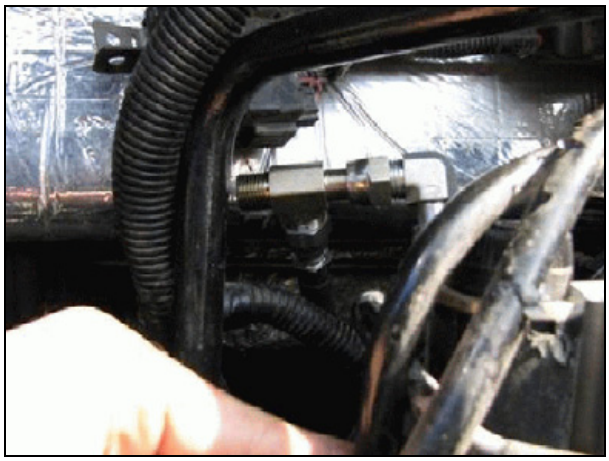


Step 7

Attach and then tighten the provided T fitting onto the elbow, with the branch of the tee facing down and forward.

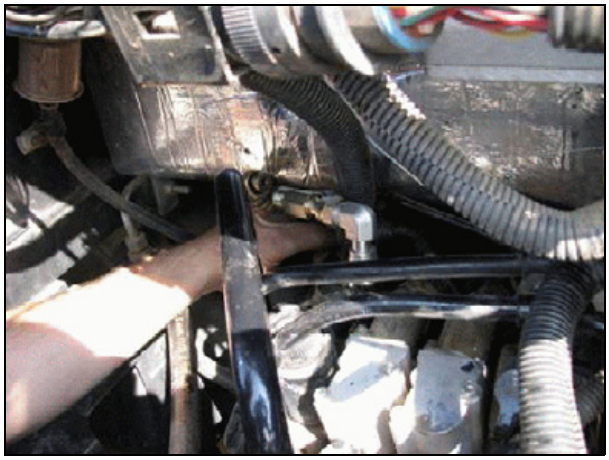
Step 8

Attach and the other end of the hard line replacement hose to the T fitting and then tighten the connection.



Step 9

Run the provided hose from the LS2 port on the Autopilot valve to the tee. Attach and then tighten the hose to the T fitting.



Alternative routing

You may prefer to route the hard line replacement in front of the valve instead of behind it.

Step 1

Attach the T fitting to the tractor and then attach the elbow to the T so that it faces toward the rear and the center of the tractor.

Step 2

Attach the hard line replacement hose to the elbow.

Step 3

Attach the LS2 line to the top of the T fitting.

NOTE – Depending on the tractor model and configuration it may be necessary to assemble the lines and fittings on the Load Sense line differently to fit the different space constraints.

MX 180, 200, 220, 240, and 270 machine installation

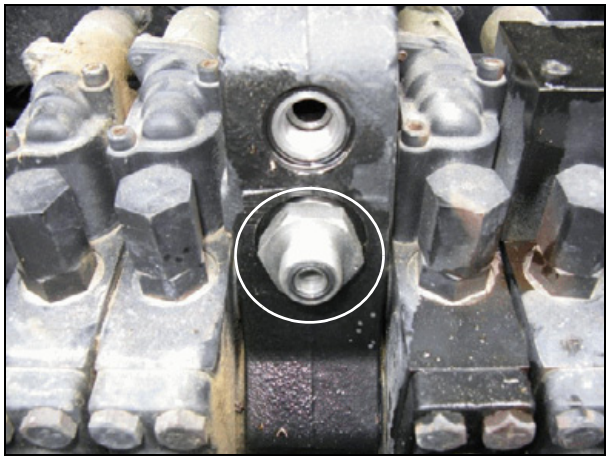
Install two adaptor fittings in the power beyond ports.

Step 1

Use 24 mm and 14 mm hex socket bits to remove the lower hex plug and top quick coupler from the center of the valve stack on the rear of the tractor.

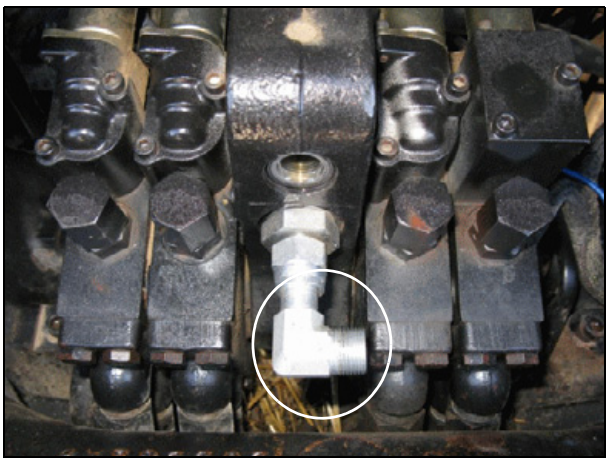
Step 2

Use a 30 mm wrench to install the provided #8 OFRS-to-M27 ORB adaptor into the bottom port.



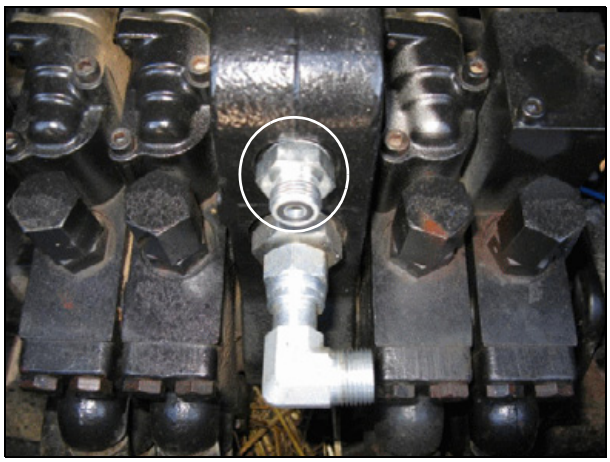
Step 3

Install a #8 OFRS right-angle fitting, part FS6500-08-08-FG onto the #8 ORFS adaptor as shown. Rotate the fitting so that the fitting points to the right side of the tractor, as shown.



Step 4

Use a $^{15}/_{16}$" wrench to install the provided #8 ORFS-to-M18 ORB adaptor into the top port.

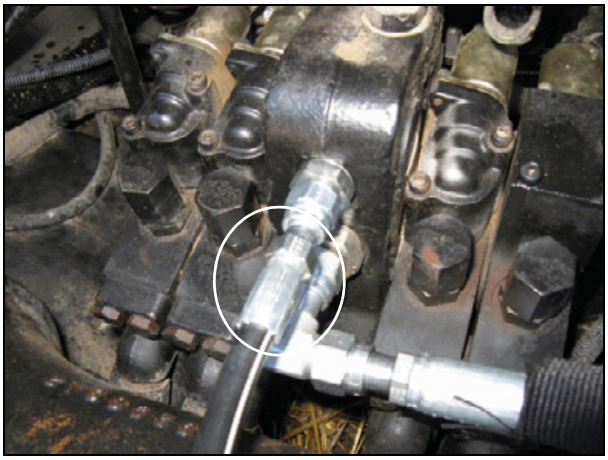


Step 5

Connect the straight swivel end of the pressure hose to the lower #8 OFRS right-angle fitting and then finger-tighten it so that the hose can be oriented in a later step.

Step 6

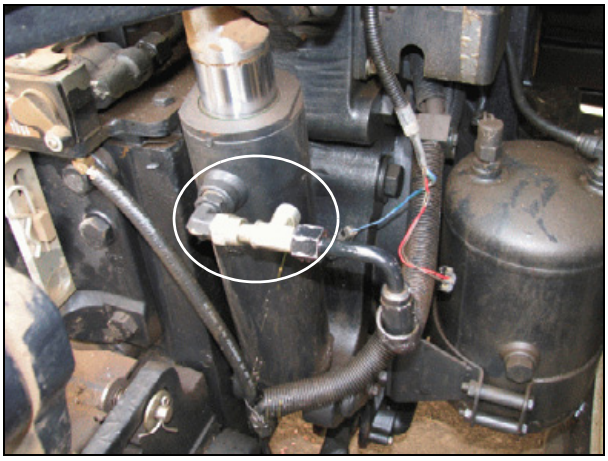
Connect the straight swivel end of the LS hose to the top #6 OFRS adaptor and then finger-tighten it so that the hose can be oriented in a later step.



Installing the tank line

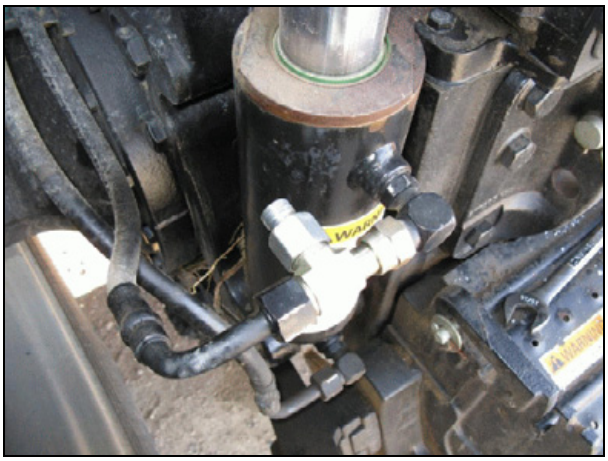
Step 1

On the rear of the tractor, on the right 3pt lift cylinder, locate the drain line. Install the provided #8 ORS T fitting into the drain line facing forward.



MX 180, 200, 220, 240, and 270 machines only

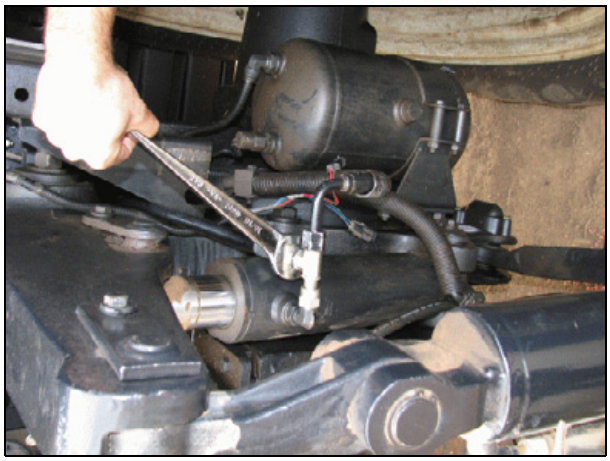
Fit a #10 ORFS tee and #10-to-#8 reducer.



Step 2

Install the straight end of the provided tank line hose to the T fitting and route the hose to the Autopilot manifold

NOTE – Before you tighten the connection, orient the hose at the manifold.



Connections to the manifold

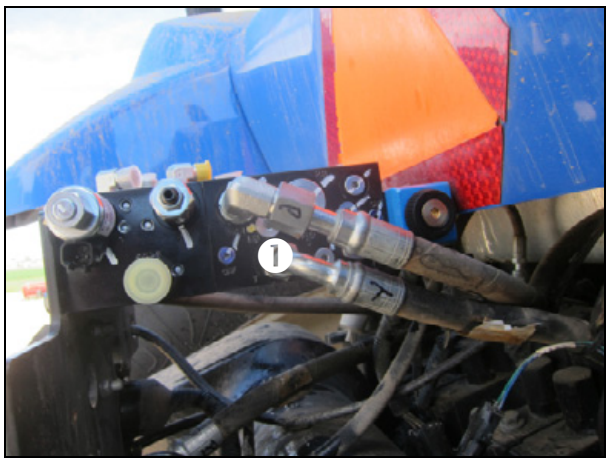
NOTE – P, T, and LS connections are the same for both 67097-1000 and 67097-2000 hose kits.

Step 1

Attach the tank line to the T port on the Autopilot manifold and then tighten the connection.

Route the tank line forward and around the moving part of the 3pt lift arms, then back down to the previously installed T fitting at the 3pt lift cylinder and tighten ❶.

Make sure that the line does not contact the moving parts of the 3pt lift arms.



Step 2

Connect the pressure line to the P port on the Autopilot manifold and then use a $^{15}/_{16}$" wrench to tighten the connections ❶.

NOTE – Make sure that the lines do not contact the 3pt arms as the arms are moved.

Step 3

Connect the LS2 hose to the 90° on the LS2 port on the Autopilot manifold and then tighten the connection.

Steering line connections for 67097-1000 hose kits

Connect the straight ends of the A and B lines to the 90° fittings on the A and B ports of the autopilot manifold.

NOTE – The photo shows a straight and a swivel 90 on the manifold, but a 90° fitting for the A port is provided in the kit.

Steering line connections for 67097-2000 hose kits

Step 1

Connect the 90° end of the SCU-A hose to the SCU A port on the manifold, as shown ❶.

Step 2

Connect the straight ends of the A and B hoses hose to the A (❶) and B (❷) ports on the manifold as shown.

Step 3

Connect the 90° end of the SCU-B hose to the SCU B port on the manifold, as shown (❶).

⚠ **CAUTION –** Ensure that all of the lines are routed so they are not pinched or pulled and do not contact any moving parts on the machine.

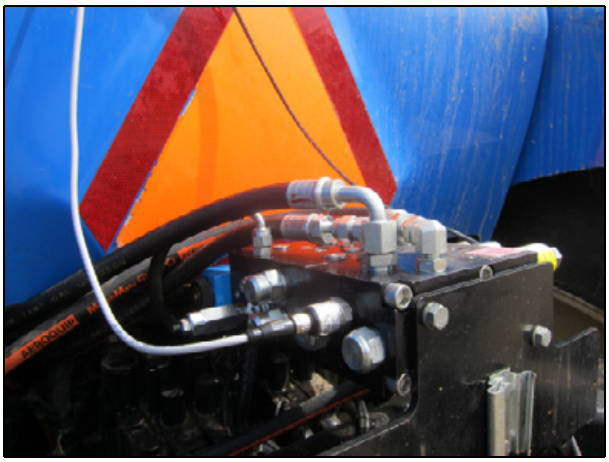
Cable connections on the manifold

Step 1

Connect the manual override pressure transducer cabling and the 103378 isolation coil for 67097-2000 installs.

All installs: Connect the valve cable cabling to the connections on the Autopilot manifold and route the lines to the NavController harness.

⚠ **CAUTION –** Ensure that the cables are routed so they do not contact any moving parts and are not pinched or pulled as the machine is steered left or right.



3

IMD-900 Steering Device Installation

This chapter describes how to install the *Ag*GPS AutoSense™ / IMD-900 steering device.

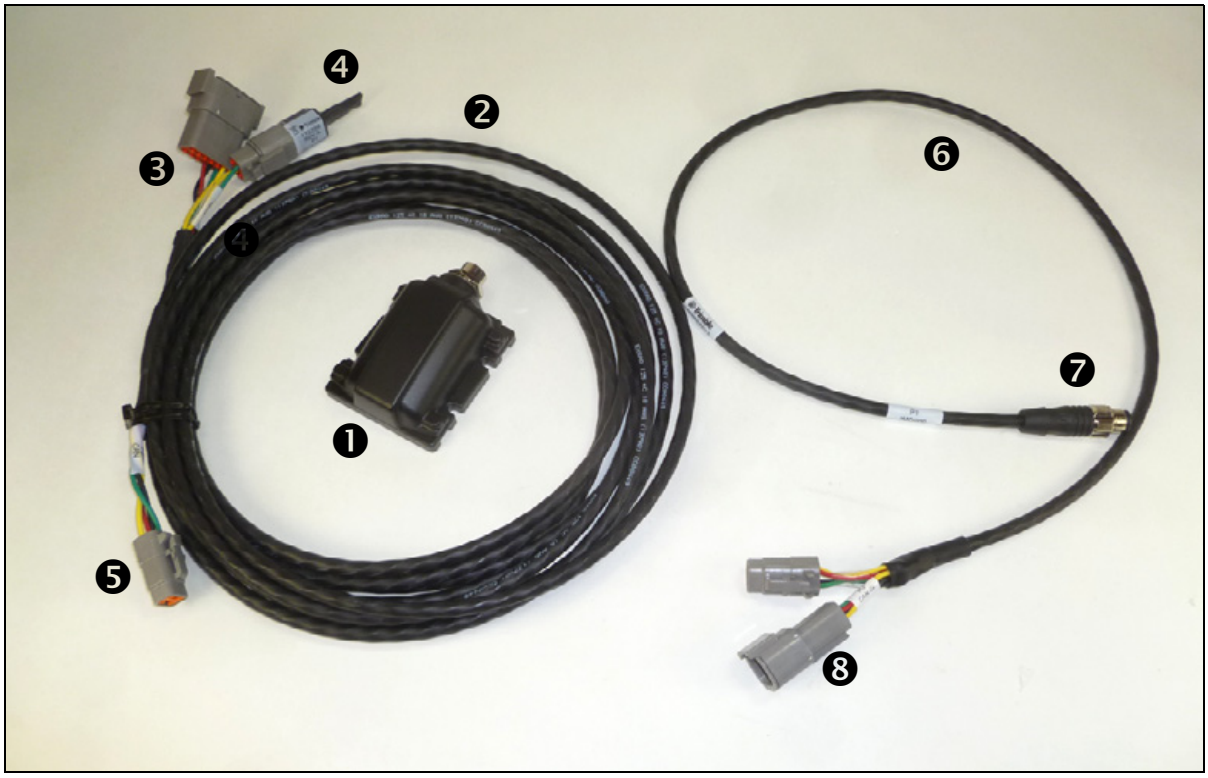
If the described mounting location is not accessible, chose a different place. To ensure proper function, the IMD-900 device must be located where it is free of obstructions and can rotate with the wheels when they turn.

On articulated vehicles, mount the IMD-900 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, but flat is preferred.

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

IMD-900 steering device components



Item	Description
1	IMD-900 steering sensor (P/N 109256-00)
2	Cable (P/N 114675)
3	R1-CAN connector
4	CAN terminal (× 2)
5	P3 CAN connector
6	Cable (P/N 112759)
7	P1-IMD-900
8	P3/R3 CAN out/CAN in

Installing the IMD-900 steering 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 chapter.

Step 1

The new IMD-900 steering device is shown on the right. Install it using the following steps.

Step 2

Locate the mounting location on the kingpin.

Step 3

Install the IMD-900/AutoSense device to the bracket as shown. Use the four #6 socket head cap screws provided.

NOTE – The new steering sensor will install the same way as the AutoSense sensor shown here.

Step 4

If fenders are installed, remove the fender bolts shown.

If fenders are not installed, locate the hardware provided in the bolt kit to mount the bracket in the existing holes.

Step 5

Mount the bracket and the IMD-900/AutoSense device over the kingpin using the existing fender mounting options.

NOTE – The bracket can be installed on the left or right kingpin. Choose the rear set of holes for left side mounting and the front holes for right side mounting.

Step 6

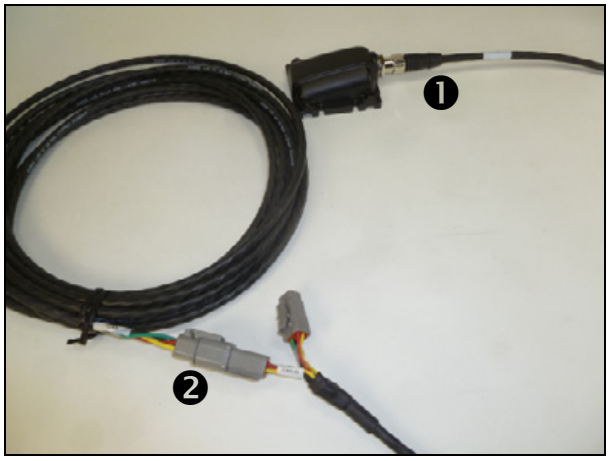
Route the steering cable to the steering device along the tie-rod and then connect it to the steering device. Leave adequate length on the service loop to avoid stretching the cable.

Connecting the IMD-900 harness to the 54602 harness

Step 1

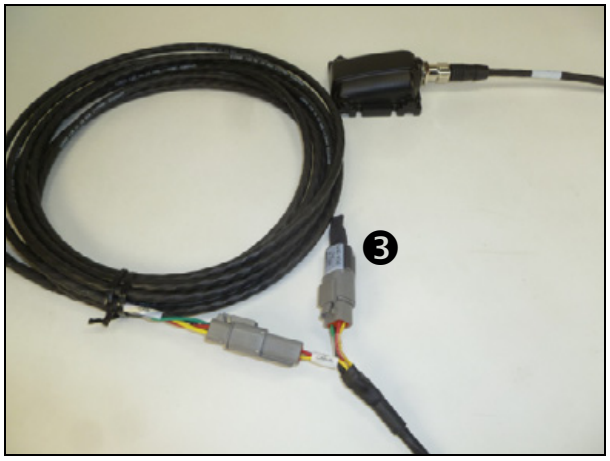
Connect the P1 connector of the 112759 cable to the IMD-900 ❶.

Connect the R3 connector to the 114675 cable ❷.



Step 2

Connect the CAN terminal to the P3 connector of the 112759 cable ❸.



Step 3

With the cable routed to the NavController, the R1 connector will connect to the P12 connector on the 54602 harness on the NavController as shown.

4

Antenna/Receiver Installation

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:

- **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 68.
- **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
CFX-750 display TM-200 module	✓	✓

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

Attaching the plate with VHB adhesive

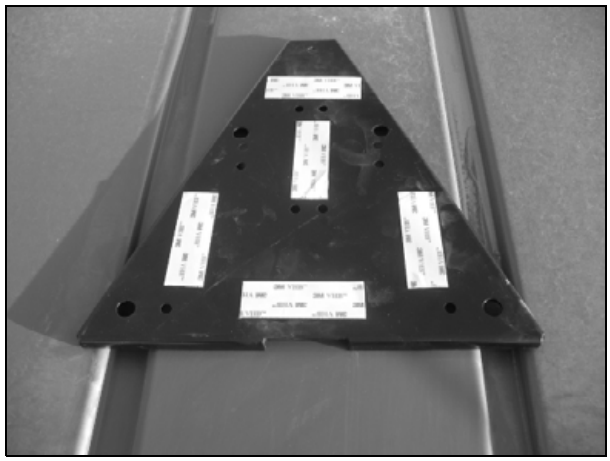
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information.

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

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

Step 1

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

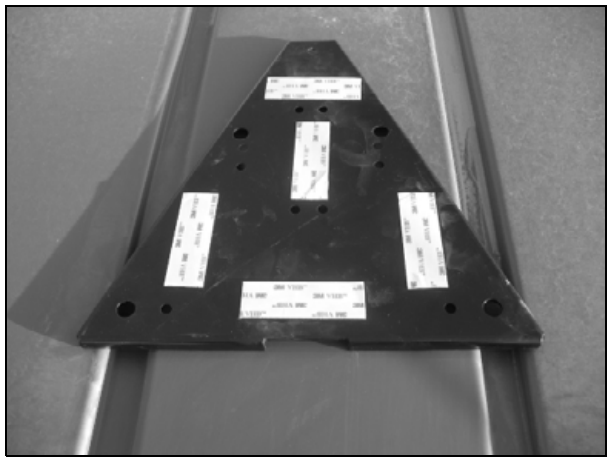


Step 2

V plate only

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

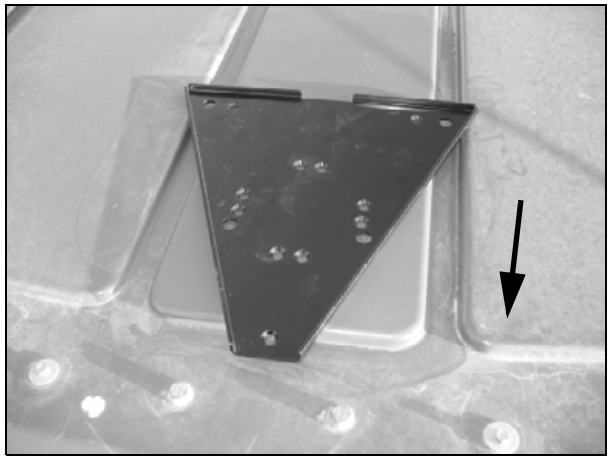
NOTE – The VHB strips are pre-applied to the P/N 62034 plate.



Step 3

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

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

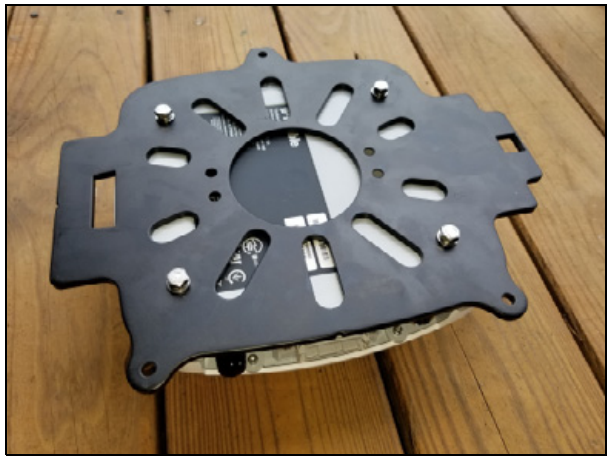


V plate

P/N 62034

Installing the NAV-900 guidance receiver using the guidance controller quick adapter plate

If the machine is equipped with the CNH receiver mount plate, the NAV-900 can optionally be mounted using the quick release adapter plate P/N 111339.



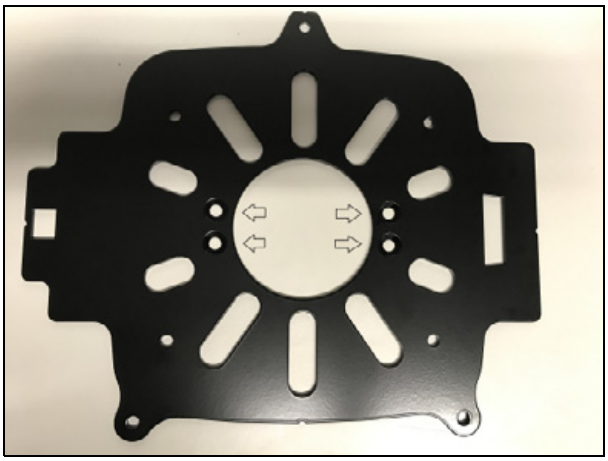
Installing the NAV-900 guidance receiver using a spar mount

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

Lengths available are:

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

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

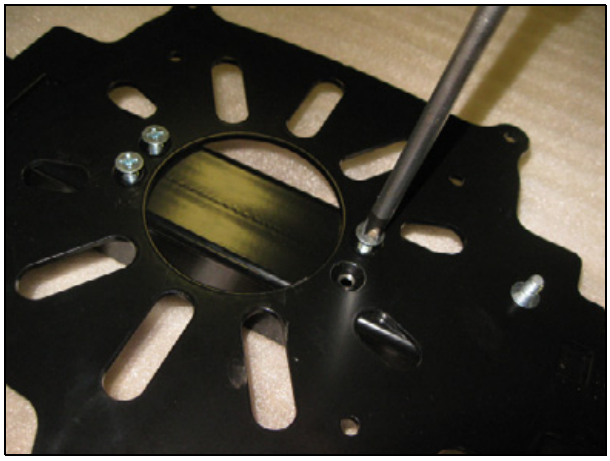


Step 1

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

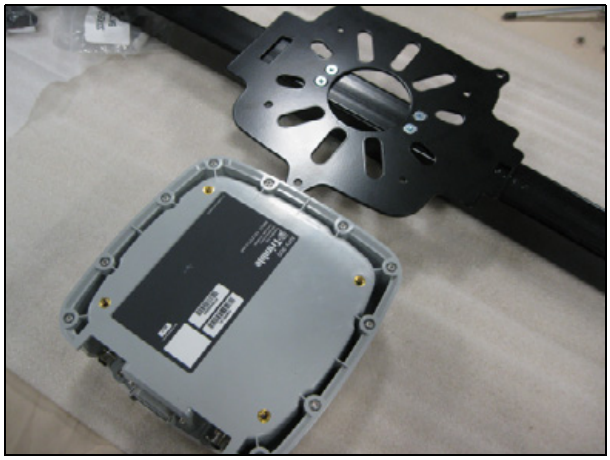
Step 2

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



Step 3 .

Lay the guidance controller on its top.



Step 4

Lay the mounting plate with spar attached over on top. Attach the plate to the guidance controller with the four 6 mm bolts and lock washers. Tighten the bolts. Take care not to over-tighten the bolts as damage may result.

Step 5

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

Step 6

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

Step 7

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

Step 8

Place the spar on the space and insert the bolt.

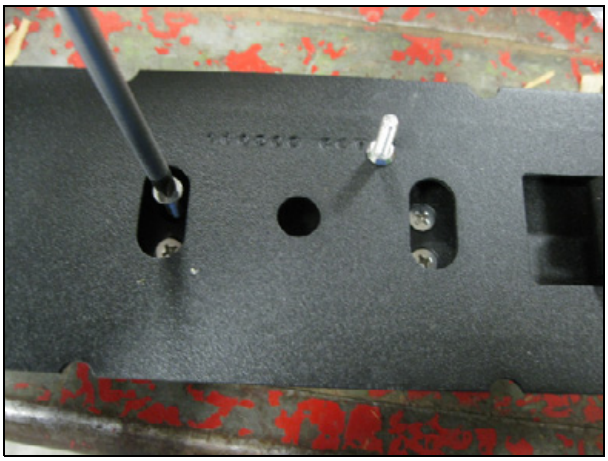
Step 9

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

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

Step 1

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

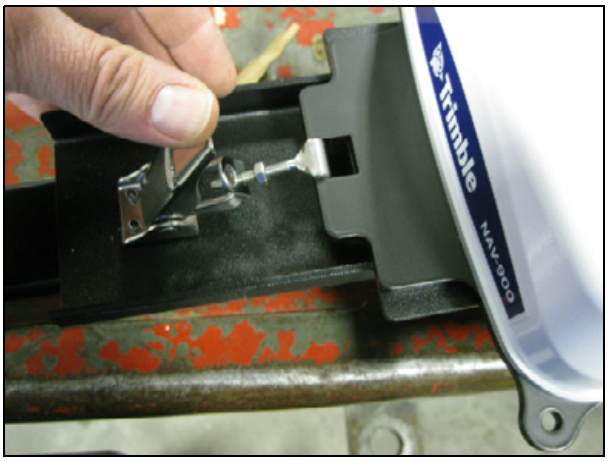


Step 2

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

Step 3

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



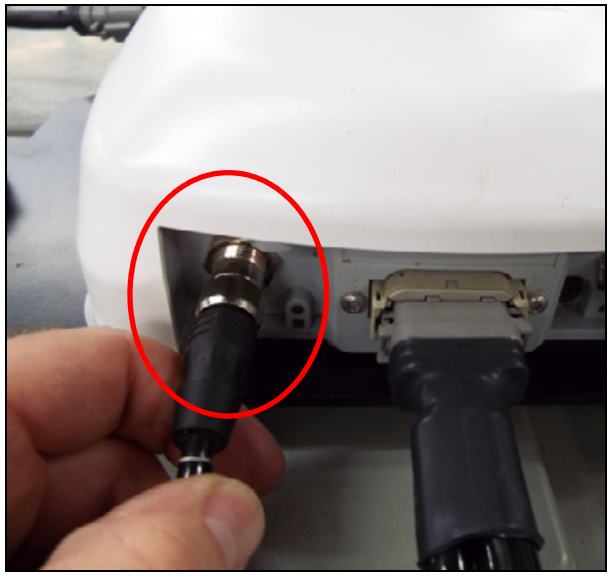
NAV-900 guidance receiver: Connecting the cables - both methods

Step 1

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

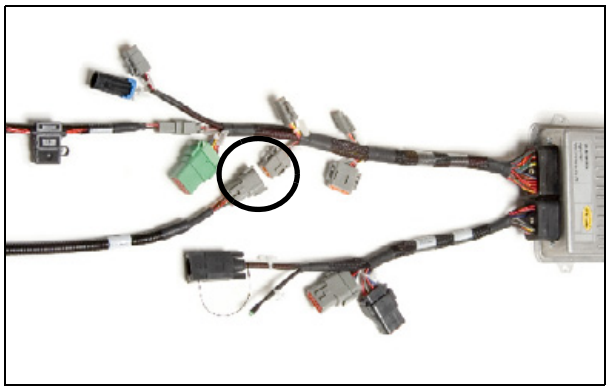
Step 2

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

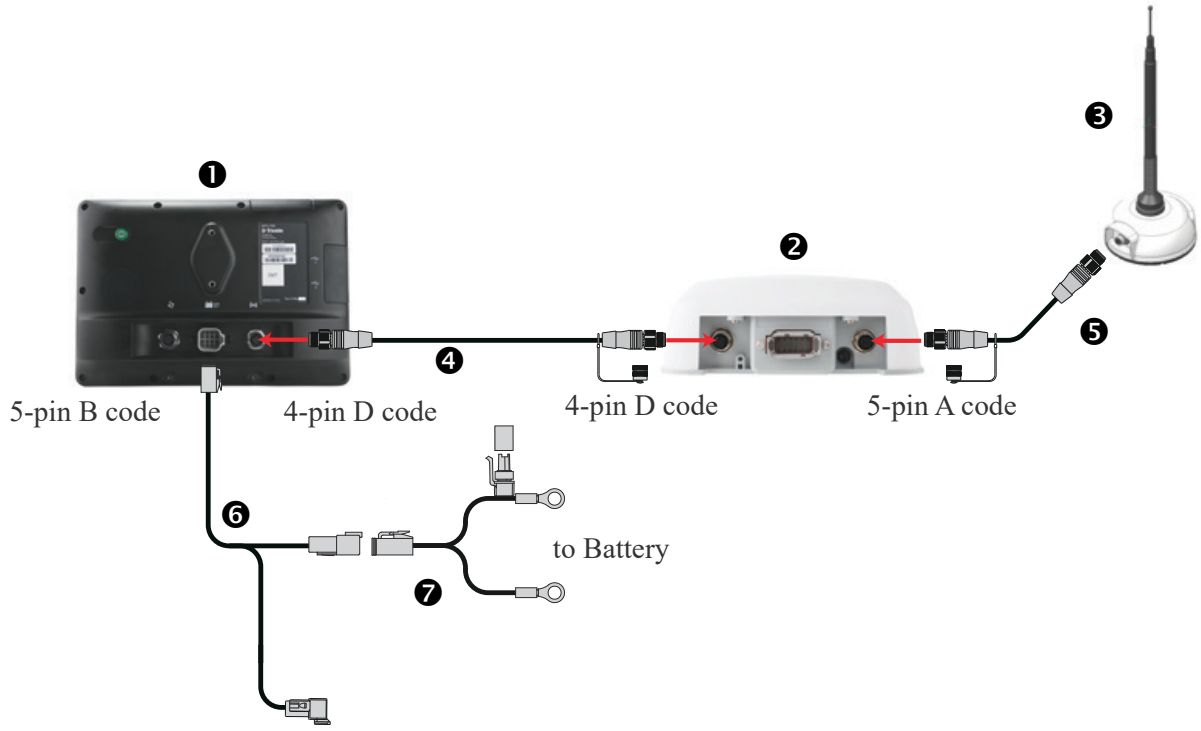


Step 3

Route the other end of the P/N 110547 cable to the P3 connector on the P/N 54601 harness of the NavController II/III.



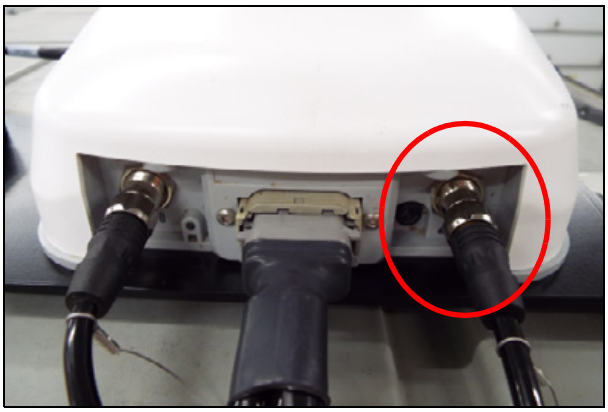
NAV-900 guidance receiver: Connecting an external radio (as required)



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

Step 1

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



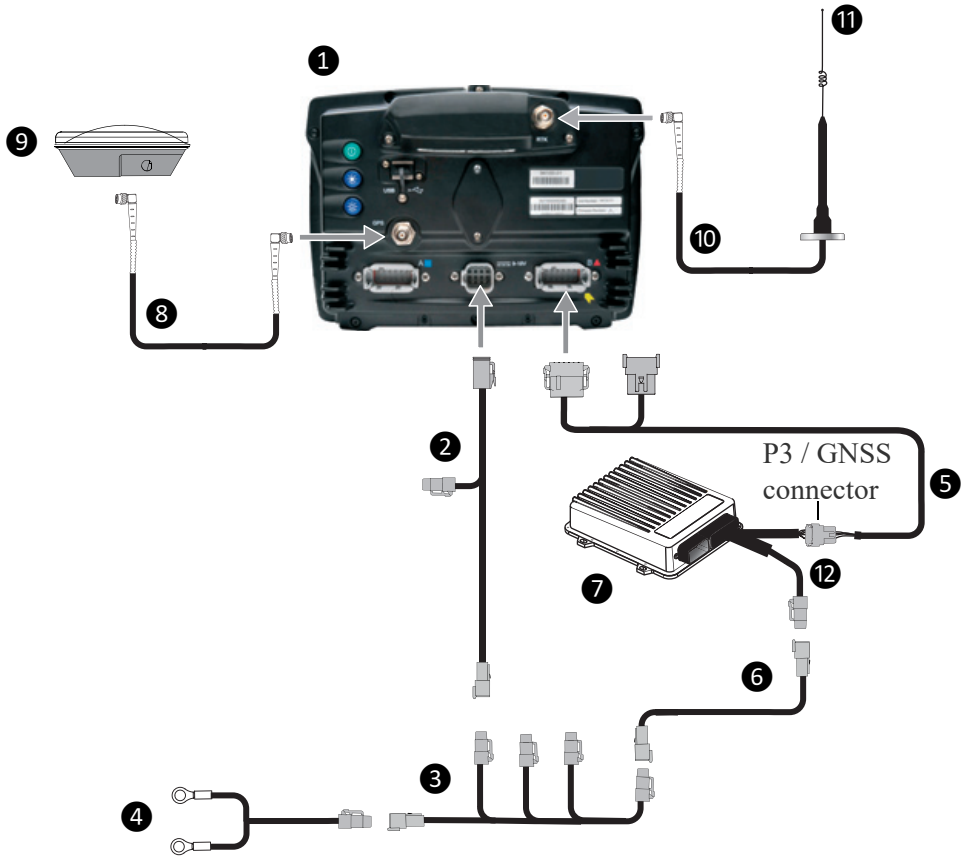
Step 2

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

5

Display Installation

CFX-750 display: Components



⚠ **CAUTION –** Connecting the Port Replicator on the CFX-750 display to NavController II cable ❺ to the P4 or P12 connector of the NavController II 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	CFX-750 power cable	66694
3	CFX-750 power cable with relay and switch (power bus)	67259
4	Basic power cable	67258
5	CFX-750 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

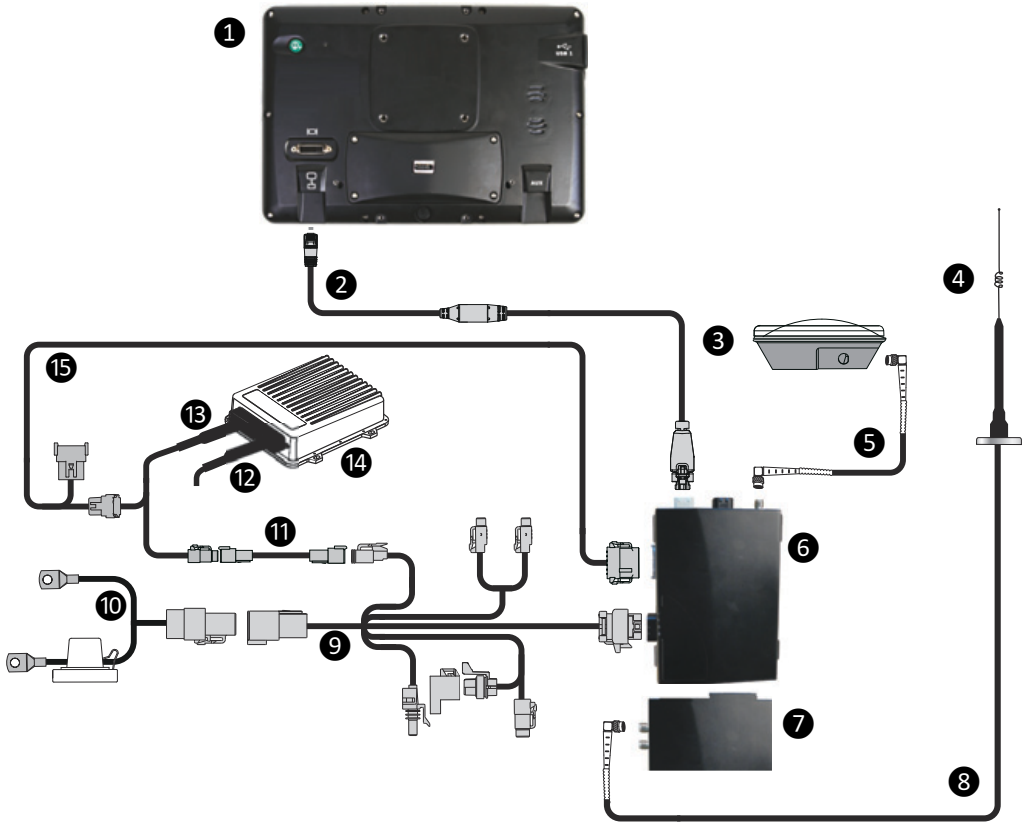
Locate the cable that connects the CFX-750 display to the NavController II.

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.

TMX-2050 display: Components

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



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

TMX-2050 display: Preparation

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

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

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

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

Installing the display and mount

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

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

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

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

.

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

Step 1

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

Step 2

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

Step 3

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

Step 4

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

Step 5

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

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

Step 6

Connect the display cable to the display.

Step 7

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

TMX-2050 display: Installing the wiring harness

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

Step 1

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

Step 2

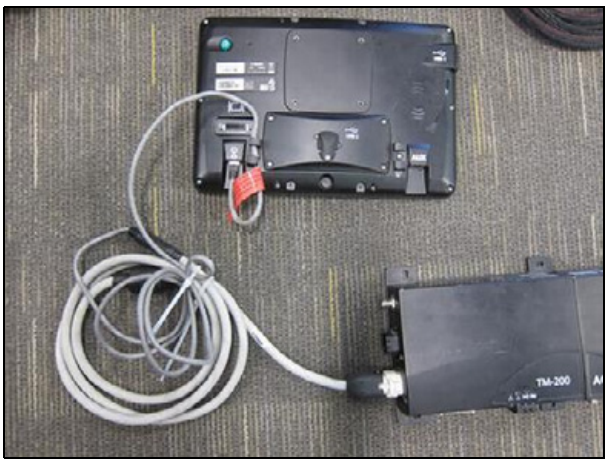
On the TM-200 Module locate the display connection point.

Step 3

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

Step 4

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

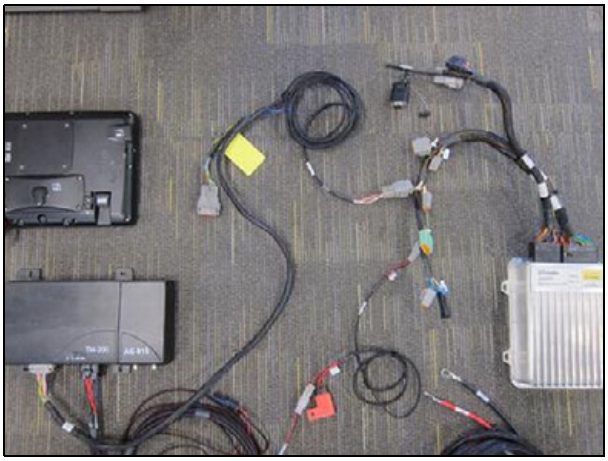


Step 5

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

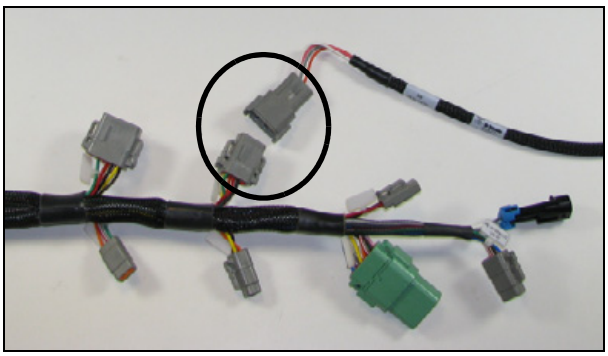
Step 6

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



Step 7

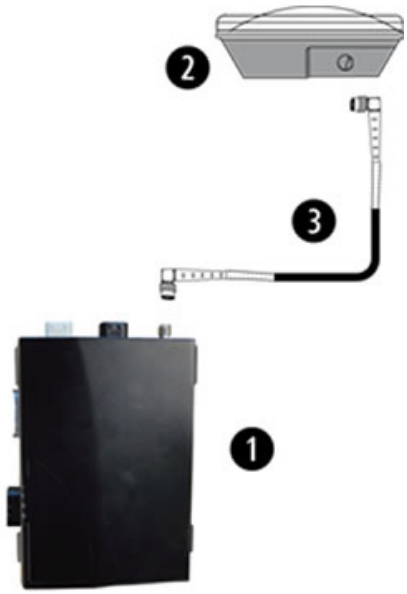
Connect the cable to the P3 connector on the NavController main harness.



TMX-2050 display: AG-25 GNSS antenna

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

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



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

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

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

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.

NOTE – The V plate antenna bracket is available on the Autopilot price list. See Antenna mounting kits, page 11.

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 68.

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

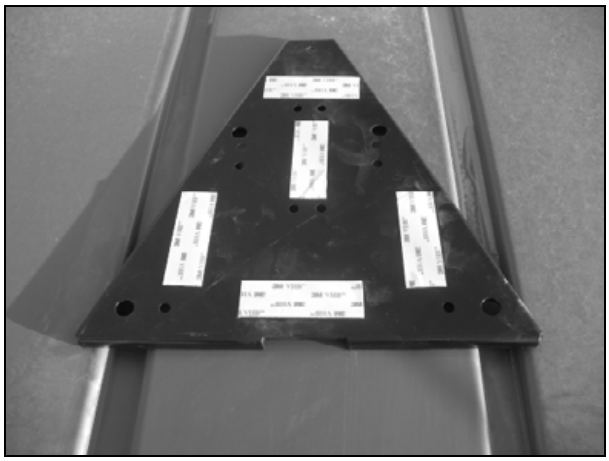
Clean the antenna location on the roof of the cab with a light solvent to remove oil and dust.

Step 2

V plate only

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

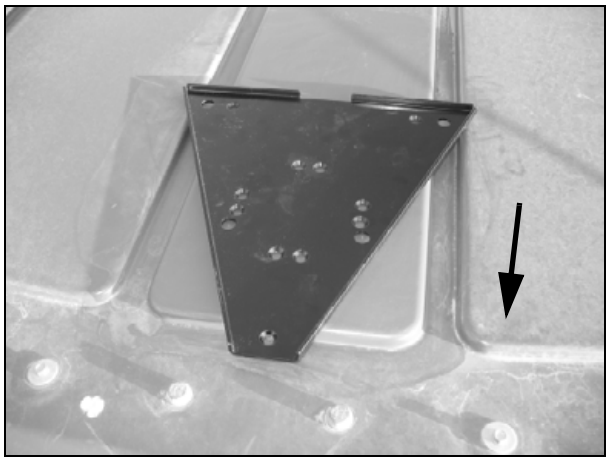
NOTE – The VHB strips are pre-applied to the 4" x 6" plate.



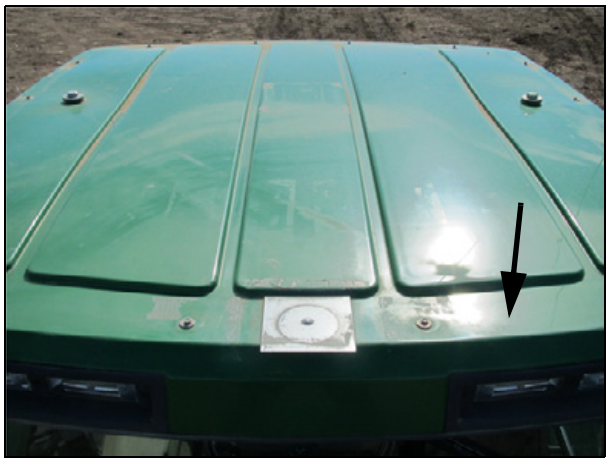
Step 3

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.



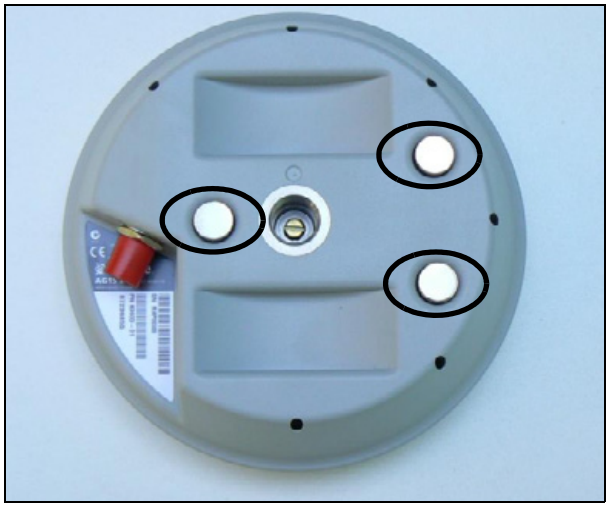
V plate



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 TMX-2050 displays: Installing the RTK radio antenna

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

Step 1

Connect the radio antenna to the magnetic antenna base.

Step 2

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

Step 3

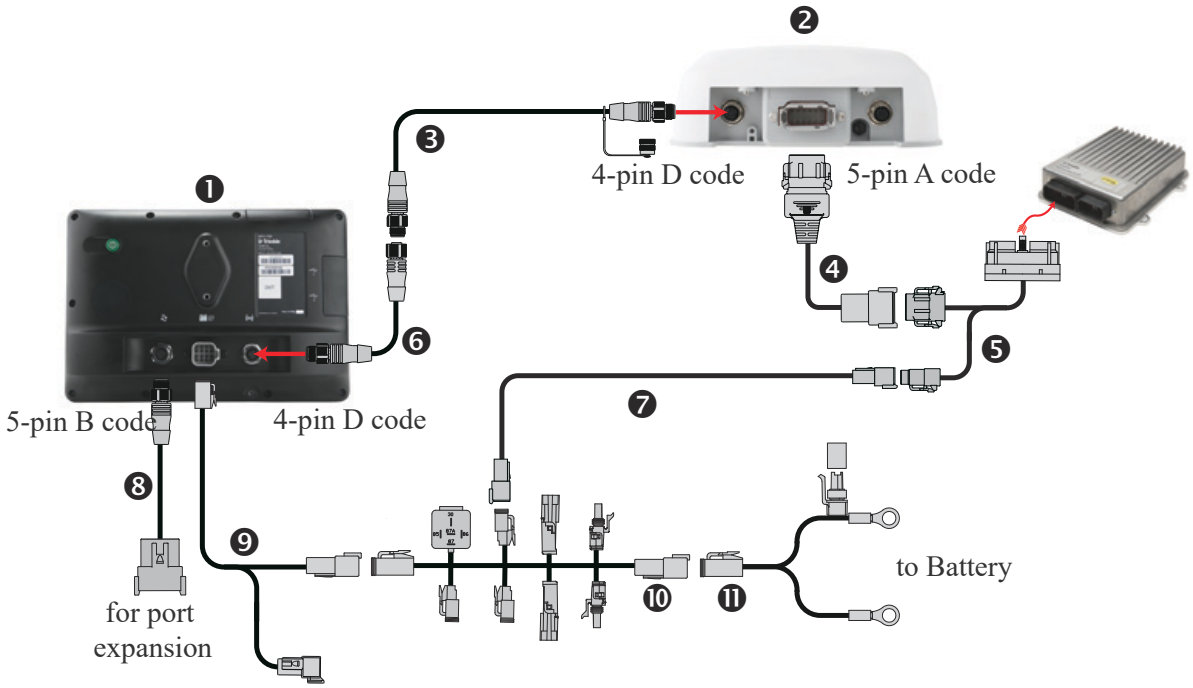
Attach the magnetic radio antenna base to the rear of the V plate on the roof. If the cable does not reach the V plate, use the P/N 62034 plate with the VHB provided to relocate the antenna.

Step 4

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

GFX-750/XCN-1050 display: Components

This graphic shows the Autopilot system using NAV-900 as an external guidance device.



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

GFX-750/XCN-1050 display: Preparation

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

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

GFX-750/XCN-1050 display: Installation

Step 1

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

Step 2

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

Step 3

Position the display as desired and then tighten the clamp.

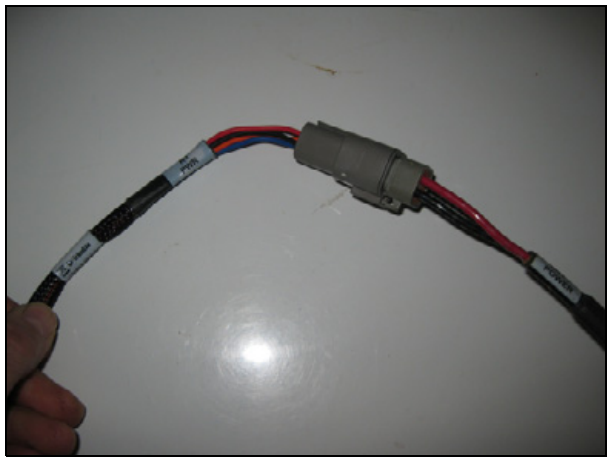
GFX-750/XCN-1050 display: Installing the wiring harness

The GFX-750 display requires a nominal 12 volt power source. The P/N 67258 cable has ring terminal leads for connecting to a battery or other cable mount point.

⚠ **WARNING –** If the machine has a master electrical disconnect, ensure that the display/receiver will be disconnected from the battery when the master disconnect is used. Failure to do so may result in hardware damage and void warranty. Additionally, it is suggested to utilize power terminals located within the cab of the vehicle that ground in the same location as the cab components to avoid ground shifts between the display and any vehicle ECUs.

Step 1

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



Step 2

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

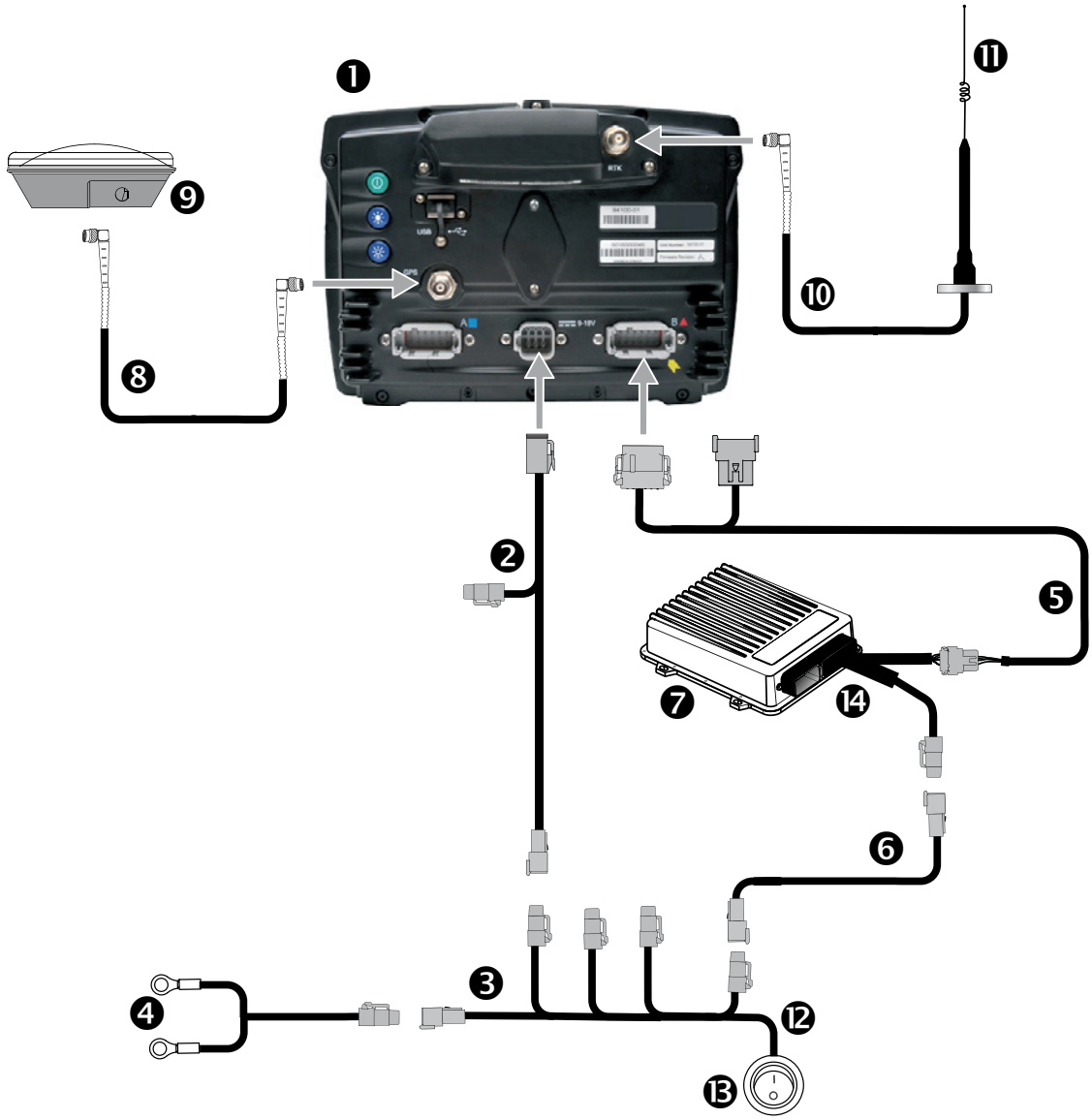
Step 3

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

6

Power Harness Installation

CFX-750 display: Components



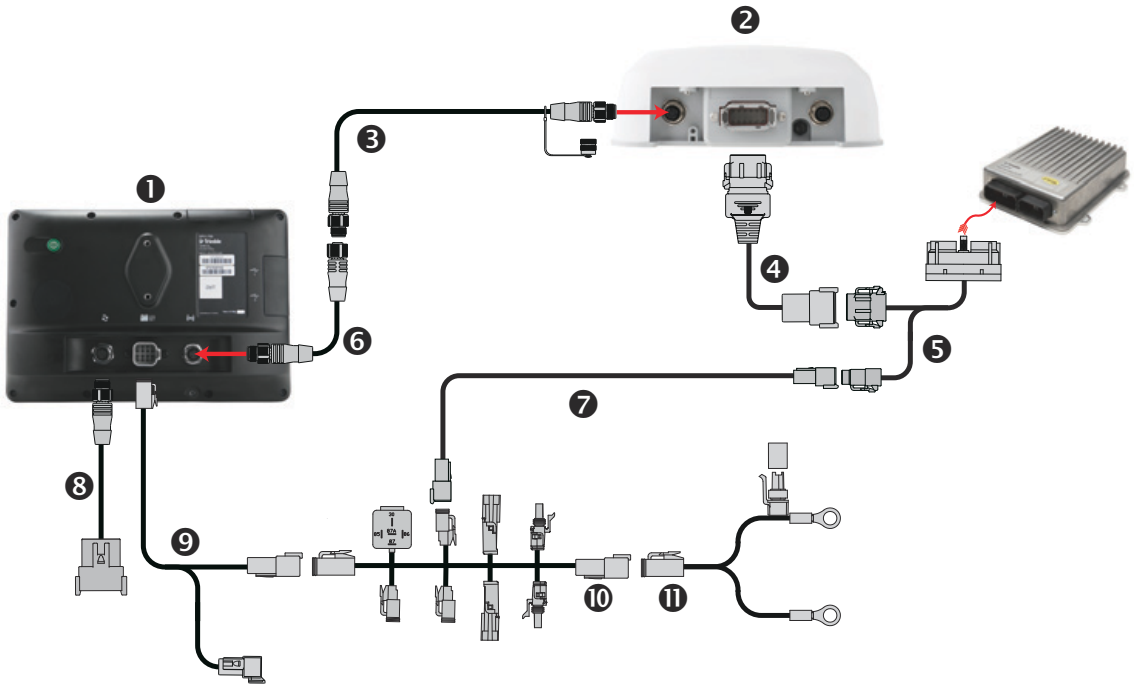
⚠ **CAUTION –** Connecting the Port Replicator on the CFX-750 display to NavController II cable ❺ to the P4 or P12 connector of the NavController II harness ⓮ will result in damage to the CFX-750 display and will void the warranty.

Item	Description	Trimble part number
1	CFX-750 display **NOTE –** RTK password required.	94100-02
2	CFX-750 power cable	77282
3	CFX-750 power cable with relay and switch (power bus)	67259
4	Basic power cable	67258
5	CFX-750 to NavController II cable with port replicator	75741

Item	Description	Trimble part number
6	2 pin DTM to 2 pin DT power adaptor	67095
7	NavController II	55563-00
8	8 m GPS TNC/TNC RT angle cable	50449
9	AG25 GNSS antenna	77038-00
10	NMO to TNC 20ft antenna cable and base	62120
11	900 MHz radio antenna kit	22882-10
12	External switch cable included with kit	Part of P/N 67259
13	External switch included with kit	Part of P/N 67259
14	Main NavController II cable	54601

GFX-750/XCN-1050 display: Components

This graphic shows the Autopilot system using NAV-900 as an external guidance device.



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

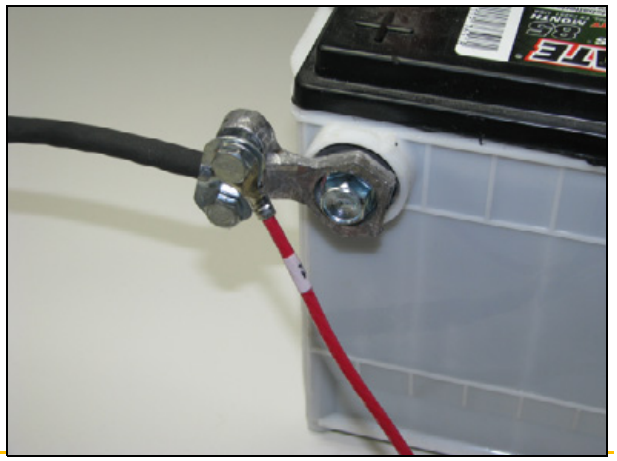
CFX-750 and GFX-750 displays: Installing the power harness

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

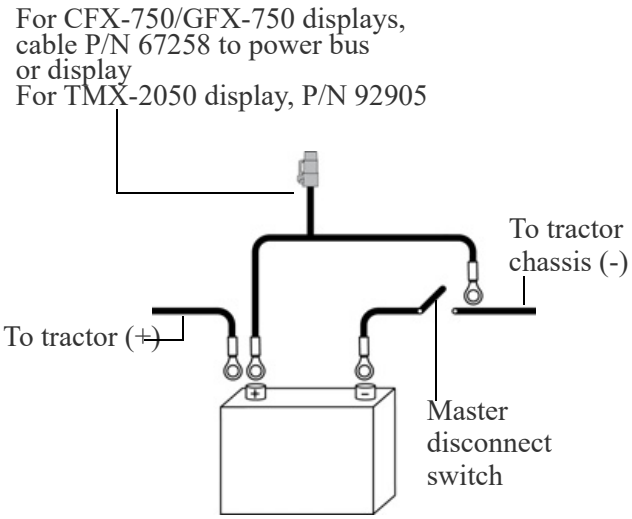
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information chapter.

Step 1

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

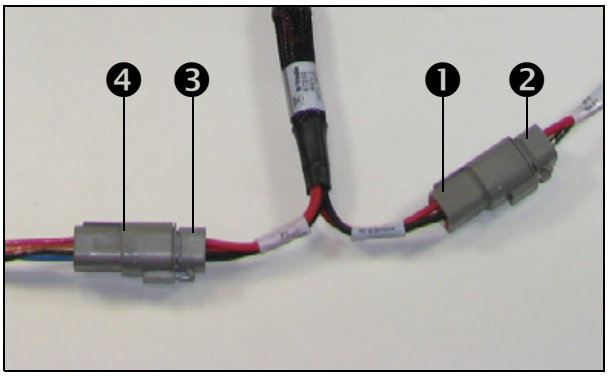


CAUTION – If the vehicle has a master electrical disconnect, make sure the basic power cable (P/N 67258 / 92905) is not directly attached to the battery terminal that is disconnected by the master switch - the negative pole in this example.
Attach this terminal side just past the main disconnect so that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



Step 3

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

CFX-750 display

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

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

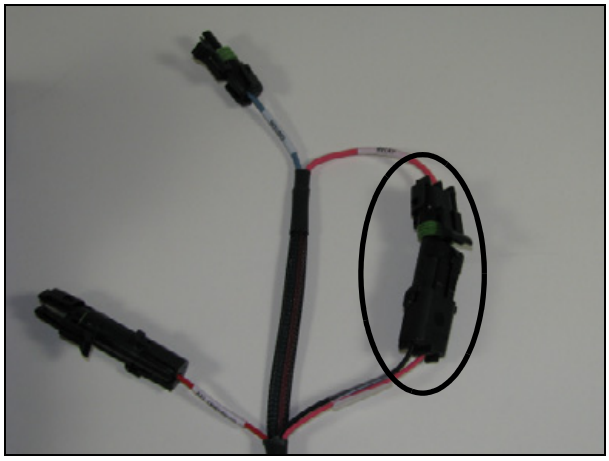
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information chapter.

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.

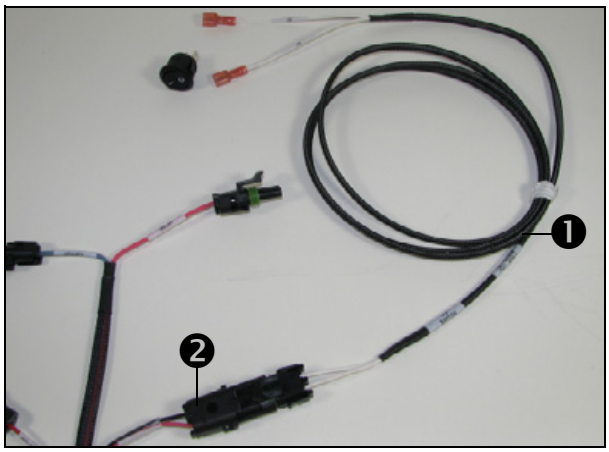


External switch is used to turn on the Autopilot system

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.

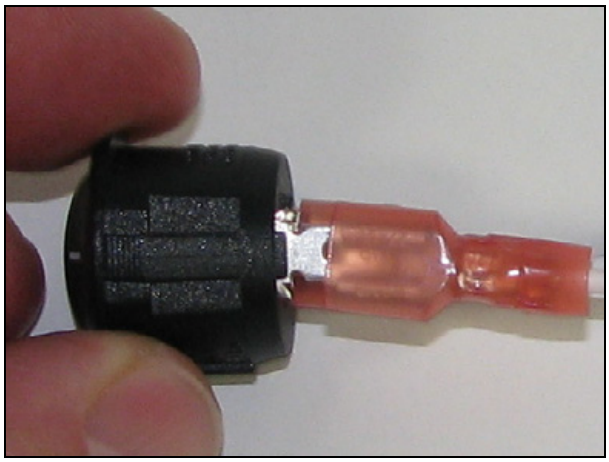
NOTE – To install the switch provided, drill a ¾" hole.



Step 2

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

NOTE – Polarity is not important.

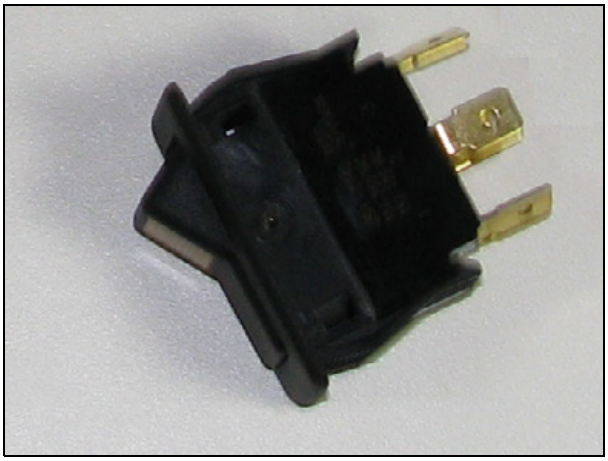


Installing the optional illuminated full or standard Euro switch

Step 1

Find an available knockout location on the vehicle console.

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

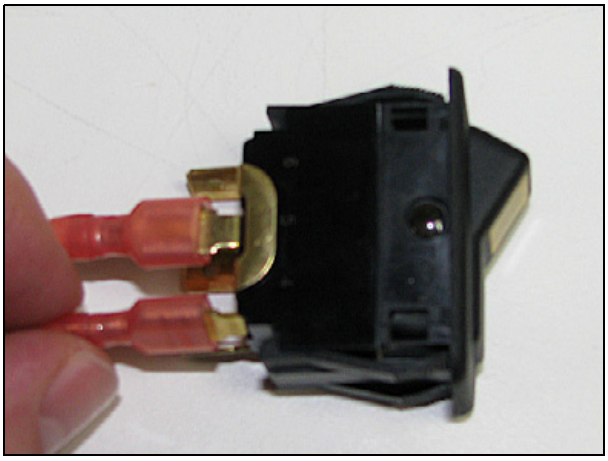


Step 2

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.

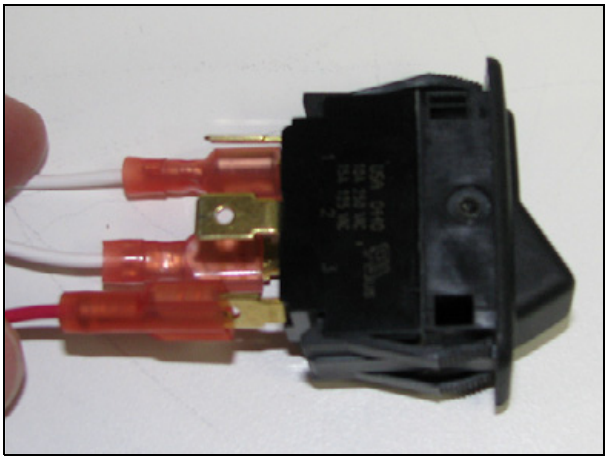
NOTE – Polarity is important.



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.

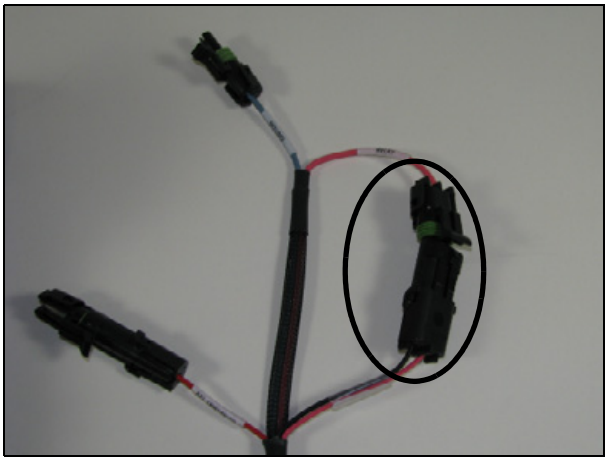
NOTE – This additional wire is required to allow the switch to illuminate.



Ignition is used to turn on the Autopilot system

Step 1

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

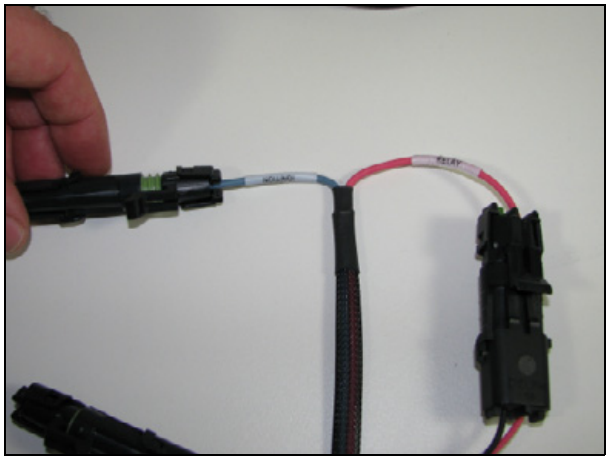


Step 2

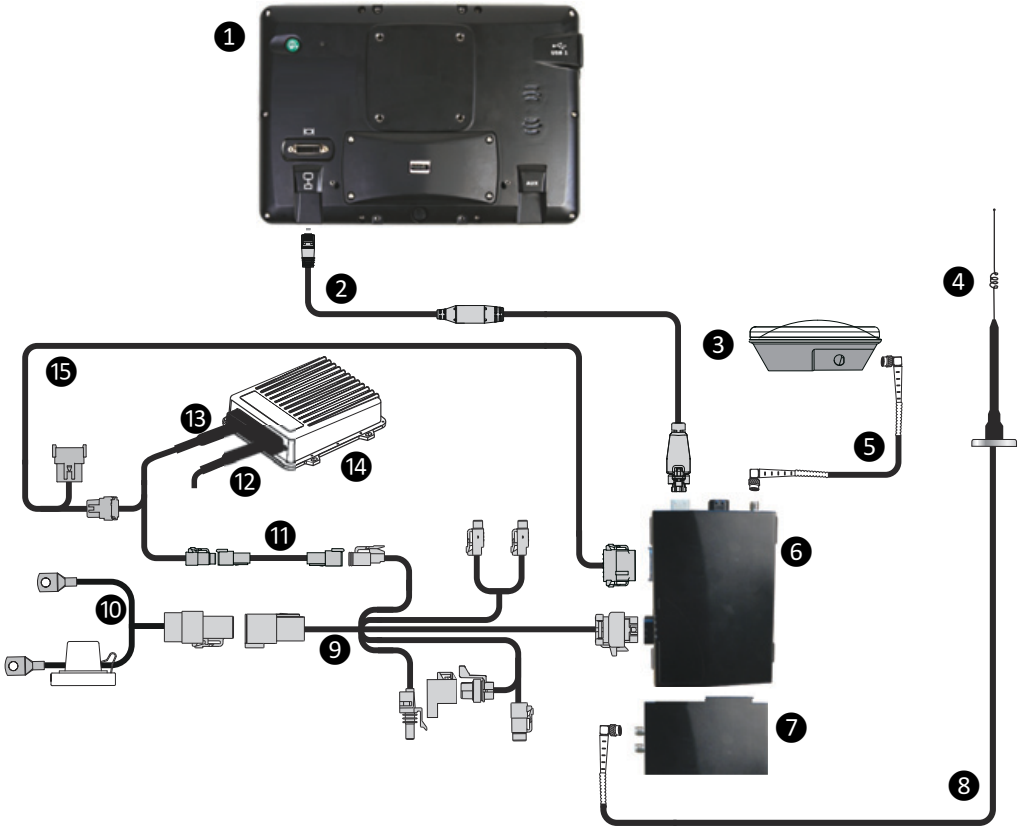
Connect the cable labeled **R8 Ignition** (included with the power bus) to connector **P3 Ignition** on the power bus.

Step 3

Route the cable to the vehicles ignition.



TMX-2050 display: Components



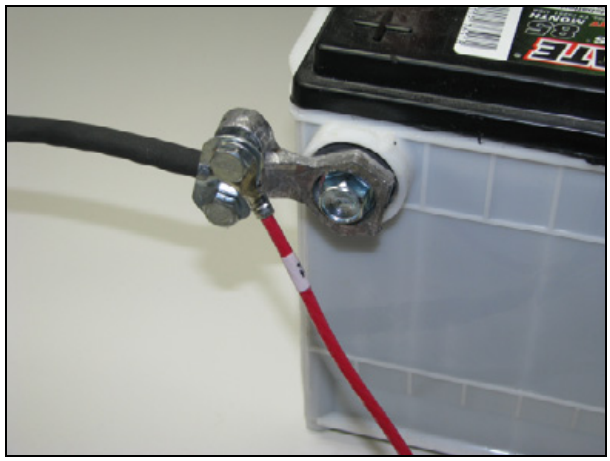
Item	Description	Trimble part number
1	TMX-2050 display	96700-00
2	TM-200 Module to display cable	93843
3	AG-25 GNSS antenna	77038-00
4	900 MHz radio antenna kit	22882-10
5	8 m GNSS TNC/TNC RT angle cable	50449
6	TM-200 Module	95060-00
7	AG-815 radio	
8	NMO-to-TNC 20 ft antenna cable and base	72122
9	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

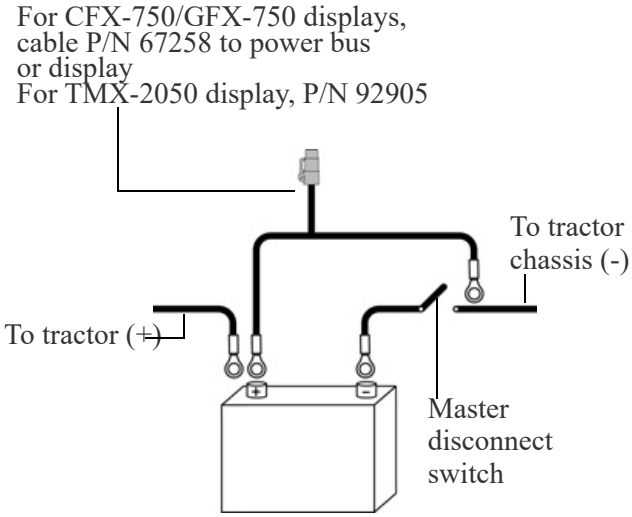
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information.

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.

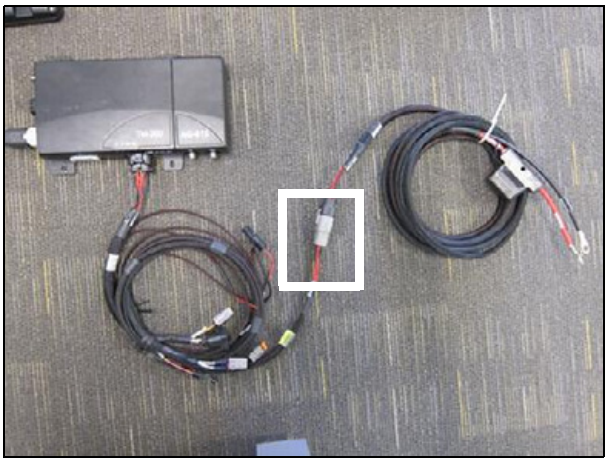


Step 2

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

Step 3

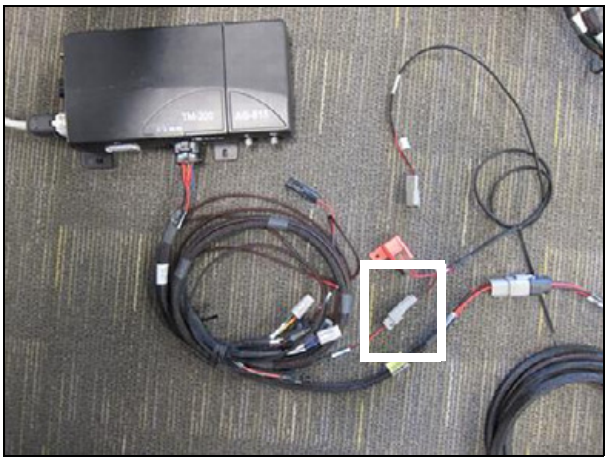
Route the power cable P/N 92905 that you previously connected to the battery and connect it to the R3 power in plug on the P/N 92676 cable.



Step 4

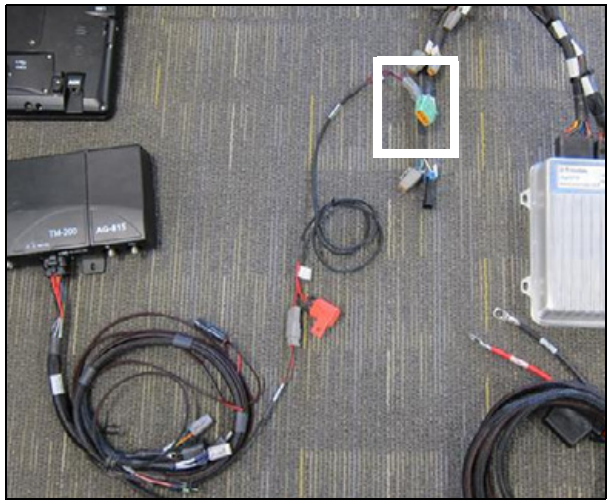
Connect the 2-pin DTM to 2-pin DT power adapter P/N 67095 to the P2 power out connector on the P/N 92676 cable.

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

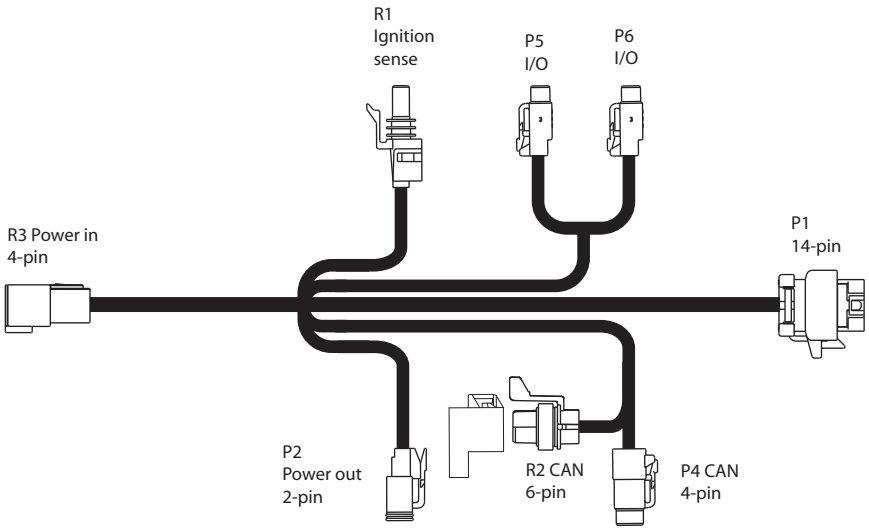
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information.

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

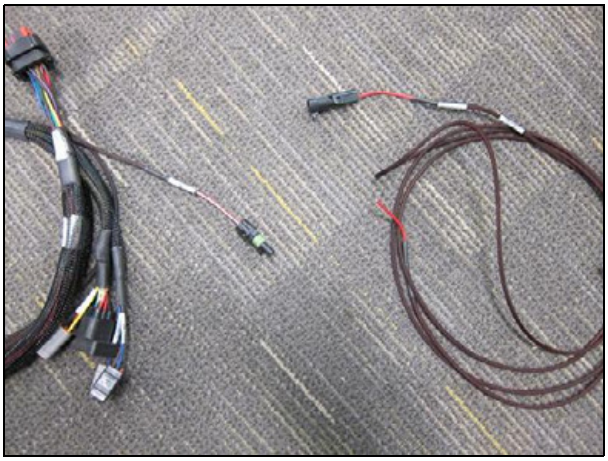
For ignition sensing with the TMX-2050 display, connect the ignition on the power supply to the R1 connector on the harness, P/N 92676.



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

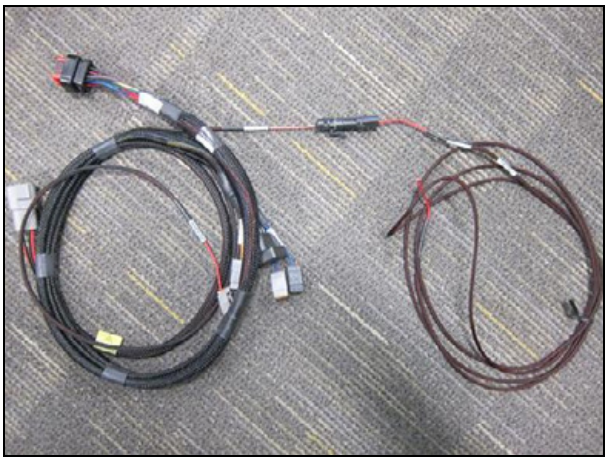
Step 1

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

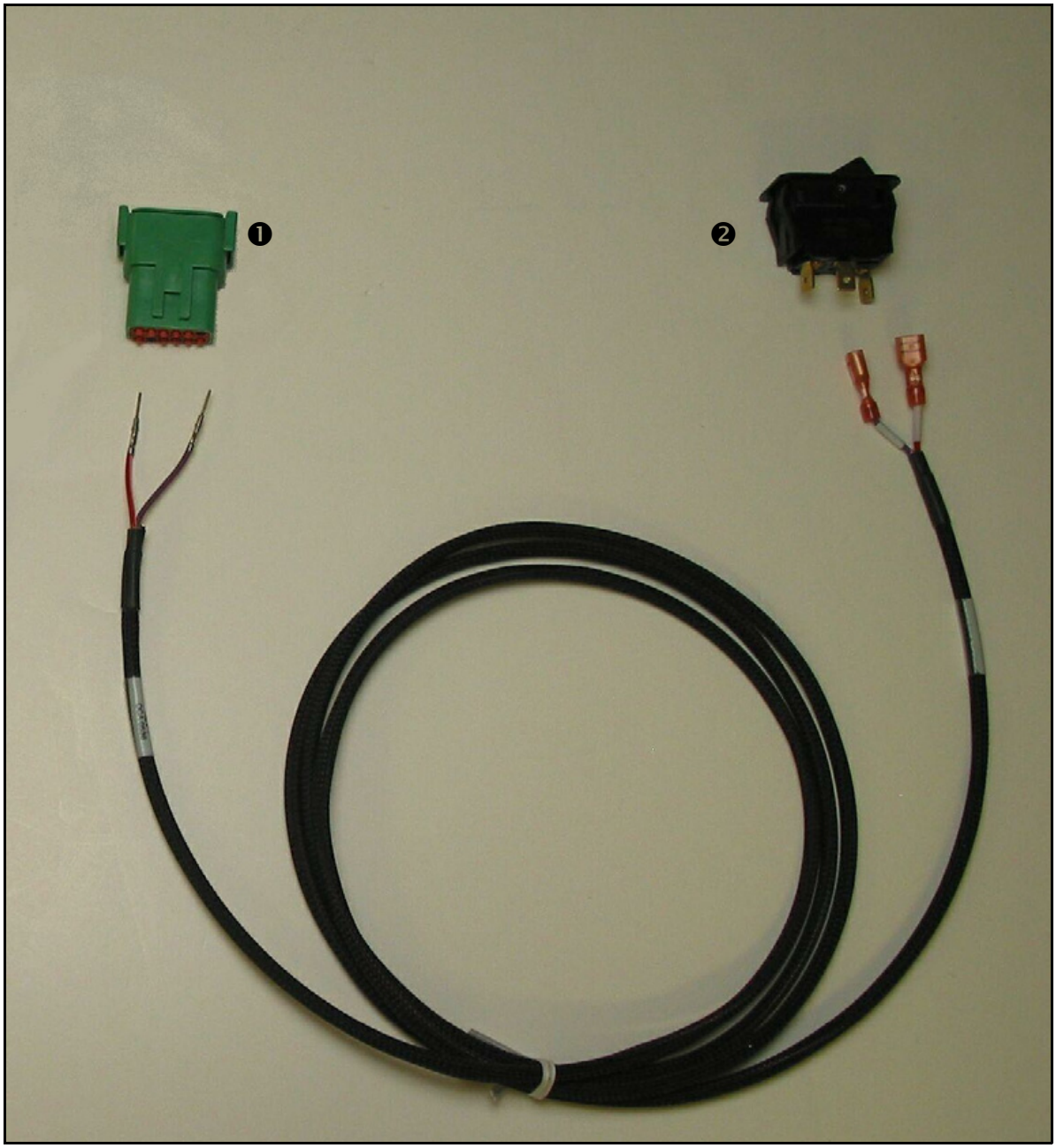
Connect the red ignition sense wire to the vehicle ignition source then route to the plug on the harness and then connect it.



7

Remote Engage Switch Installation

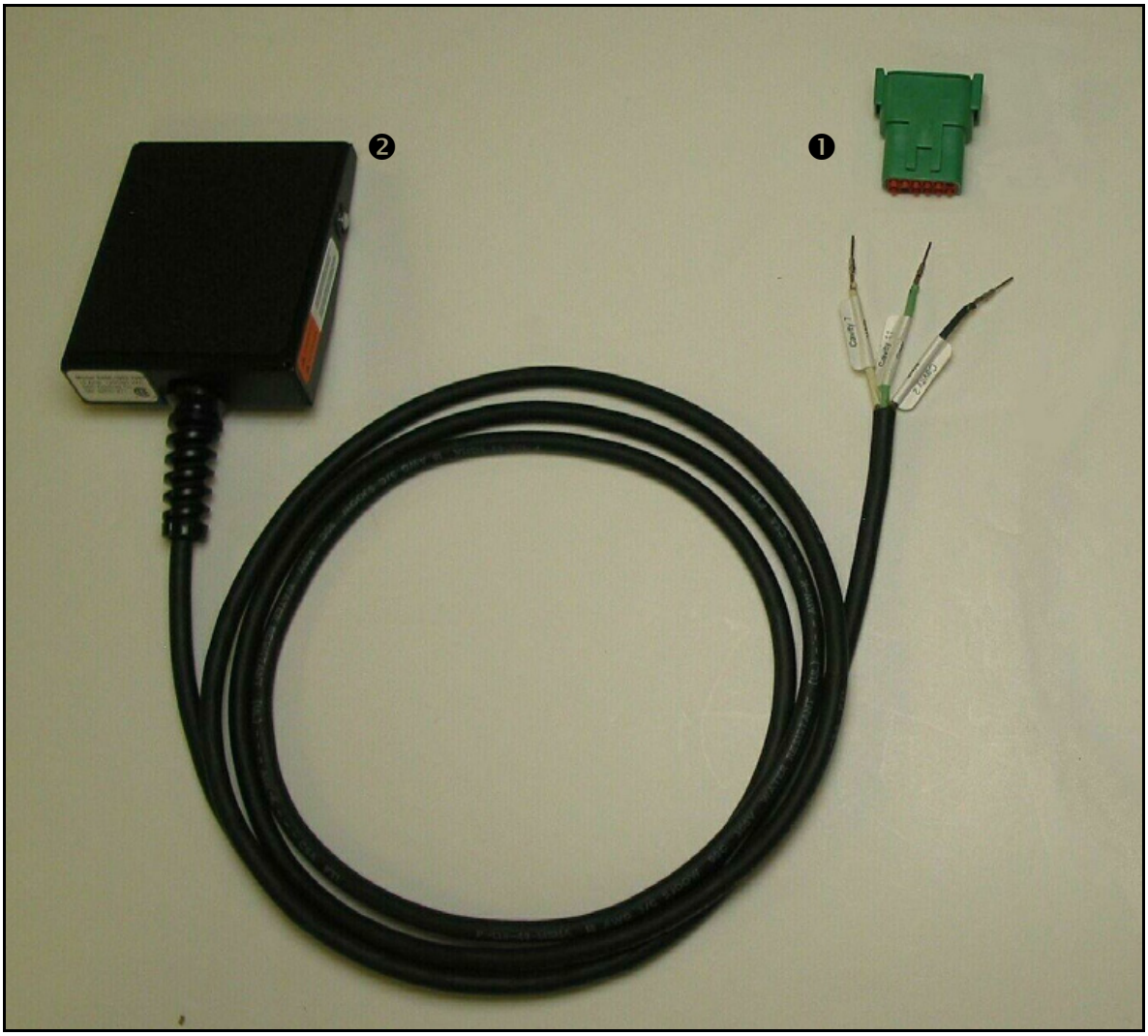
Remote engage switch components: Rocker switch



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

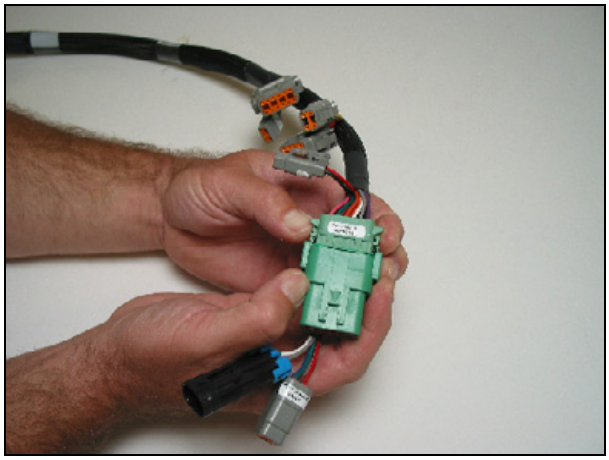


Item	Description
1	DTM receptacle
2	Remote engage foot switch

Preparing the remote engage cable

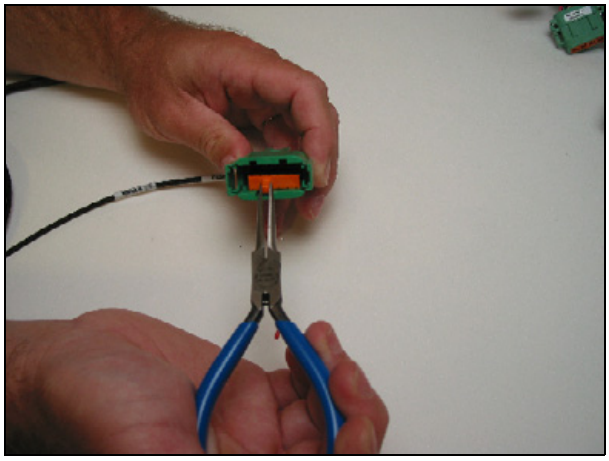
Step 1

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



Step 2

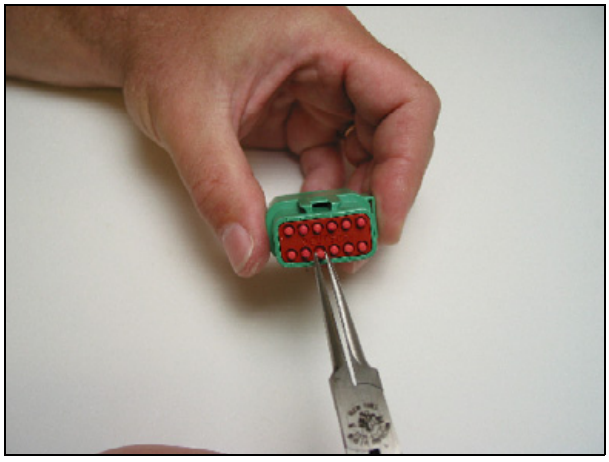
Remove the wedge from the connector.



Step 3

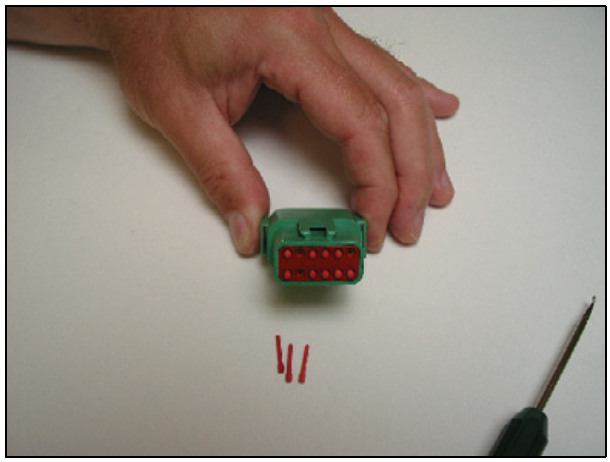
Rocker switch only

Remove the plugs from cavity 2 and cavity 7.



Foot Switch Only

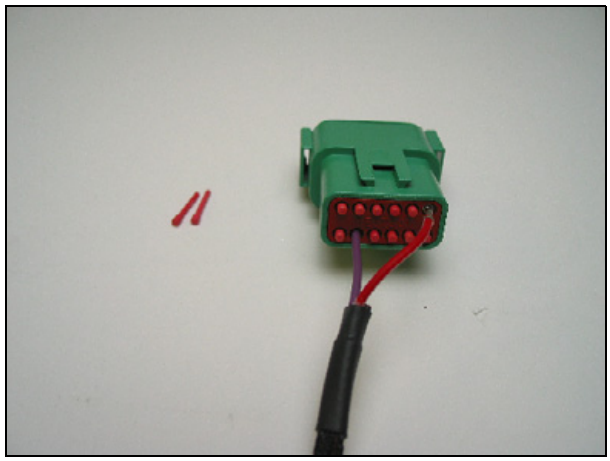
Remove the plugs from cavity 2, cavity 7, and cavity 11.



Step 4

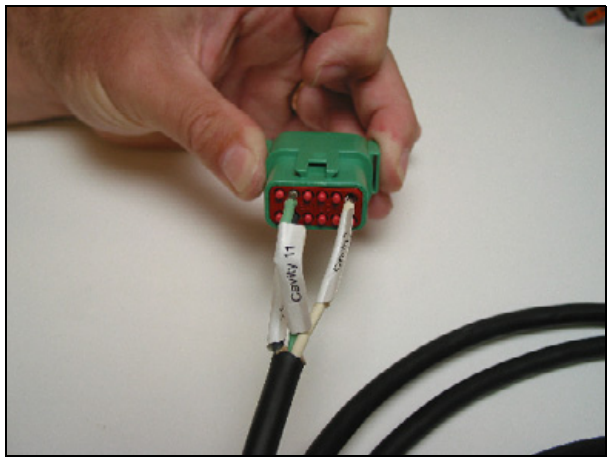
Rocker switch only

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



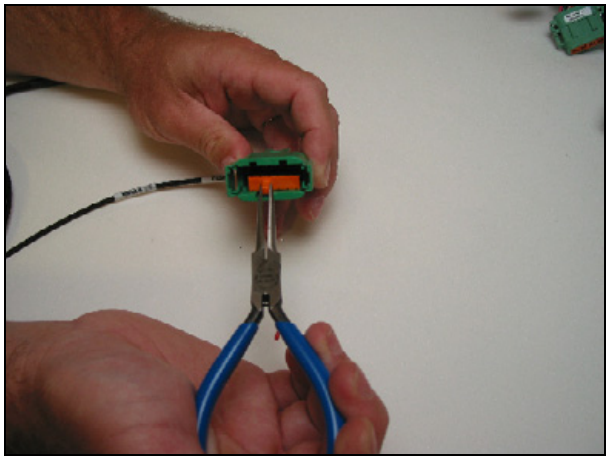
Foot switch only

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

Rocker switch only

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

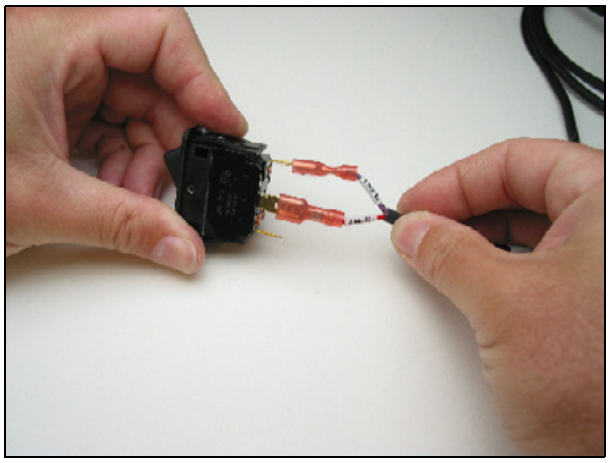
Foot switch only

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 7

Rocker Switch Only

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



Step 8

Rocker Switch Only

Place the switch in the console.

Using the remote engage switch

Step 1

Hold the switch down for at least 0.5 seconds.

NOTE – Holding the switch for less than 0.5 seconds will not engage the system.

Step 2

Release the switch between 0.5 and 4.0 seconds. When you release the switch, the vehicle will engage.

8

Controller Installation

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.

Use one of the following:

- Standard installation, page 126.
- Alternative installation, page 130

Standard installation

NOTE – Standard controller installation:

- **Roll = 285**
- **Pitch = 0**
- **Yaw = 90**

Step 1

Locate the rear panel behind the seat. Remove the net.

Step 2

Remove the two screws that retain the window lock.

Step 3

Remove the fours screws that retain the rear panel.

Step 4

Push the plastic “L” shape toward the back and then remove the two plastic rivets.

Step 5

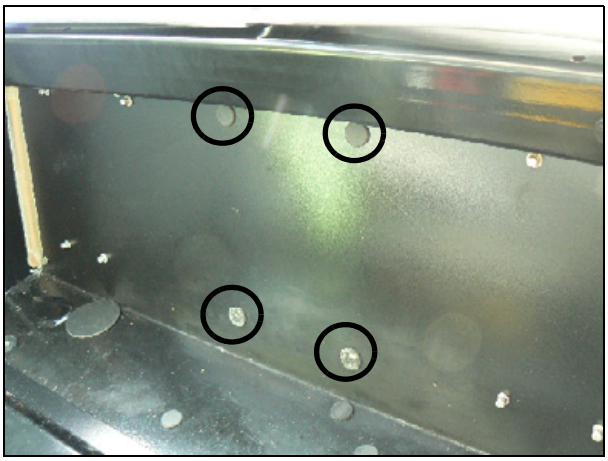
Remove the rear panel.

Step 6

Cut through the glue spots that hold the foam on and then remove the foam.

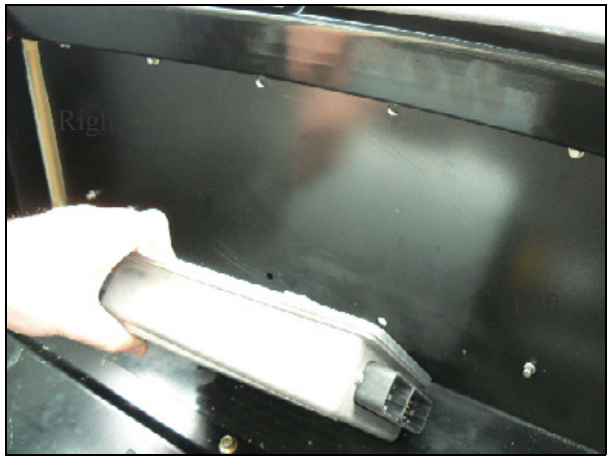
Step 7

Remove the four plugs from the controller mounting holes.



Step 8

From the inside of the cab, mount the controller with the connectors facing to the left of the vehicle.



Use the four provided #10 x ⅝" screws, four washers, and four nuts.

Step 9

Attach the main and auxiliary harnesses to the controller and then use an Allen key to secure them.

Step 10

Route the wiring harnesses toward the right rear corner of the cab.

Alternative installation

If you use the alternative mounting method, you must modify the controller orientation:

1. In the Autopilot controller orientation, open the direct entry screen.
2. Adjust the orientation as follows:
   - Roll: 90
   - Pitch: 0
   - Yaw: 270

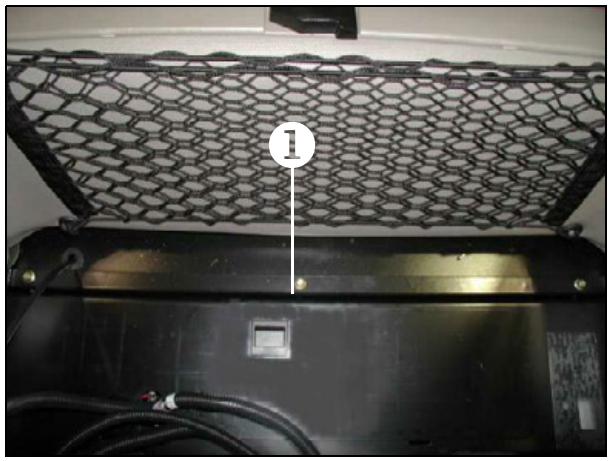
Install the controller as follows:

Step 1

Remove the rubber mat behind the operator's seat.

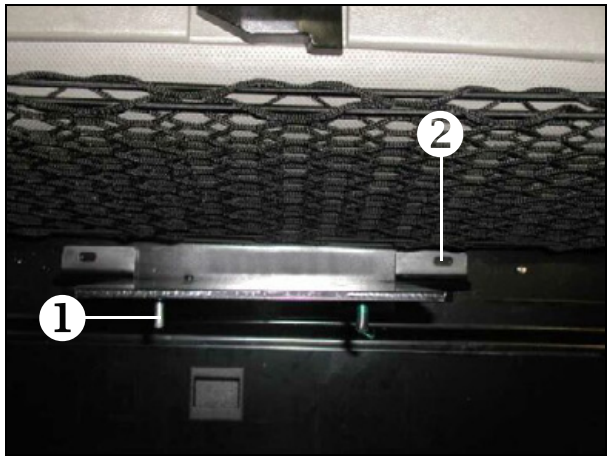
Step 2

Remove the center bolt ❶ in the access panel trim plate.



Step 3

Place the controller mounting bracket on the cab floor behind the operator's seat with the studs ❶ facing forward and slotted tabs ❷ on the floor. Install the M8 bolt and washer provided in the notch at the middle of the bracket and into the access panel.



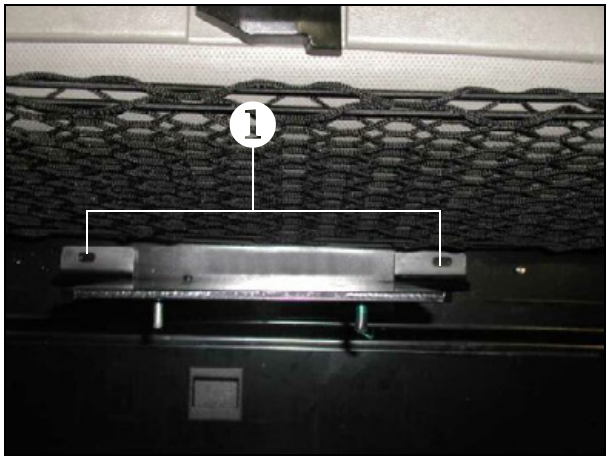
Step 4

Use the bracket as a template and mark the two holes in the center of each slot ❶. Remove the plate and drill two $^{5}/_{16}$" holes through the cab floor at each marked location.

NOTE – Make sure there are no obstructions under the cab before drilling.

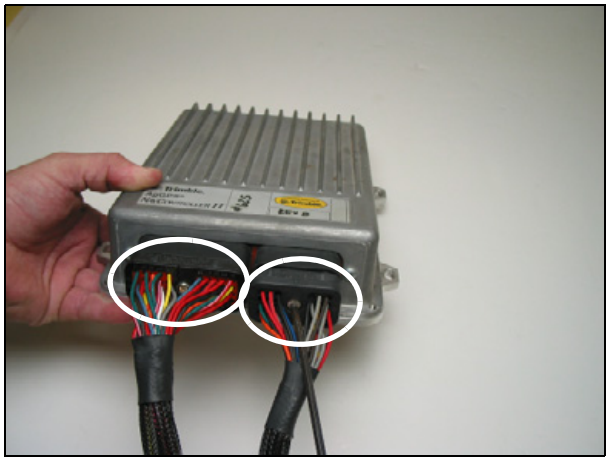
Install two ¼" -20 bolts, washers and lock nuts through the mounting bracket in the drilled holes. Replace the M8 bolt and washer in the notch of the mounting bracket and access panel. Tighten bolts.

NOTE – It may be easier to hold bolts in the cab through the rear window while tightening the nuts from outside the cab.



Step 5

Attach the main and auxiliary cable harnesses. Use an Allen wrench to secure the connectors to the controller.

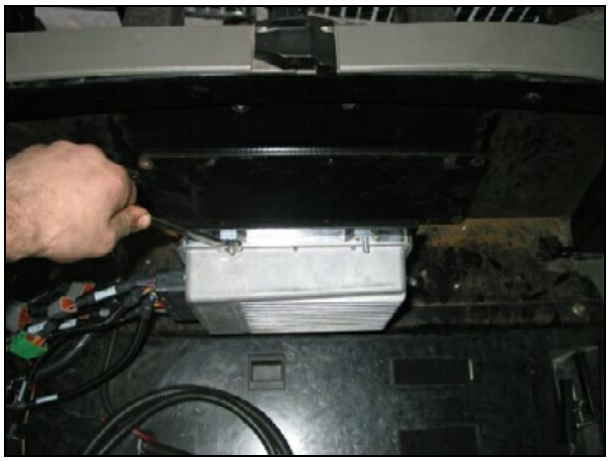


Step 6

Attach the controller with the flanges at the rear, and the connectors at right.

Use the existing four ¼" -20 studs, washers, and nuts to secure the controller to the mounting plate.

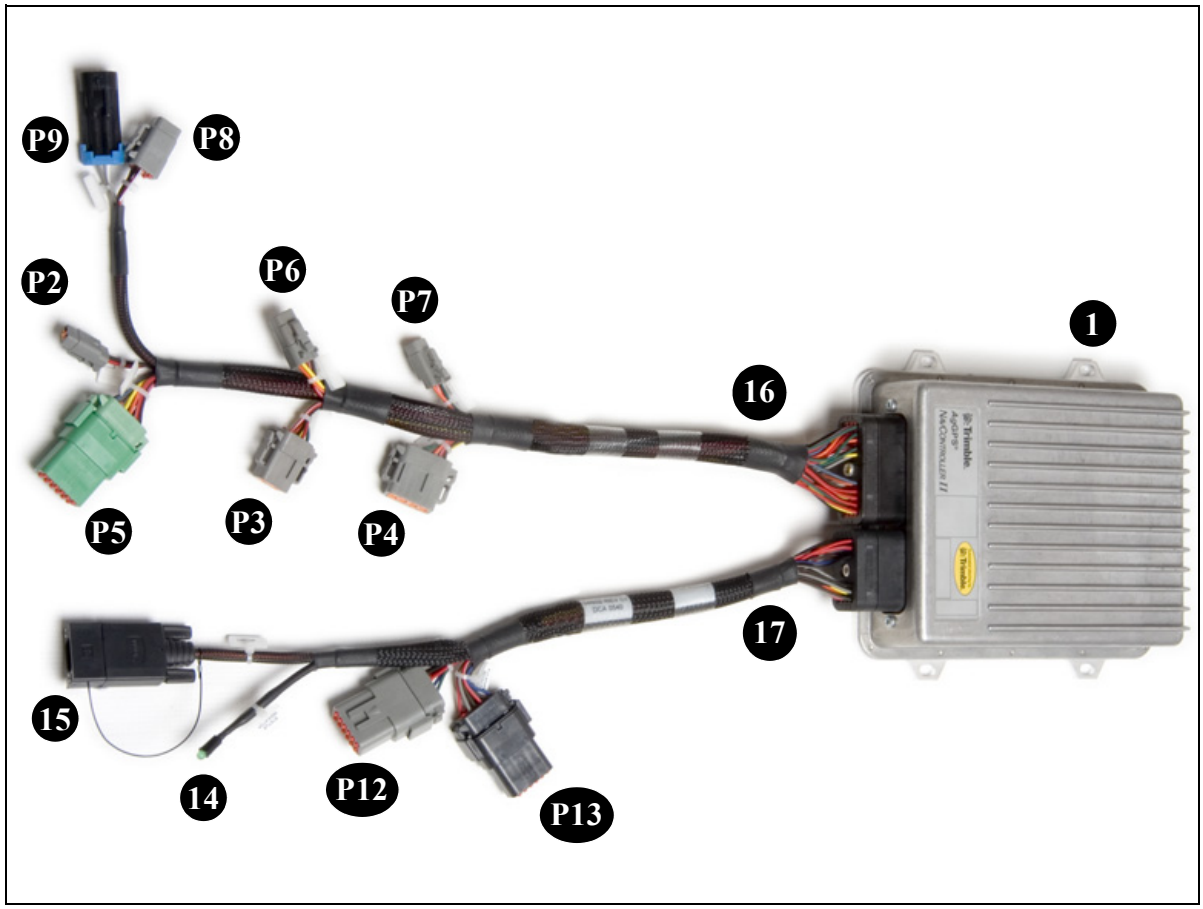
Route the cables coiling excess cable behind the rear cab panel.



Step 7

Notch the rubber mat to fit around the controller mounting bracket and install the mat.

Controller connections



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

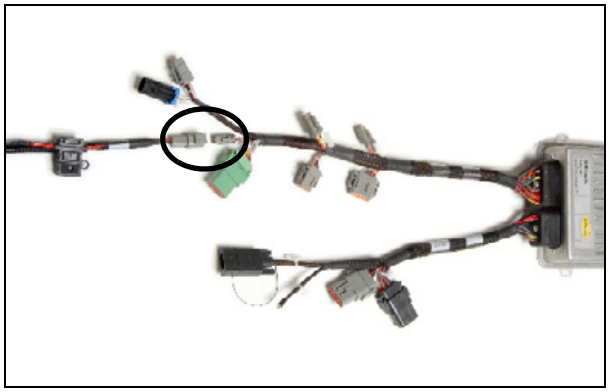
Item	Description
P9	Sonalert connector
P12	Lightbar/spare connector
P13	Spare sensors connector
14	Status indicator
15	Laptop connector
16	Main harness
17	Auxiliary harness

Connecting the cables to the controller

Step 1

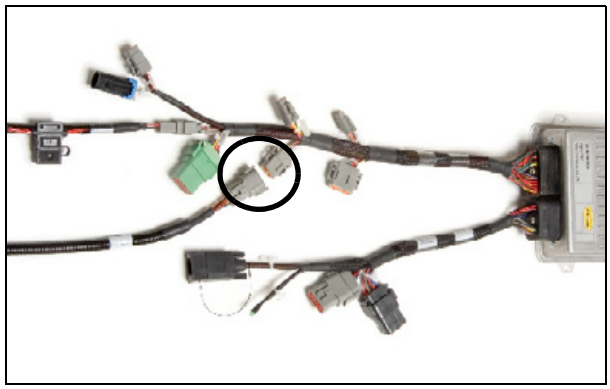
Connect the power cable connection to P2, which is labeled **Power**. P2 is located on the main wiring harness.

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



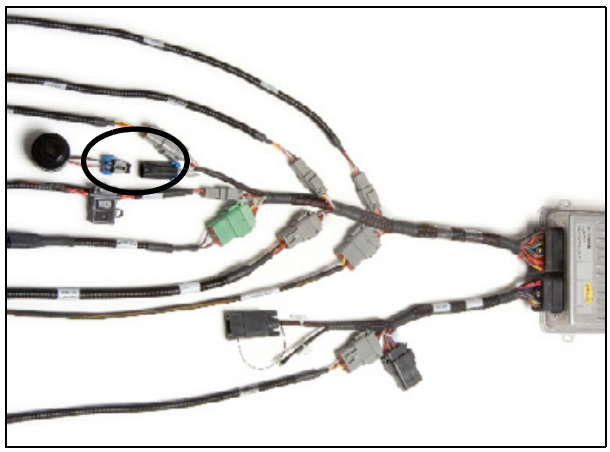
Step 2

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



Step 3

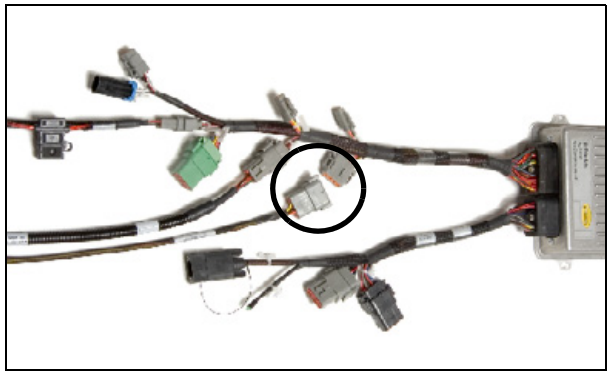
Connect the Sonalert P9 to the 2-pin Delphi connector on the main wiring harness. Route the cable so the Sonalert warning device is in a position that is audible to the operator.



Step 4

Connect the primary display cable connection to P4, which is labeled **Display**. P4 is located on the main wiring harness.

NOTE – Do not connect the cable to the connector labeled **Spare** on the auxiliary harness.



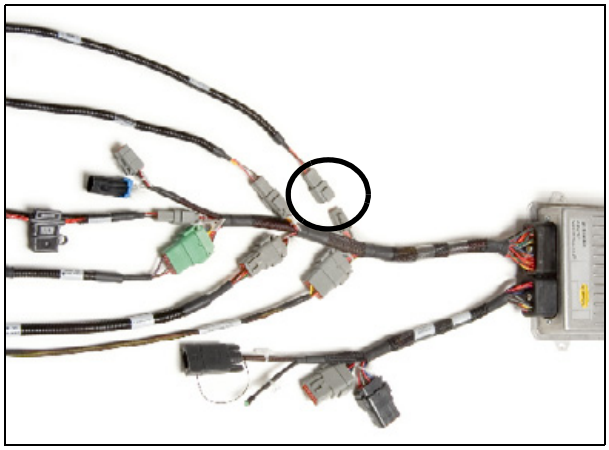
Step 5

Connect the steering sensor cable connection to P12, which is labeled **Steering Sensor**. P12 is located on the main wiring harness.

Step 6

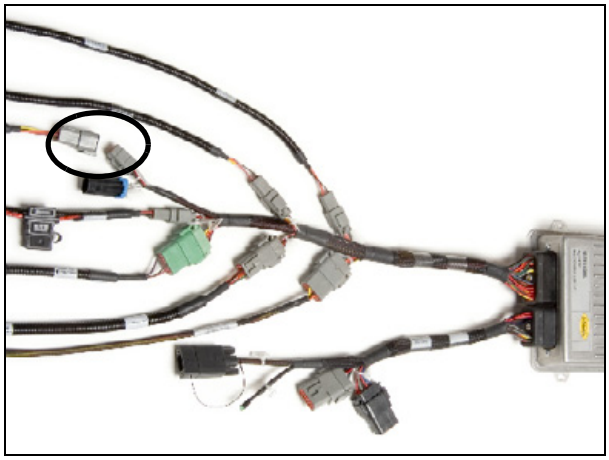
Connect the manual override cable connection to P7, which is labeled **Manual Override**. P7 is located on the main wiring harness.

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



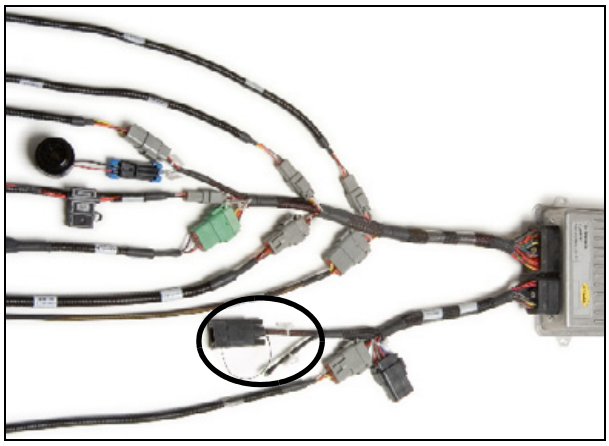
Step 7

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



Step 8

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 9

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

Isolation Models Setup Instructions

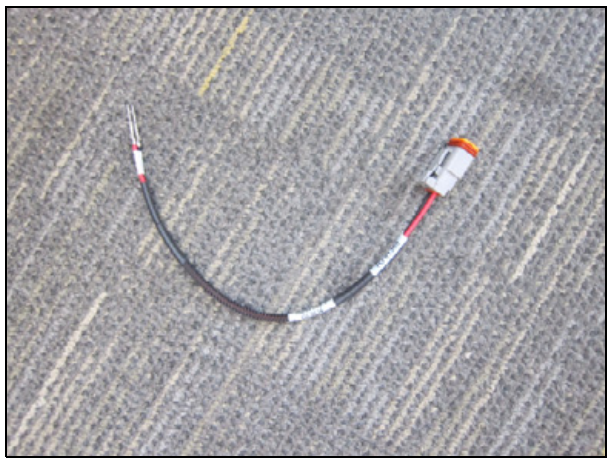
- Connecting the isolation solenoid cable
- Configuring the NavController III to turn on the electronic isolation manifold
- Setting the load sense relief pressure
- Adjusting the isolation manifold pressure reducing valve (PRV)

These instructions must only be completed by users familiar with operation of H4 manifold.

Connecting the isolation solenoid cable

Connect the P/N 100199 and 103378 cables to provide power to the Autopilot cut-off coil.

Locate the supplied P/N 103378 and 100799 isolation manifold cable in the isolation manifold kit.



Isolation manifold power connection (available only with NavController III or VDM-900)

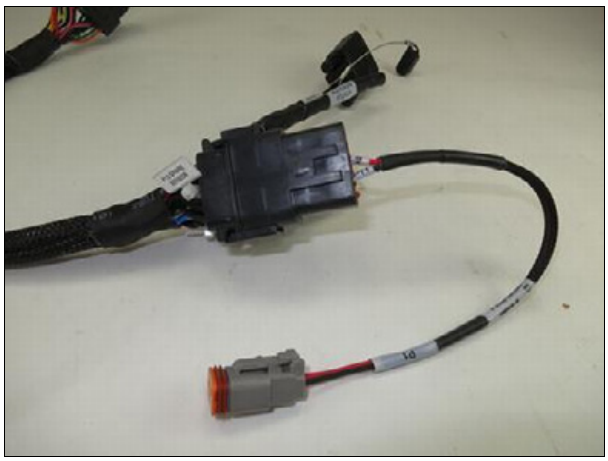
NOTE – This feature is not available with the NavController II.

NOTE – This connection type activates the isolation manifold automatically, using the third solenoid drive function of the NavController III / VDM-900.

Follow this procedure to connect the P/N 100199 cable to the NavController III harness, P/N 54602 / 116982.

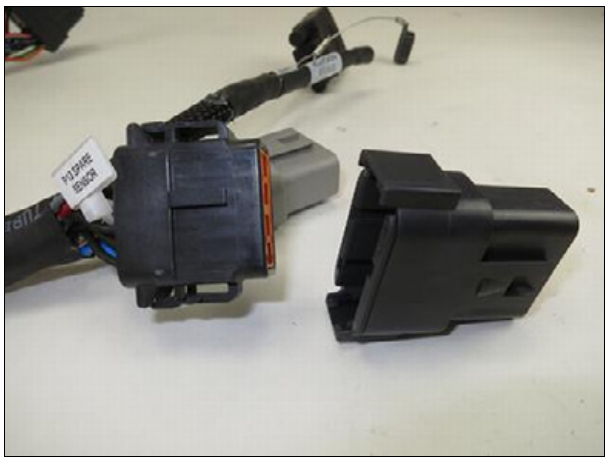
Step 1

Locate the supplied P/N 100199 cable in the isolation manifold kit.



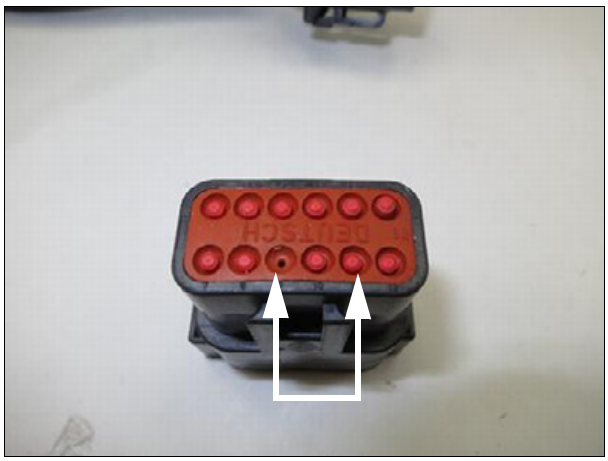
Step 2

Locate and remove the connector plug from the P/N 54602 P13 connector.



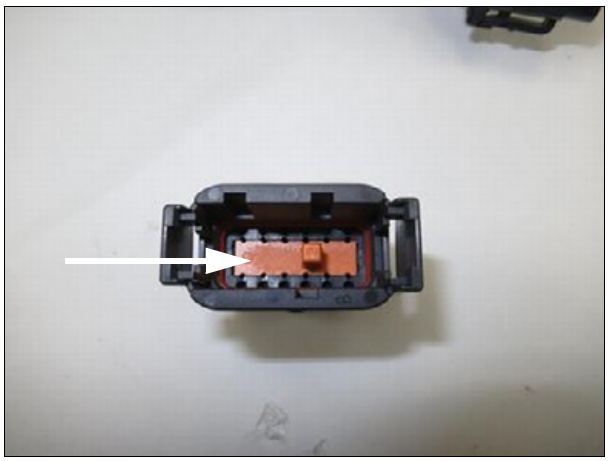
Step 3

On the rear of the plug, remove the sealing pins from the 9 and 11 sockets.



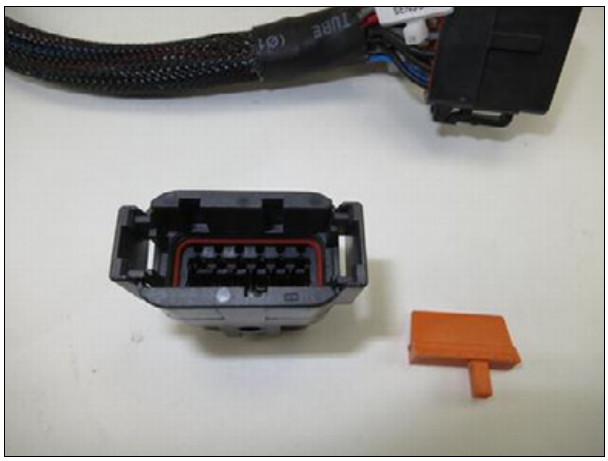
Step 4

On the inside of the connector, locate the orange wedge lock.



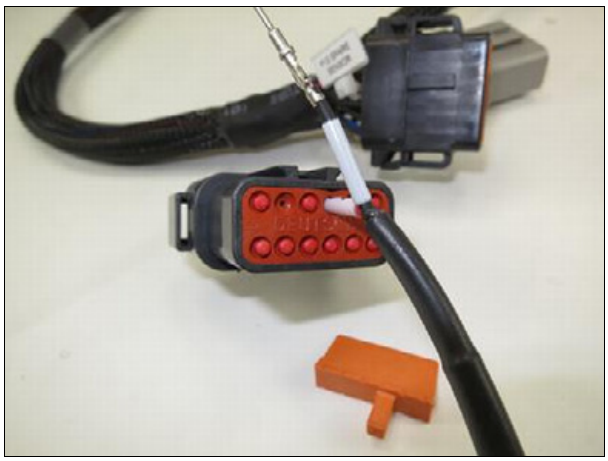
Step 5

Use needle-nose pliers to remove the wedge lock by pulling it straight out of the plug connector.



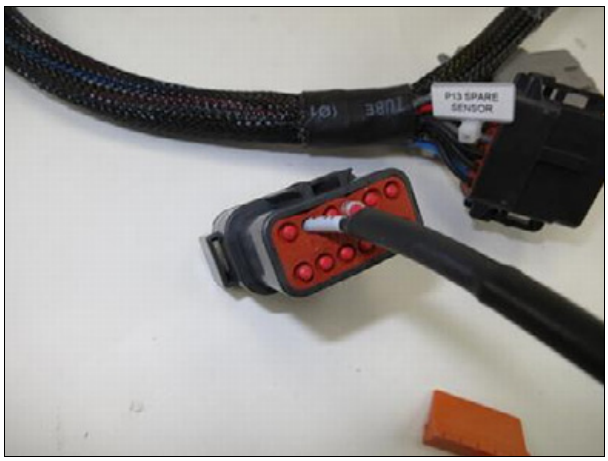
Step 6

Insert the pin labeled **to p13-9** into the 9-pin location on the connector plug.



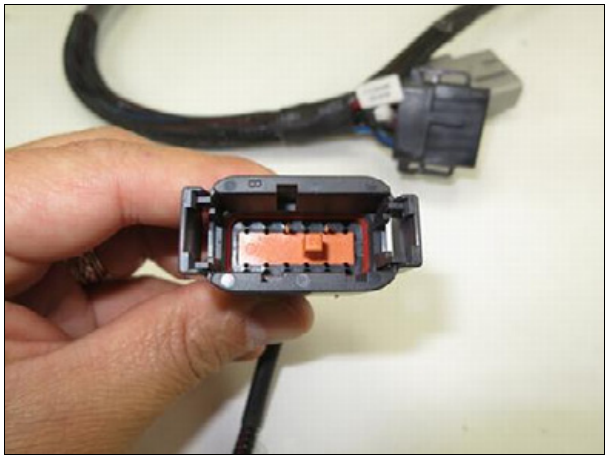
Step 7

Insert the pin labeled **to p13-11** into the 11-pin location on the connector plug.



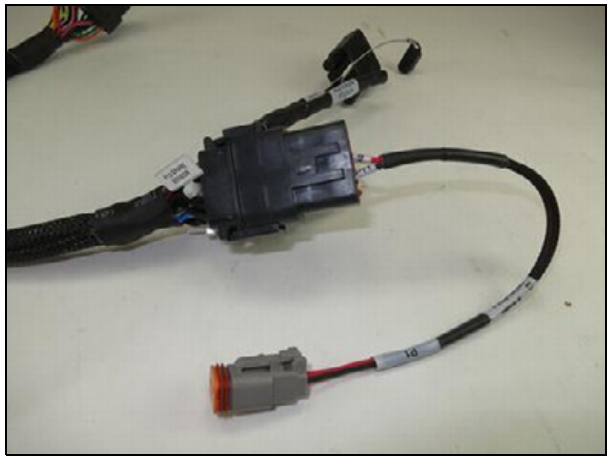
Step 8

Re-install the orange wedge lock into the connector plug.



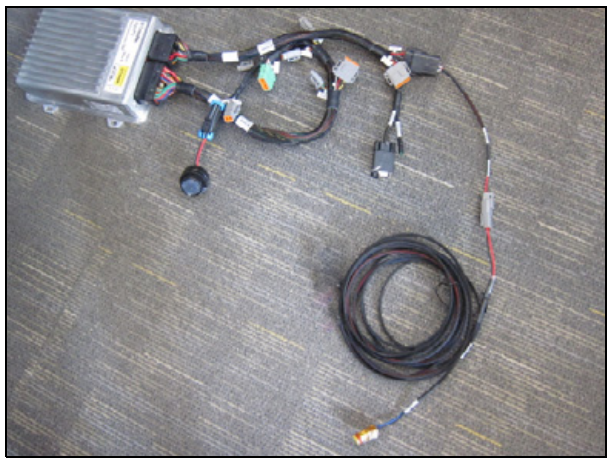
Step 9

Connect the P13 plug to the P/N 54602 harness on the NavController III.



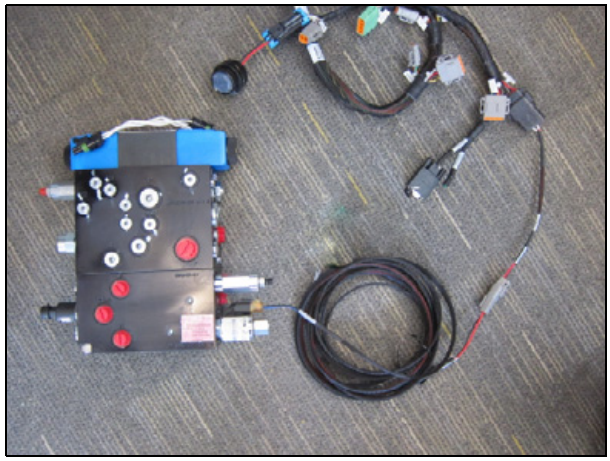
Step 10

Connect the R1 connector on cable P/N 103378 to the P1 connector on cable P/N 100799.



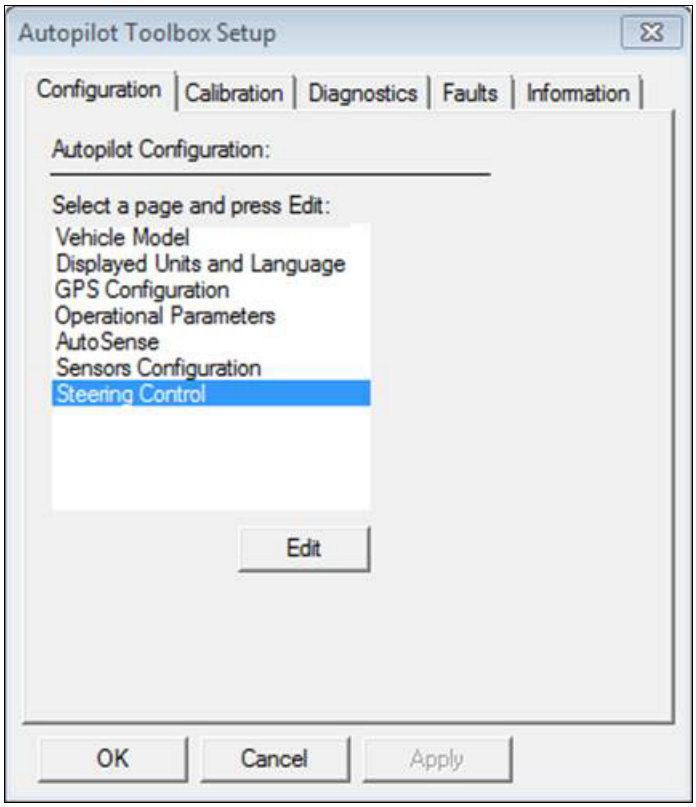
Step 11 - Connecting to the solenoid

Route the P2 plug of cable P/N 103378 to the Autopilot manifold isolation solenoid and connect it as shown.

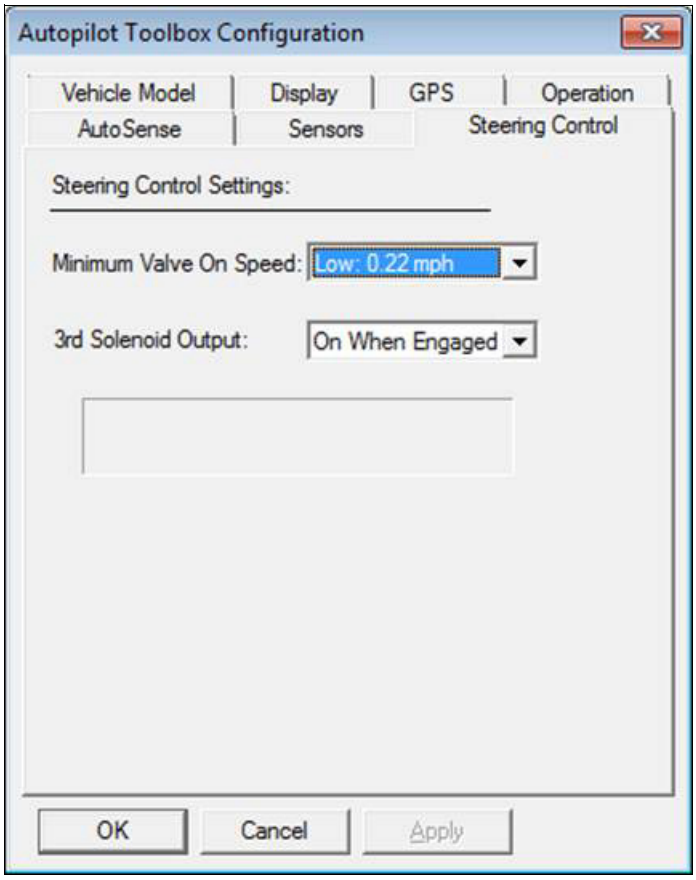


Configuring the NavController III to turn on the electronic isolation manifold

1. In Autopilot Toolbox version 3.3 or later, in the Setup screen, click the **Configuration** tab, select **Steering Control** and then click **Edit**:



2. From the **3rd Solenoid Output** drop-down list, select **On When Engaged** and then click **OK**:



NOTE – The **Minimum Valve On Speed** applies also to the third solenoid valve. The third solenoid will not be active until the set speed is reached. If the vehicle drops below the selected speed, the third solenoid will no longer be active.

For the firmware version 5.61 or later of TMX-2050 and GFX-750 displays you can enable the **3rd Solenoid Output** from the **FmX+** and **PIQ** user interface.

Setting the load sense relief pressure

The Load sense relief pressure should be set approximately 100 psi lower than the system relief pressure to allow margin in the adjustment and to fully protect the system. The default setting of the LS relief valve is 2700 psi. If a lower pressure is required, these instructions will provide a procedure for adjusting the LS relief pressure. The relief pressure should not be increased above 2700 psi.

Preparing to set the relief pressure

Step 1

Install a pressure gauge into the LS2 port; if no DSV2 cartridge is present, the PX ports can also be used.

Step 2

Connect the P line of the manifold to a 3000 psi pressure source such as a remote on a tractor.

Step 3

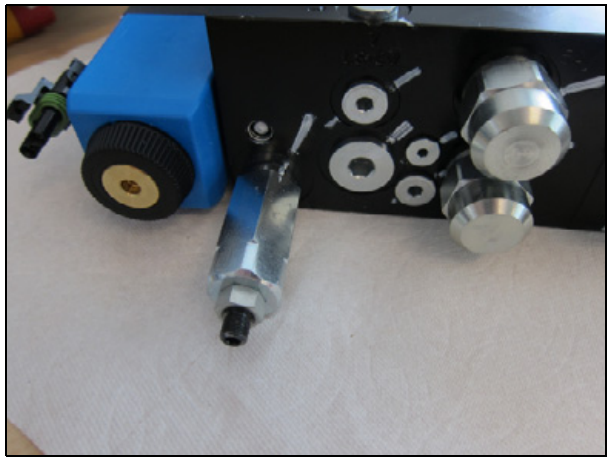
Connect the T line of the manifold to an oil tank or return line on the remote of a tractor.

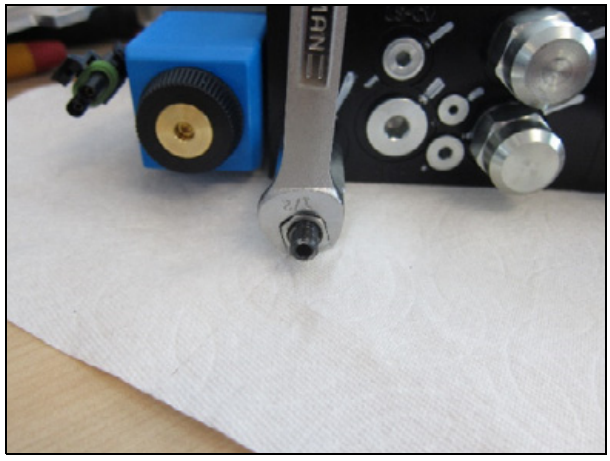
Step 4

The A and B / SCU-A, SCU-B lines: May be either connected to the steering cylinders / orbitrol or capped off for this test.

Step 5

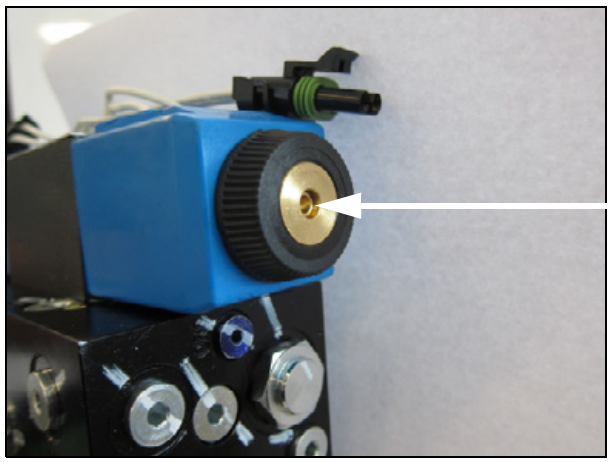
Loosen the jam nut on the LS relief valve.





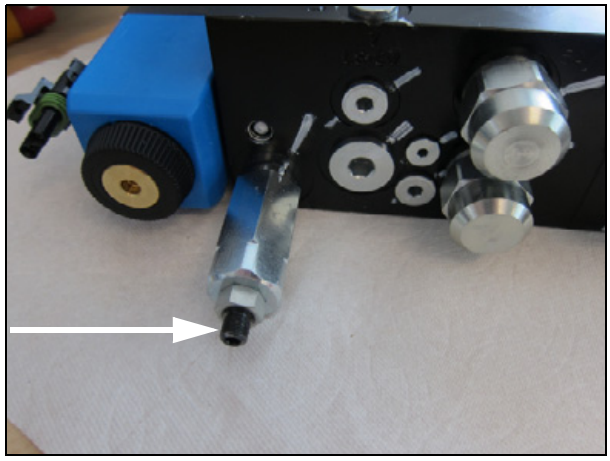
Step 6

With pressure applied to the P port, press on one of the Detent overrides on the electro hydraulic valve. If the steering cylinders are present in the system, make sure to run the override until you hit and end stop to ensure you are at peak pressure.



Step 7

With the override pressed, turn the relief valve in or out and watch the gauge to set the LS relief pressure.



Adjusting the isolation manifold pressure reducing valve (PRV)

⚠ **CAUTION –** Increasing the pressure setting of the PRV can lead to the loss of ability to mechanically override the autopilot steering.

The isolation sandwich on the H4 manifold uses spring-biased pilot to shift cartridges to toggle between manual steering and Autopilot steering. The manual steering pressure adds to the spring cavity to pilot the cartridges open even in situations where the isolation solenoid were to remain on.

A Pressure reducing valve is present in the system to ensure that the isolation valve pilot pressure can always be overcome by the spring force **+** the manual steering pressure.

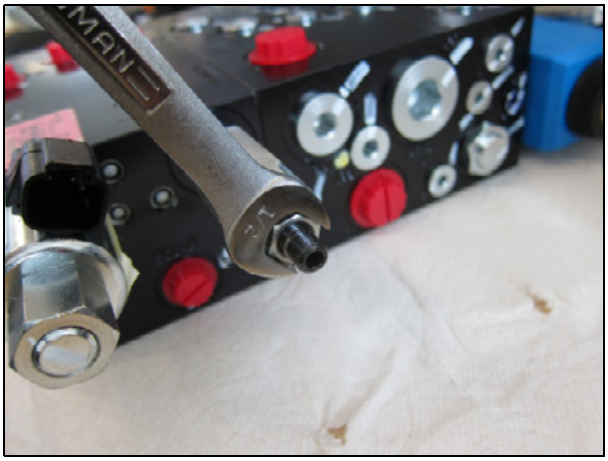
In some machines, it may be necessary to adjust the PRV setting in order to bias the cartridges more towards the manual steering or towards the Autopilot steering.

For the system to function as intended, manual steering should always overcome Autopilot steering. To test this function the P/N 103378 cable can be connected to the power bus or other 12 V source, with the switch on and 12 V being supplied to the cut-off coil. Manually steering the machine should result in movement of the wheels.

In the state where the isolation valve is powered when you are not steering manually, the Autopilot should be able to steer the machine; this means that if you were to press on the detent valve overrides you should be able to actuate wheel movement.

Step 1

Locate and loosen the jam nut on the PRV cartridge.



Step 2

Adjust the PRV valve by turning the screw with a hex wrench.

NOTE – Screwing the screw clockwise / inward will *add* pressure to the PRV setting, resulting in an increased bias towards Autopilot steering. This should be done if the Autopilot is sometimes not steering the machine.

Screwing the screw counterclockwise / outward will *reduce* pressure from the PRV, biasing the system more towards the manual steering side. The PRV setting should be decreased if the isolation solenoid is powered and manual steering is sometimes not possible.

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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.

Step 1

Connect the battery.

Step 2

Start the machine and check for hydraulic leaks. Correct as needed.

Step 3

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

Step 4

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