Autopilot

AUTOMATED STEERING SYSTEM

INSTALLATION INSTRUCTIONS

John Deere 6R and 6M series non-ATR

- 6105R
- 6115R
- 6125R
- 6141R
- 6150R
- 6170R
- 6190R
- 6210R
- 6105M
- 6115M
- 6125M
- 6140M
- 6150M
- 6170M

Version 8.00
Revision C
June, 2020
P/N 54035-1164-E08-C

Trimble

Legal Notices

Agriculture Business Area

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

Copyright and Trademarks

©1999–2020, Trimble Inc. All rights reserved.

Trimble, the Globe & Triangle logo, AgGPS, FmX, and OmniSTAR are trademarks of Trimble Inc., registered in the United States and in other countries. Autopilot, AutoSense, CFX-750, GFX-750, and TMX-2050 are trademarks of Trimble Inc. Developed under a License of the European Union and the European Space Agency.

All other trademarks are the property of their respective owners.

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 June 2020 release (Revision C) of the *Autopilot Automated Steering System Installation Instructions*, part number 54035-1164-E08-C. 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.

Software Components and Enhancements

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.

Warranty Remedies

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.

Such remedy may include reimbursement of the cost of repairs for damage to third-party equipment onto which the product is installed, if such damage is found to be directly cause by the Product as reasonably determine by Trimble following a root cause analysis. Where *Trimble* elects to replace a Product or parts, repair parts and replacement Products will be provided on an exchange basis and will be either new, equivalent to new, or reconditioned.

Warranty Exclusions and Disclaimer

These warranties shall be applied only in the event and to the extent that (i) the Products and Software are properly and correctly installed, configured, interfaced, maintained, stored, and operated in accordance with Trimble's relevant operator's manual and specifications, and; (ii) the Products and Software are not modified or misused. The preceding warranties shall not apply to, and Trimble shall not be responsible for defects or performance problems resulting from (i) the combination or utilization of the Product or Software with hardware or software products, information, data, systems, interfaces or devices not made, supplied or specified by Trimble; (ii) the operation of the Product or Software under any specification other than, or in addition to, Trimble's standard specifications for its products; (iii) the unauthorized, installation, modification, or use of the Product or Software; (iv) damage caused by accident, lightning or other electrical discharge, fresh or salt water immersion or spray; or (v) normal wear and tear on consumable parts (e.g., batteries). Trimble does not warrant or guarantee the results obtained through the use of the Product.

THE WARRANTIES ABOVE STATE TRIMBLE'S ENTIRE LIABILITY, AND YOUR EXCLUSIVE REMEDIES, RELATING TO PERFORMANCE OF THE PRODUCTS AND SOFTWARE. EXCEPT AS OTHERWISE EXPRESSLY PROVIDED HEREIN, THE PRODUCTS, SOFTWARE, AND ACCOMPANYING DOCUMENTATION AND MATERIALS ARE PROVIDED "AS-IS" AND WITHOUT EXPRESS OR IMPLIED WARRANTY OF ANY KIND BY EITHER TRIMBLE NAVIGATION LIMITED OR ANYONE WHO HAS BEEN INVOLVED IN ITS CREATION, PRODUCTION, INSTALLATION, OR DISTRIBUTION INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, TITLE, AND NONINFRINGEMENT. THE STATED EXPRESS WARRANTIES ARE IN LIEU OF ALL OBLIGATIONS OR LIABILITIES ON THE PART OF TRIMBLE ARISING OUT OF, OR IN CONNECTION WITH, ANY PRODUCTS OR SOFTWARE. SOME STATES AND JURISDICTIONS DO NOT ALLOW LIMITATIONS ON DURATION OR THE EXCLUSION OF AN IMPLIED WARRANTY, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.
TRIMBLE NAVIGATION LIMITED IS NOT RESPONSIBLE FOR THE OPERATION OR FAILURE OF OPERATION OF GPS SATELLITES OR THE AVAILABILITY OF GPS SATELLITE SIGNALS.

Limitation of Liability

TRIMBLE'S ENTIRE LIABILITY UNDER ANY PROVISION HEREIN SHALL BE LIMITED TO THE AMOUNT PAID BY YOU FOR THE PRODUCT OR SOFTWARE LICENSE. TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, IN NO EVENT SHALL TRIMBLE OR ITS SUPPLIERS BE LIABLE FOR ANY INDIRECT, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES WHATSOEVER UNDER ANY CIRCUMSTANCE OR LEGAL THEORY RELATING IN ANY

WAY TO THE PRODUCTS, SOFTWARE AND ACCOMPANYING DOCUMENTATION AND MATERIALS, (INCLUDING, WITHOUT LIMITATION, DAMAGES FOR LOSS OF BUSINESS PROFITS, BUSINESS INTERRUPTION, LOSS OF BUSINESS INFORMATION, OR ANY OTHER PECUNIARY LOSS), REGARDLESS WHETHER TRIMBLE HAS BEEN ADVISED OF THE POSSIBILITY OF ANY SUCH LOSS AND REGARDLESS OF THE COURSE OF DEALING WHICH DEVELOPS OR HAS DEVELOPED BETWEEN YOU AND TRIMBLE. BECAUSE SOME STATES AND JURISDICTIONS DO NOT ALLOW THE EXCLUSION OR LIMITATION OF LIABILITY FOR CONSEQUENTIAL OR INCIDENTAL DAMAGES, THE ABOVE LIMITATION MAY NOT APPLY TO YOU. NOTE: THE ABOVE LIMITED WARRANTY PROVISIONS MAY NOT APPLY TO PRODUCTS OR SOFTWARE PURCHASED IN THE EUROPEAN UNION. PLEASE CONTACT YOUR TRIMBLE DEALER FOR APPLICABLE WARRANTY INFORMATION.

Notices

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.

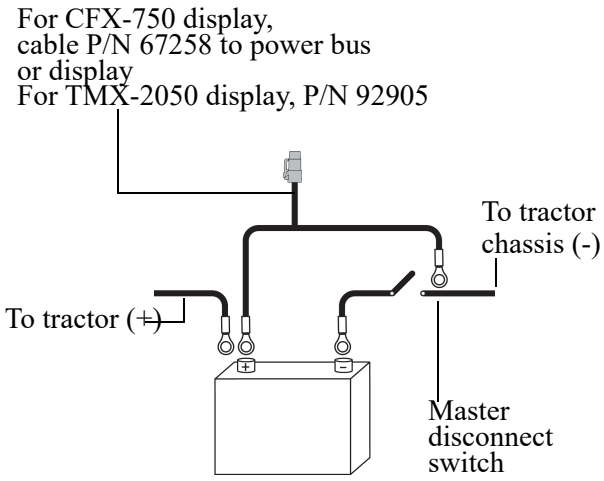
⚠ **CAUTION –** Do not direct pressurized water at:
- Electronic or electrical components or connectors
- Bearings
- Hydraulic seals
- Fuel injection pumps
- Any other sensitive parts or components



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

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

⚠ **CAUTION –** If the vehicle has a master electrical disconnect, make sure the basic power cable (P/N 67258 / 92905) is not directly attached to the battery terminal that is disconnected by the master switch - the negative pole in this example.
Attach this terminal side just past the main disconnect so that it is as close as possible to the battery but still gets disconnected when the master disconnect is turned off. Failure to do so can result in damaging the display.



Contents

Legal Notices 2

Safety Information. 4

Warnings. 4

Cautions 5

1 Introduction. 10

Technical assistance. 10

Manual system upgrade to Autopilot. 11

Displays 11

Required components 11

Antenna mounting kits 11

Accessory kits 12

Autopilot hardware organization: As shipped 12

Preparing the vehicle for installation 13

2 Hydraulic Control Valve Installation 14

Hydraulic components 15

Adding the isolation block to the base manifold: For machines with the 40 kph transmission option, or machines requiring steering isolation. 15

Steering line connections without isolation block: 93845-1000 hose kit 17

Steering line connections with isolation block: 93845-2000 hose kit 20

Assembling the hydraulic control valve 23

Adding the common fittings for -1000 and -2000 hose kits 23

Installing the LS check valve 26

Steering line connections without isolation block: 93845-1000 hose kit 28

Steering line connections with isolation block: 93845-2000 hose kit for machines with 40 Kph transmission option 29

Installing the manifold bracket 31

Connecting the A and B lines (93845-1000 hose kit) 34

Connecting the A and B lines (93845-2000 hose kit). 38

Connecting the Pressure line (all hose kit types) 42

Connecting the Tank line (all hose kit types) 46

6M series machine tank connection and 6R alternate tank connection 47

Making the load sense connections: All machines. 49

Load sense connection between remote valves 50

Loadsense for machines with priority valve on pump behind cab 50

Load sense for machines with priority valve between remote valves 52

Connecting the manual override (93845-1000 hose kit). 55

Connecting the manual override (93845-2000 hose kit) 56

Valve electrical connections 57

Checking the hydraulics 58

3 IMD-900 Steering Device Installation 59
IMD-900 steering device components 60
Installing the IMD-900 steering device 61
Connecting the IMD-900 harness to the 54602 harness 63

4 Antenna / External Receiver (if used) Installation 64
Antenna and receiver installation options 64
Possible mounting methods 64
Mounting an adjustable spar to roof bolts 65
Attaching the plate with VHB adhesive 67
Assembling and installing antenna solutions using the John Deere Starfire antenna bracket adaptor 69

5 Display Installation 73
CFX-750 display: Components 74
CFX-750 display: Preparation 76
CFX-750 display: Installation 77
CFX-750 display: Installing the wiring harness 77
TMX-2050 display: Components 78
TMX-2050 display: Preparation 79
Installing the display and mount 79
TMX-2050 display: Installing the wiring harness 82
TMX-2050 display: AG-25 GNSS antenna 85
CFX-750 and TMX-2050 displays: Installing the GNSS antenna and plate 86
Spar mount method 86
VHB adhesive method 86
CFX-750 and TMX-2050 displays: Installing the RTK radio antenna 90
GFX-750/XCN-1050 display: Components 92
GFX-750/XCN-1050 display: Preparation 93
GFX-750/XCN-1050 display: Installation 94
GFX-750/XCN-1050 display: Installing the wiring harness 96

6 Power Harness Installation 98
CFX-750 display: Components 99
GFX-750/XCN-1050 display: Components 101
CFX-750 and GFX-750 displays: Installing the power harness 102
CFX-750 and GFX-750 displays: Configuring the power bus options 104
Display power button is used to turn on the Autopilot system 104
External switch is used to turn on the Autopilot system 104
Ignition is used to turn on the Autopilot system 106
TMX-2050 display: Components 107
TMX-2050 display: Installing the power harness 108
TMX-2050 display: Configuring the power options 110
Ignition sensing 110

7 Remote Engage Switch Installation 112
Remote engage switch components: Rocker switch 113

Remote engage switch components: Foot switch 114
Preparing the remote engage cable 115
Installing the Remote Engage push button (P/N 101250) 118
Using the remote engage switch 123

8 Controller Installation 124
Installing the controller 124
Controller connections 127

9 Isolation Models Setup Instructions 130
Connecting the isolation solenoid cable 131
Isolation manifold power connection (available only with NavController III) 131
Configuring the NavController III to turn on the electronic isolation manifold 136
Setting the load sense relief pressure 138
Preparing to set the relief pressure 138
Adjusting the isolation manifold pressure reducing valve (PRV) 140

10 Final Machine Check 141

1

Introduction

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

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

Even if you have used another GNSS (Global Navigation Satellite System), such as the United States' GPS (Global Positioning System), before, spend some time reading this manual to learn about the special features of this product. If you are not familiar with GNSS, go to the Trimble website (www.trimble.com) for an interactive look at Trimble and GNSS.

Technical assistance

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

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

Manual system upgrade to Autopilot

Displays

Retain
TMX-2050™ integrated display: P/N 96500-xx
CFX-750™ display: P/N 94110-xx
Integrated cable assembly, integrated harness,
Antenna for 57970-00 (OmniStar/RTK)
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 54035-1164	Drill
Hydraulic hose kit:	$^{5}/_{16}$" drill bit
- 93845-1000 - Non Isolation and Non Reactive Steering	$^{3}/_{8}$-16 tap
- 93845-2000 - Isolation and/or Reactive Steering 40kph transmission option	2" hole saw
TMX-2050/CFX-750 display installs: P/N 64425-07	
GFX-750 display installs: P/N 64425-08	

Antenna mounting kits

Kits required
Antenna spar mount: - Bracket, GPS Spar 54" - 64: P/N 66774 (6R models) - Bracket, GPS Spar 27.5-37.5 P/N 55349 (6M Models)
John Deere quick release: P/N 84804

Accessory kits

Kits required
Remote engage switch assembly – standard Euro: P/N 57227-10
Remote engage switch assembly – full Euro: P/N 57227-20
Remote engage foot pedal: P/N 57259
Remote engage push button: P/N 101250

Autopilot hardware organization: As shipped

Hardware	Component	See...
Platform kit: P/N 54035-1164	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
Hydraulic hose kit: • P/N 93845-1000 non isolation • P/N 93845-2000 with isolation	Hydraulic hoses	Chapter 2
	Hydraulic adaptors	
Antenna kits: • Bracket, GPS Spar 54" - 64: P/N 66774 (6R models) • Bracket, GPS Spar 27.5-37.5 P/N 55349 (6M Models) • Ag15 antenna mounting plate (included with CFX-750 display): P/N 62034 • Bracket, GPS - V Base Plate indexing: P/N 62388-02	Roof brackets	Chapter 4
	Bolt kit, roof bracket	
GNSS receiver	GNSS receiver	Chapter 4
	GNSS antenna	
	GNSS receiver power/data cable	
	RTK radio, cable, and radio antenna	
Display	CFX-750, GFX-750, TMX-2050 display	Chapter 5
	Display cable	
	Mounting bracket	

Hardware	Component	See...
Common parts	Controller	Chapter 8
	Controller mounting bracket	
	Cable kit: Main wiring harness Power bus auxiliary wiring harness Sonalert alarm	

Preparing the vehicle for installation

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

1. Park the vehicle on a hard, level surface. Block the front and rear wheels.
2. Align the steering straight ahead. On an articulated vehicle, install the articulation locks.
3. Remove all dirt and debris from the areas of the vehicle where the Autopilot system will be installed.
4. Open all kit boxes and check the contents of the box against the packing list/s. Lay all of the parts out on a clean workbench.

2

Hydraulic Control Valve Installation

- Hydraulic components
- Assembling the hydraulic control valve
- Steering line connections without isolation block: 93845-1000 hose kit
- Steering line connections with isolation block: 93845-2000 hose kit for machines with 40 Kph transmission option
- Installing the manifold bracket
- Connecting the A and B lines (93845-1000 hose kit)
- Connecting the A and B lines (93845-2000 hose kit)
- Connecting the Pressure line (all hose kit types)
- Connecting the Tank line (all hose kit types)
- Making the load sense connections: All machines
- Connecting the manual override (93845-1000 hose kit)
- Connecting the manual override (93845-2000 hose kit)
- Valve electrical connections
- Checking the hydraulics

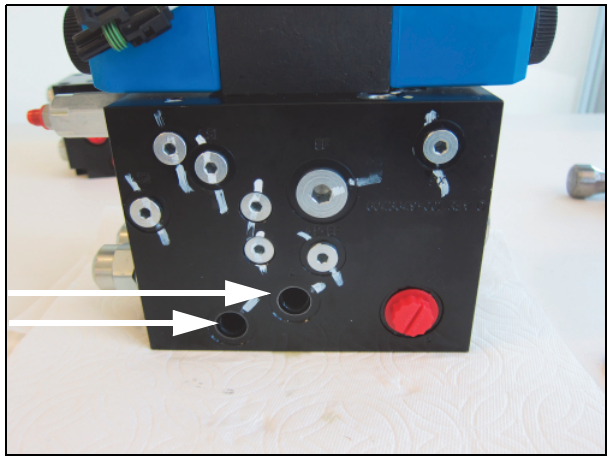
Hydraulic components

Adding the isolation block to the base manifold: For machines with the 40 kph transmission option, or machines requiring steering isolation

Step 1

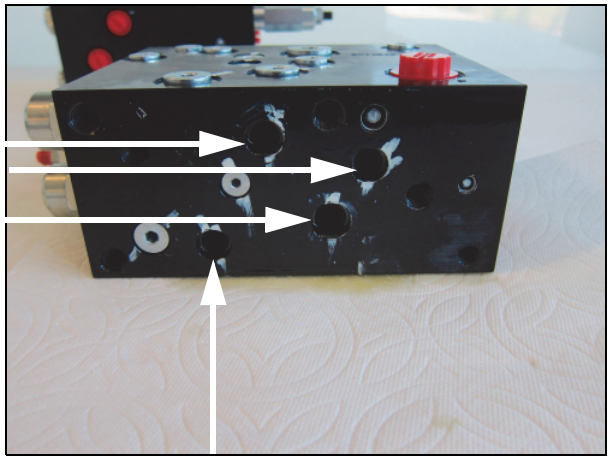
To prepare the manifold for steering isolation insert plugs into the A and B ports of the upper portion of the manifold.

Remove the plugs provided with the isolation manifold in the A and B ports and install them into the location shown.



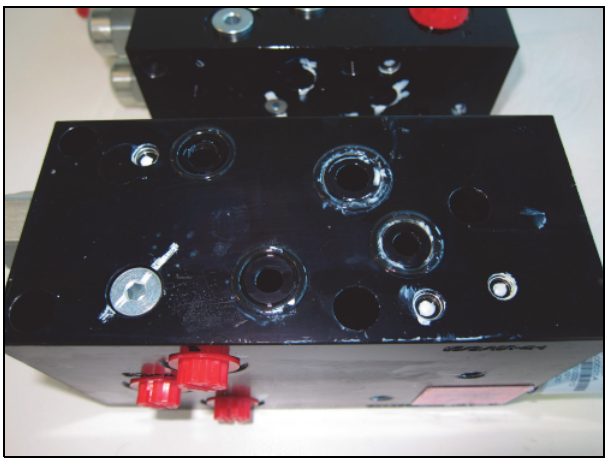
Step 2

On the lower surface of the main manifold, remove the three 3-HP5ON and one 4-HP5ON plugs from the manifold in the location shown.

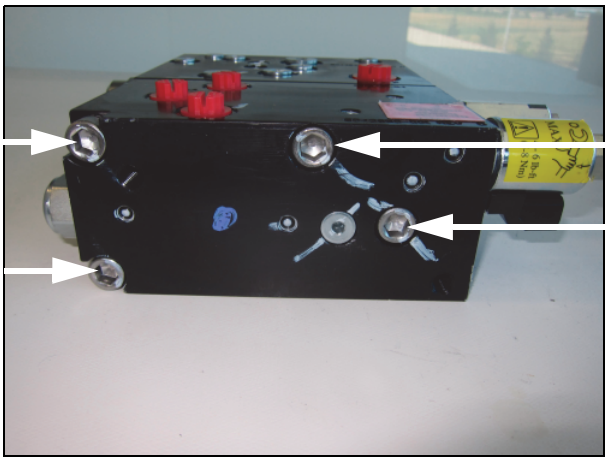


Step 3

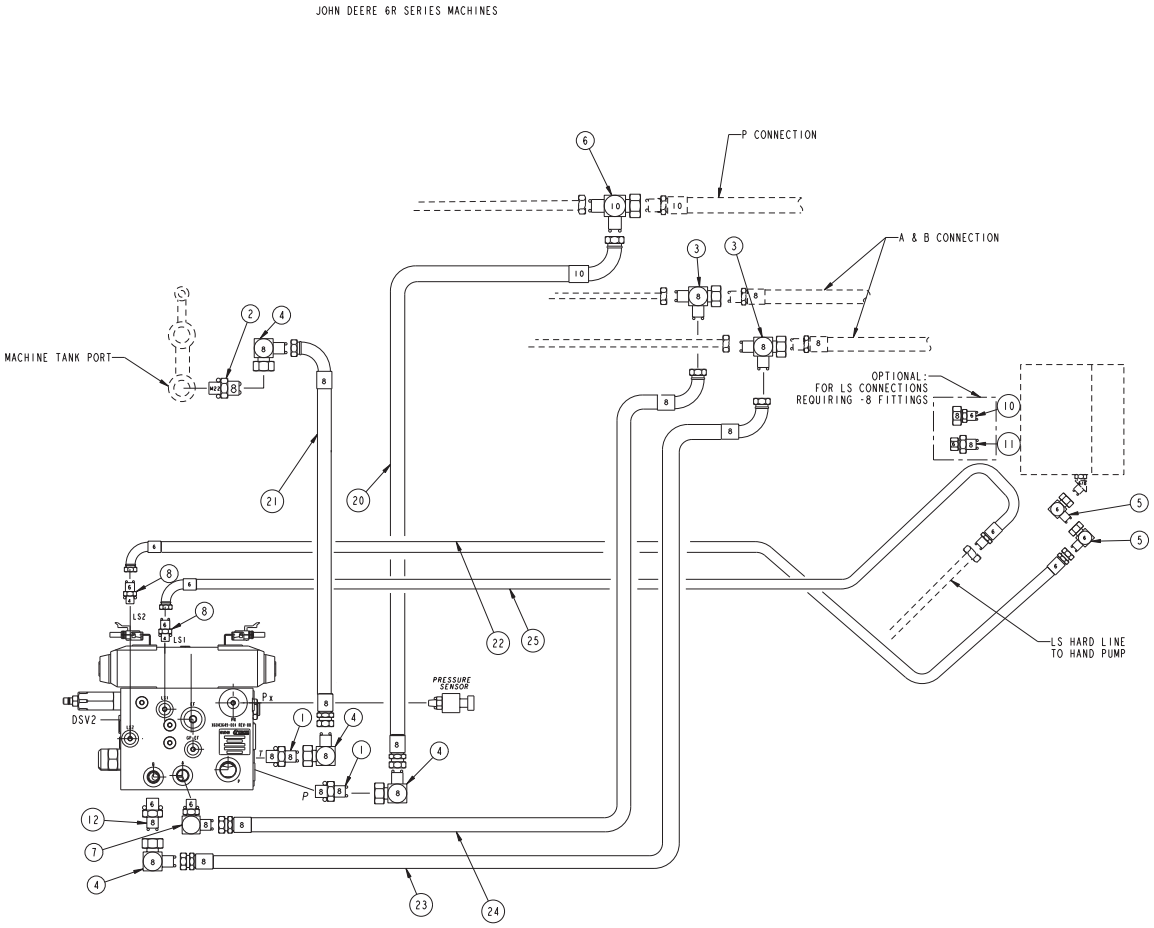
Make sure all four o-rings are in place and the plugs in the corresponding holes of the upper manifold have been removed.

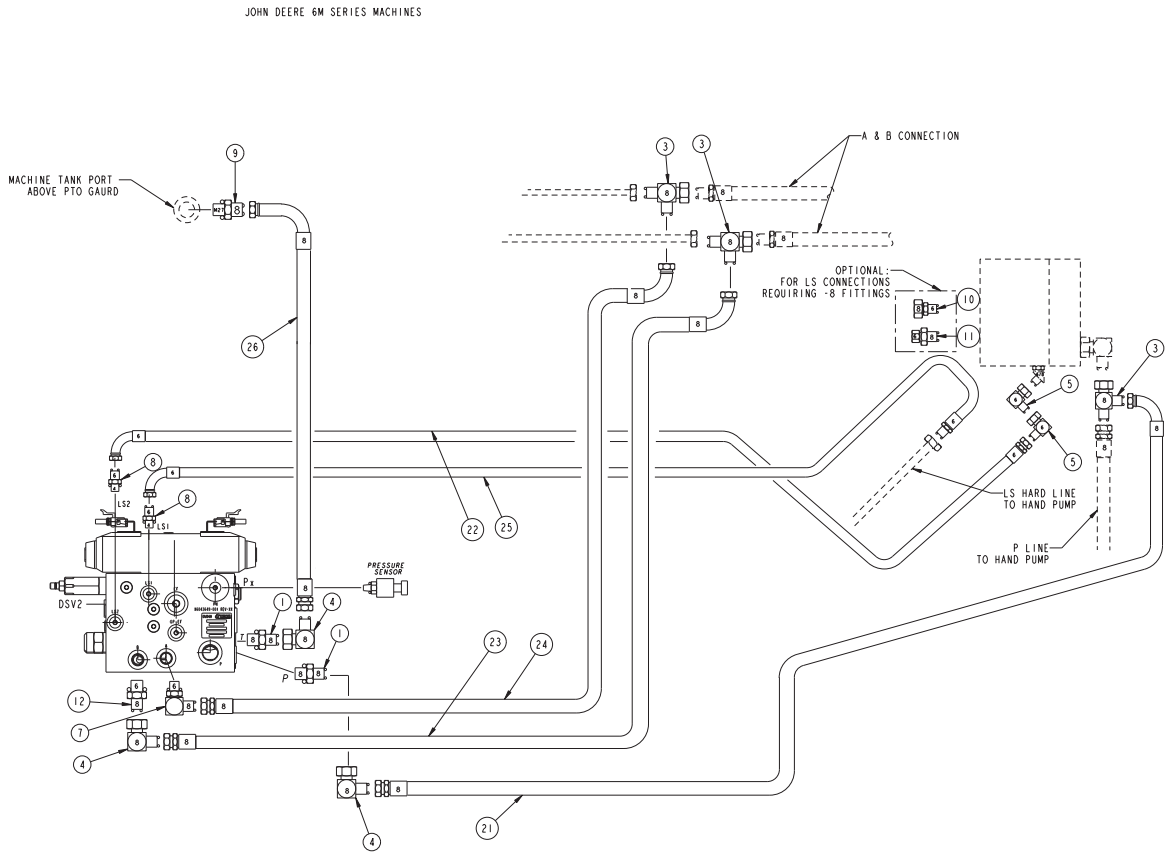


Attach the isolation block to the upper portion of the manifold with the 4 provided socket head bolts. Torque the bolts to 24 ft*lbs.



Steering line connections without isolation block: 93845-1000 hose kit





Fittings

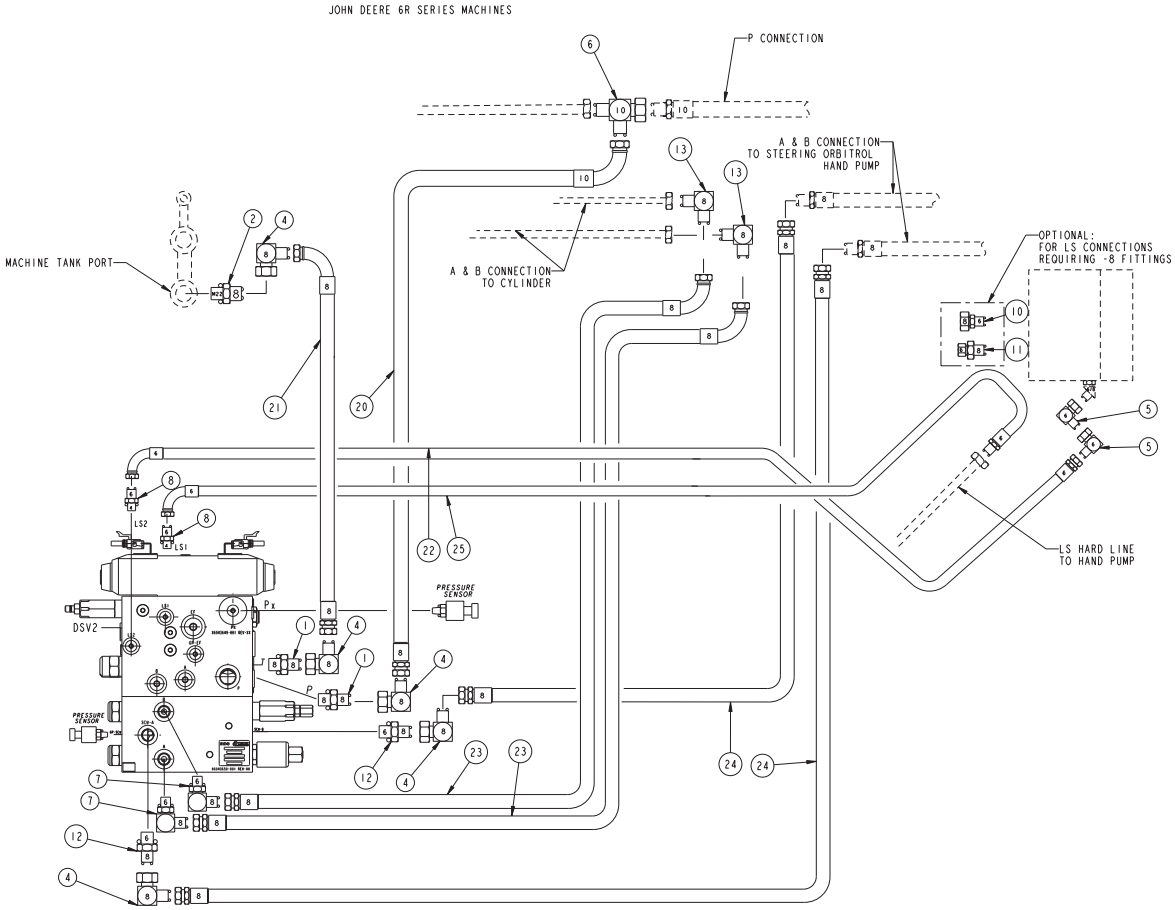
Item	Part number	Quantity
1	8 F50LO	2
2	8M22F870MLO	1
3	8 R6LO	2
4	8 C6LO	4
5	6 C6LO	2
6	10 R6LO	1
7	8-6 C50LO	1
8	6-4 F50LO	2
9	8M27F870MLO	1
10	8-6 TRLON	1
11	8-6 LOHL6	1
12	8-6 F50LO	1

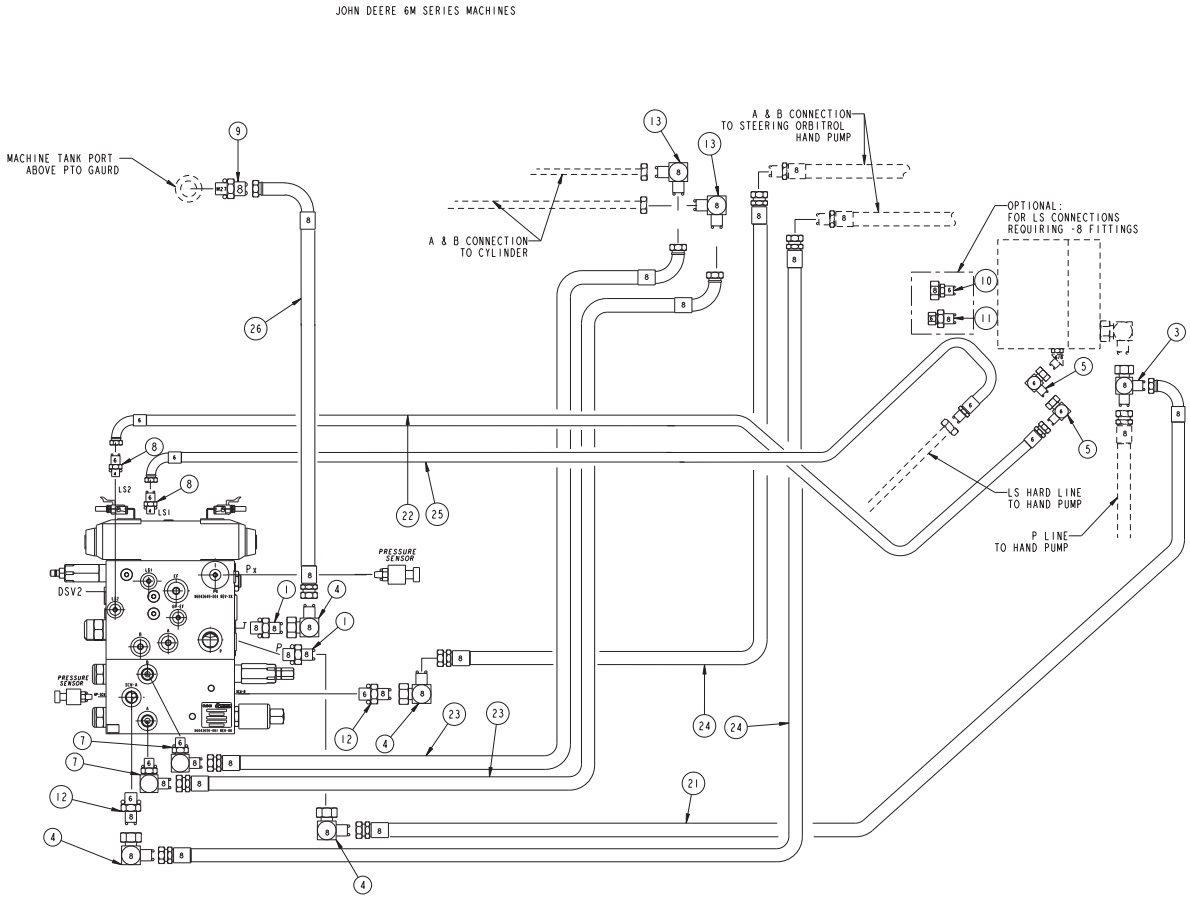
Hoses

Item	Length (Inches)	Part number	Line	Quantity
20	94'' (239 cm)	F451TCJSJ9-08-I0-08-94"	P	1
21	33'' (84 cm)	F451TCJSJ9-08-08-08-33"	T - R or P - M	1
22	36'' (91 cm)	F451TCJSJ9-06-06-06-36"	LS2	1
23	92'' (234 cm)	F451TCJSJ9-08-08-08-92"	A	1
24	92'' (234 cm)	F451TCJSJ9-08-08-08-92"	B	1
25	36'' (91 cm)	F451TCJOJ9-06-06-06-36"	LS1	1
26	39'' (99 cm)	F451TCJSJI-08-08-08-39"	T - M	1

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

Steering line connections with isolation block: 93845-2000 hose kit





Fittings

Item	Part number	Quantity
1	8 F50LO	2
2	8M22F870MLO	1
3	8 R6LO	1
4	8 C6LO	5
5	6 C6LO	2
6	10 R6LO	1
7	8-6 C50LO	2
8	6-4 F50LO	2
9	8M27F870MLO	1
10	8-6 TRLON	1
11	8-6 LOHL6	1
12	8-6 F50LO	2
13	8 ELO	2

Hoses

Item	Length (Inches)	Part number	Line	Quantity
20	94'' (239 cm)	F451TCJSJ9-08-I0-08-94"	P	1
21	33'' (84 cm)	F451TCJSJ9-08-08-08-33"	T - R or P - M	1
22	36'' (91 cm)	F451TCJSJ9-06-06-06-36"	LS2	1
23	92'' (234 cm)	F451TCJSJ9-08-08-08-92"	A, B	2
24	92'' (234 cm)	F451TCJSJS-08-08-08-92"	SCU - A, SCU - B	2
25	36'' (91 cm)	F451TCJOJ9-06-06-06-36"	LS1	1
26	39'' (99 cm)	F451TCJSJI-08-08-08-39"	T - M	1

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

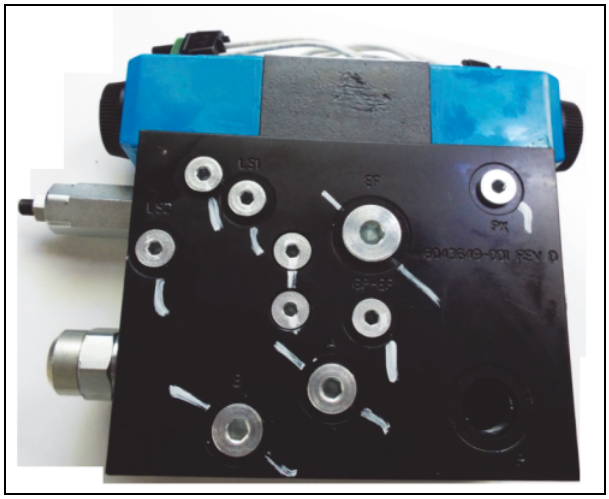
Assembling the hydraulic control valve

⚠ **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 the common fittings for -1000 and -2000 hose kits

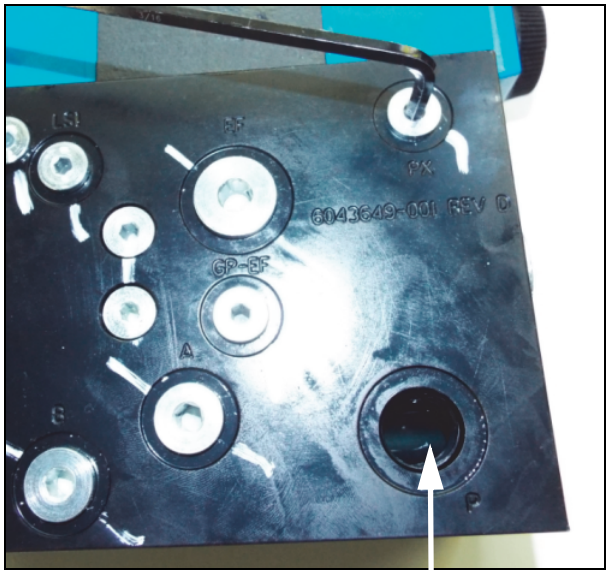
Step 1

Locate the manifold and all of the hydraulic fittings and cartridges and place them on a clean work surface.



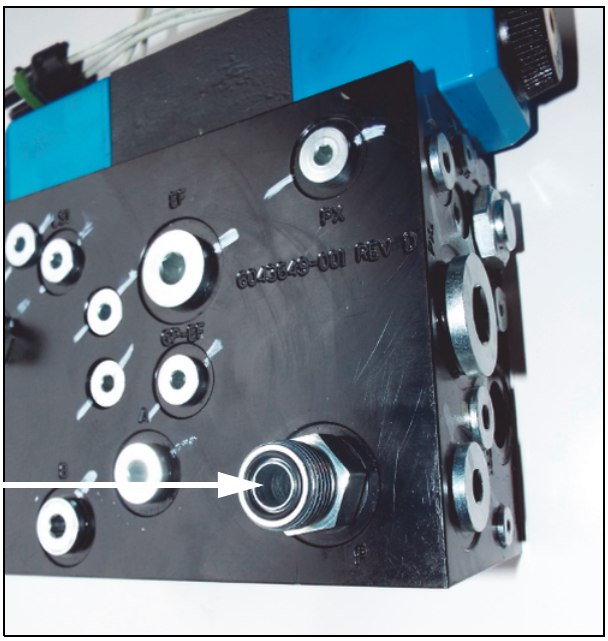
Step 2

Remove the plastic plug from the P port.



Step 3

Fit a -8 ORS fitting into the P port as shown.



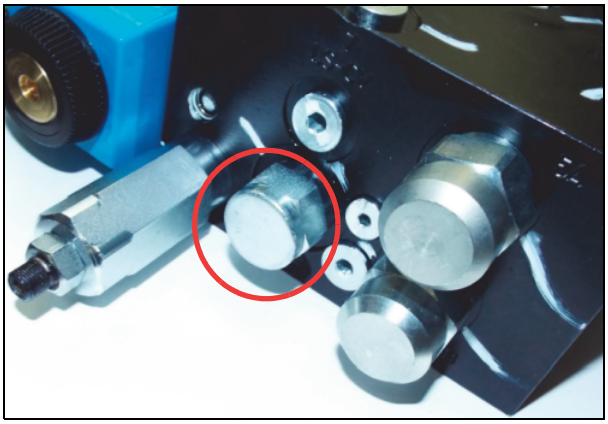
Step 4

Locate the DSV2 cartridge, Trimble P/N 114165, manufacturer P/N DSV2-88085-95.



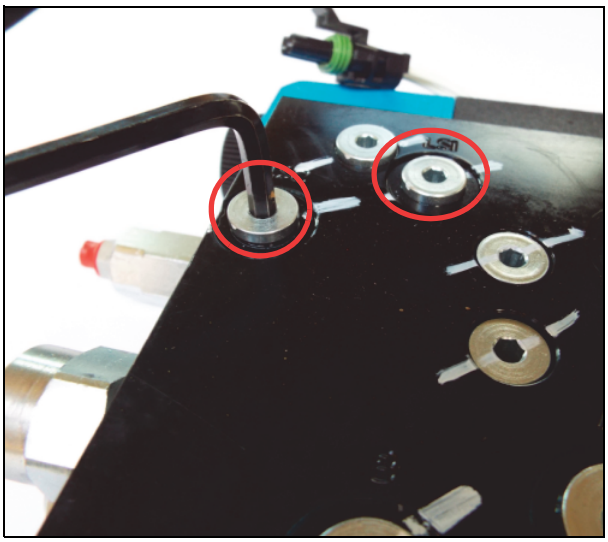
Step 5

Fit the DSV2 cartridge into the DSV2 cavity as shown.



Step 6

Remove the plastic plug from the T port and the metal plugs from the LS1 and LS2 ports, as shown.





Step 7

Fit the straight -8 ORS fitting into the T port of the manifold.



Step 8

Fit the two provided straight -6-4 ORS fittings into the LS1 and LS2 ports of the manifold, as shown.

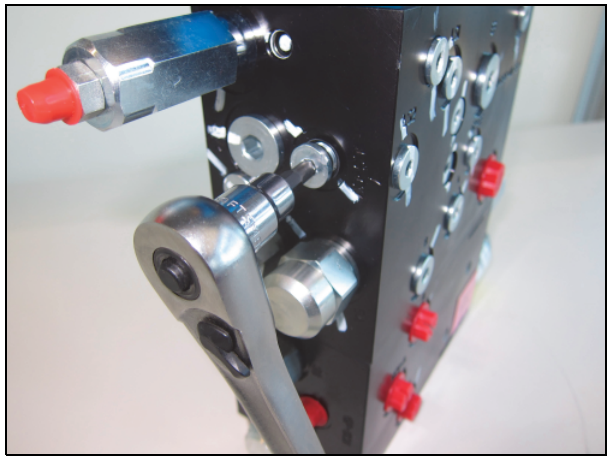


Installing the LS check valve

Step 1

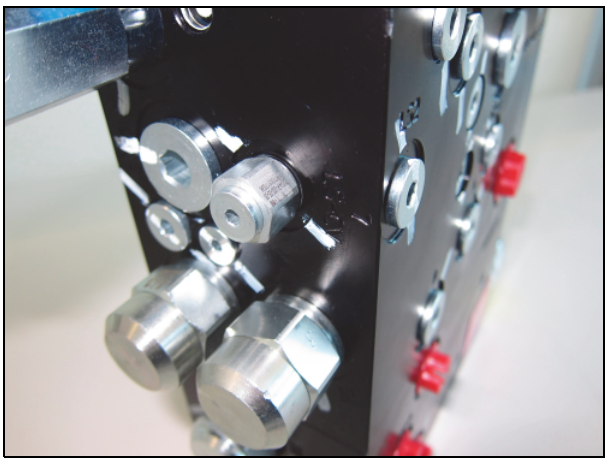
Find and remove the plug from the **LS-CV** port on the manifold, as shown.

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



Step 2

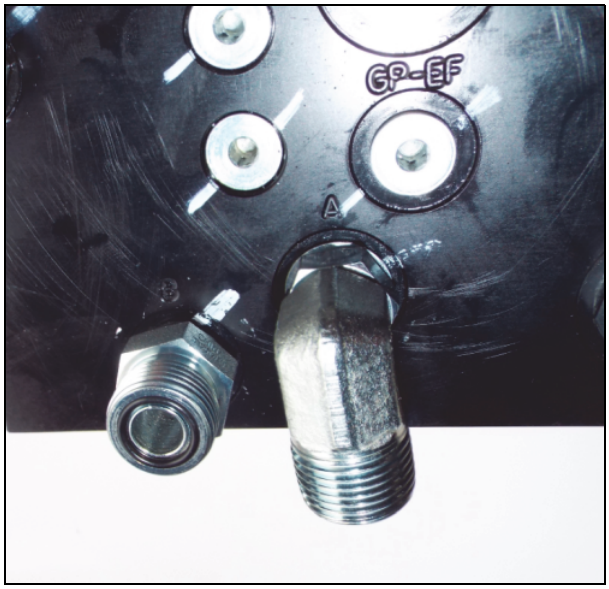
Install the load sense check valve as shown. The LS check valve is Trimble P/N 67113.



Steering line connections without isolation block: 93845-1000 hose kit

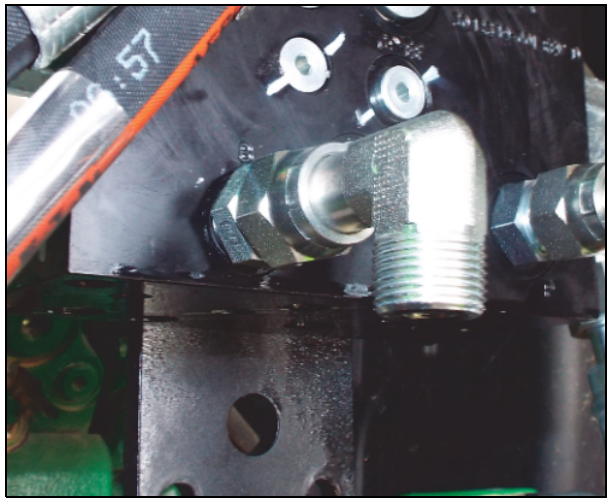
Step 1

Remove the plugs from the A and B ports and then install the 8-6 C50L0 90° fitting in the A port. Install the 8-6 F50L0 straight fitting in the B port. Orient the fittings approximately as shown.



Step 2

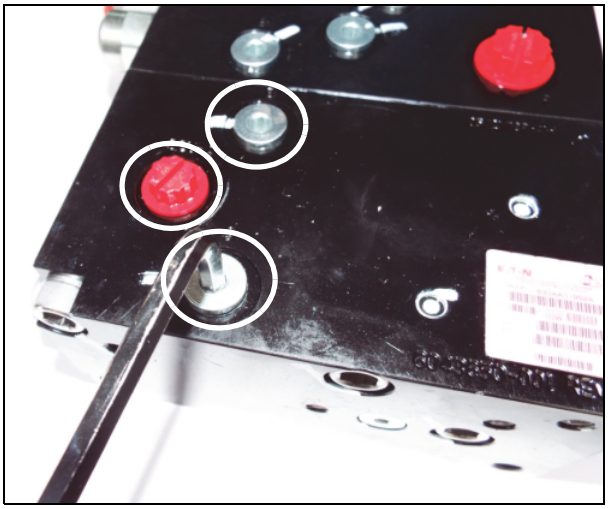
Assemble the provided swivel 90° fitting to the B port as shown.



Steering line connections with isolation block: 93845-2000 hose kit for machines with 40 Kph transmission option

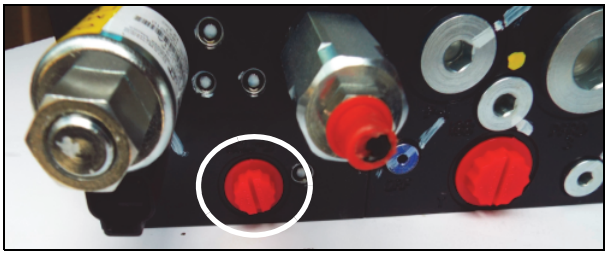
Step 1

Remove the plugs from the SCU-A, A and B ports.



Step 2

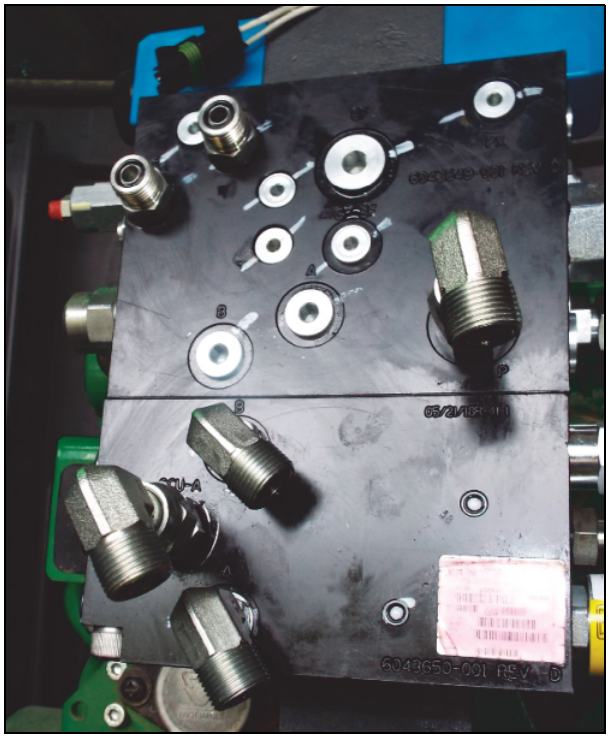
Remove the plastic plug from the SCU-B port.



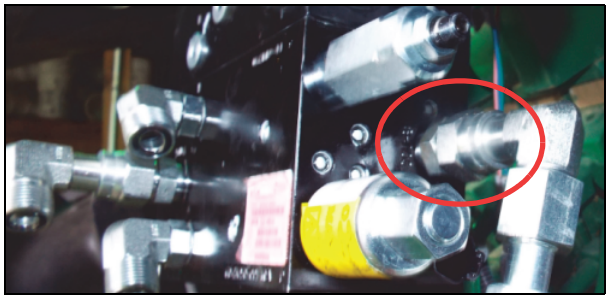
Step 3

Fit the straight 8-6 F50L0 fittings in the SCU-A and the SCU-B ports.

Fit the 90° 8-6 C50L0 fittings in the A and B ports.



Attach the 90° 8 ELO fittings to the straight fittings in the SCU-A and SCU-B ports.



Installing the manifold bracket

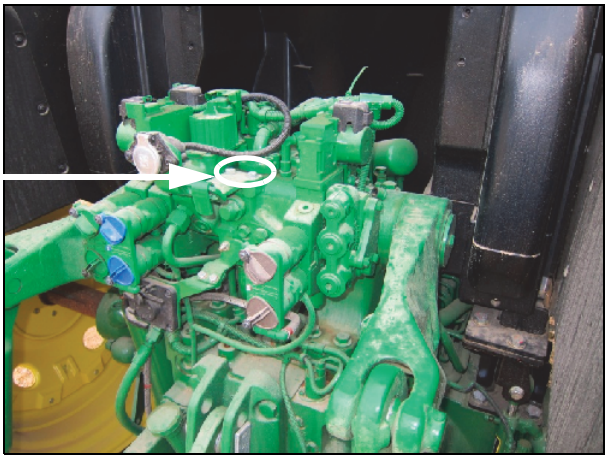
Applies to both manifold with and without isolation block

The process below describes how to install the Autopilot manifold at the rear of the machine, near the remotes.



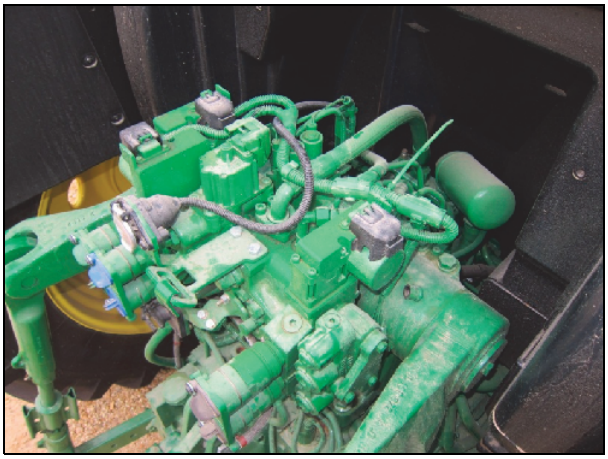
Step 1

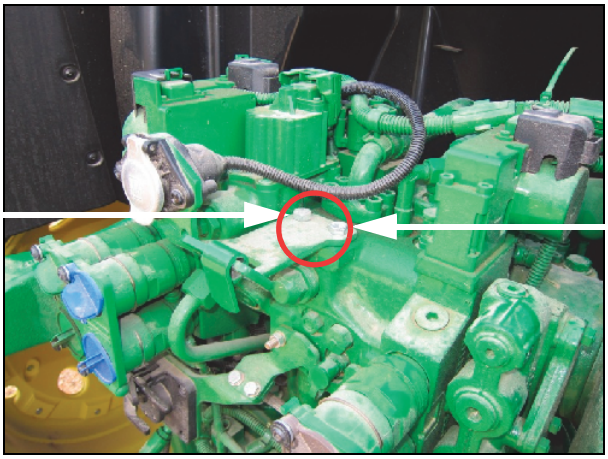
Locate the two bolts that attach the 3pt link support bracket.



Step 2

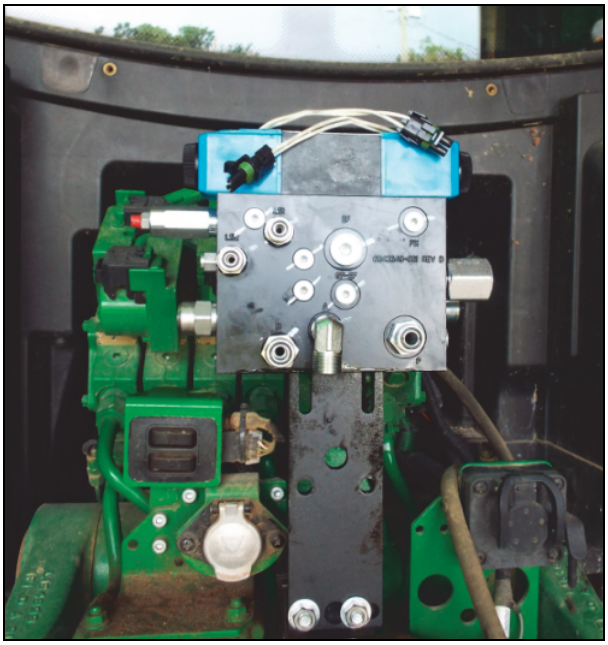
Remove the two bolts that attach this support to the machine.





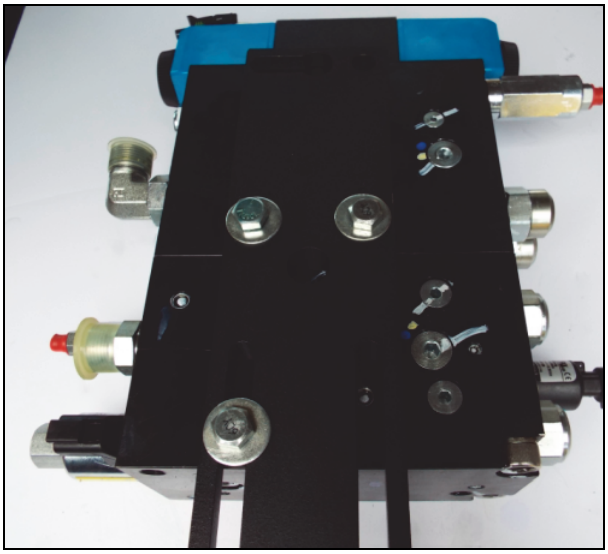
Step 3

Use the two provided bolts to attach the manifold mounting bracket to the machine.



Step 4

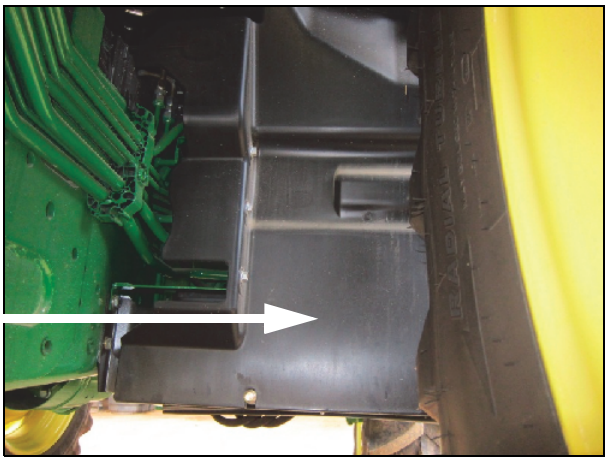
Use the provided 5/16" bolts to attach the manifold to the mounting bracket.



Connecting the A and B lines (93845-1000 hose kit)

Step 1

Locate and remove the battery cover under the right side of the cab.





Step 2

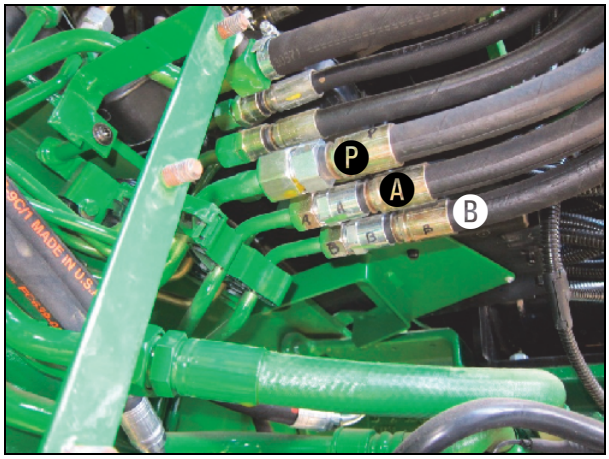
To gain easier access to the hydraulic connections, remove the stairs.



Step 3

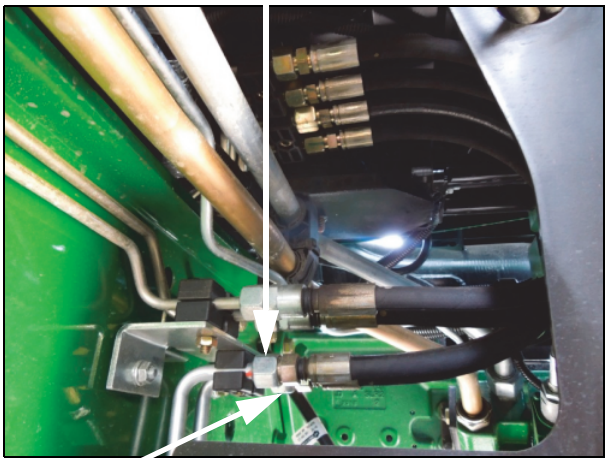
A and B connections on 6R six-cylinder machines

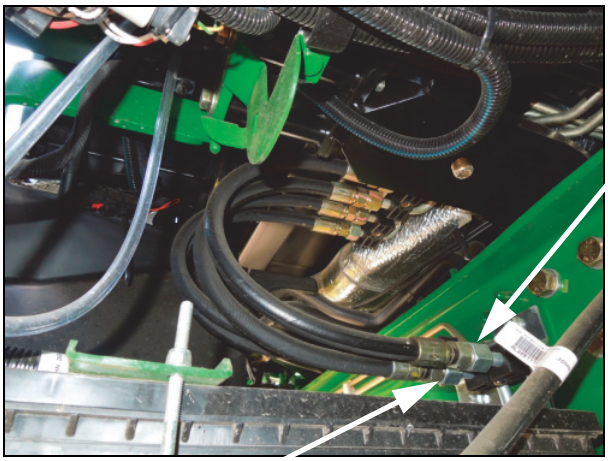
Locate and label the A and B connections on the machine. For 6R machines, the Pressure line will be located right next to the AB lines: Locate and label the P connection.



A and B connections on 6M machines

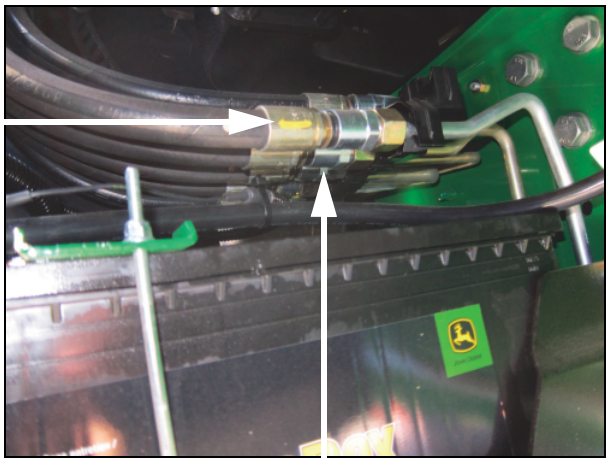
On 6M series machines locate and label the A and B lines as shown.





A and B connections on four-cylinder 6R machines

Locate and label the A and B connections on the machine. For 6R machines, the Pressure line is located near to the AB lines.



Step 4

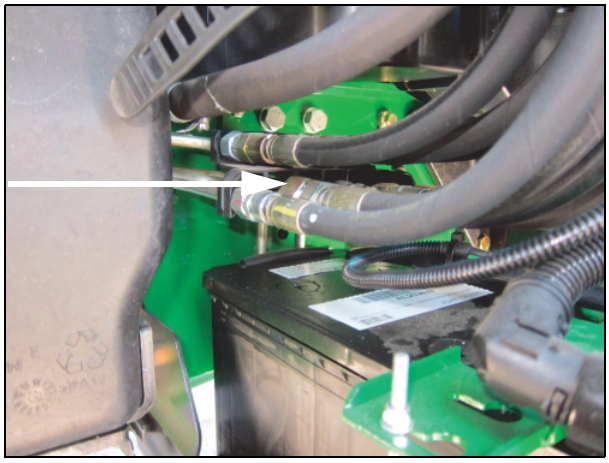
Disconnect the A and B hoses from the hard lines, then install the provided -8 ORS run tee fitting. Reinstall the soft line to the end of the run tee fitting.

Connect the 90° ends of the A and B lines to the branch of the run tee fitting and then route the lines to the Autopilot manifold.



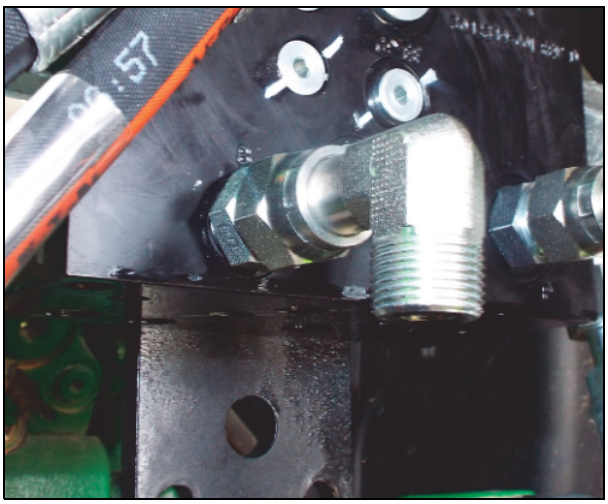
Step 5

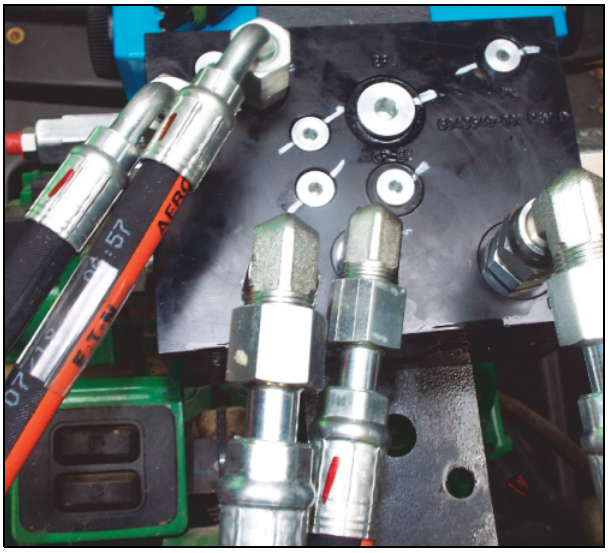
Locate and label the P line on the machine.



Step 6

Assemble the provided swivel 90° fitting to the B port as shown, then fit the straight ends of the A and B hoses to the end of each 90° fitting.





Connecting the A and B lines (93845-2000 hose kit)

Step 1

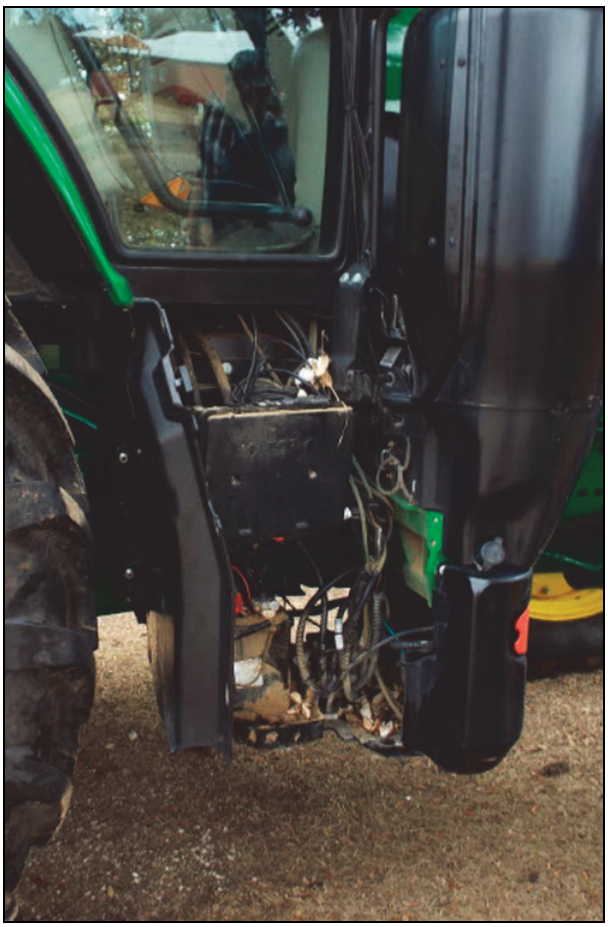
Remove the ladder from the right side of the tractor.





Step 2

Remove the black part of the fender to allow access to the hydraulic connections under the cab.

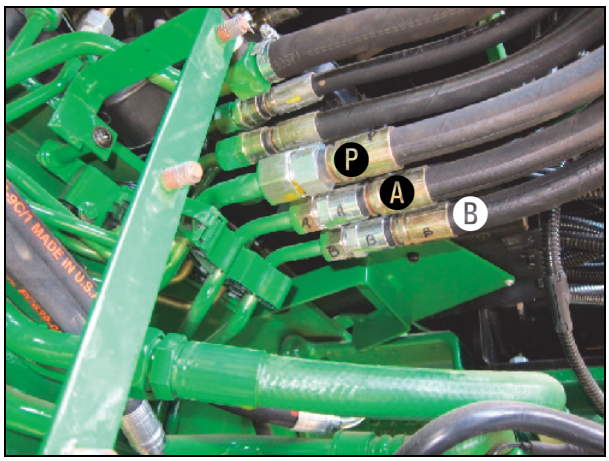


Step 3

Locate and label the A and B connections on the machine. The picture shows the 6R.

For other models please reference the steering line locations in the previous section for tractors without the isolation block.

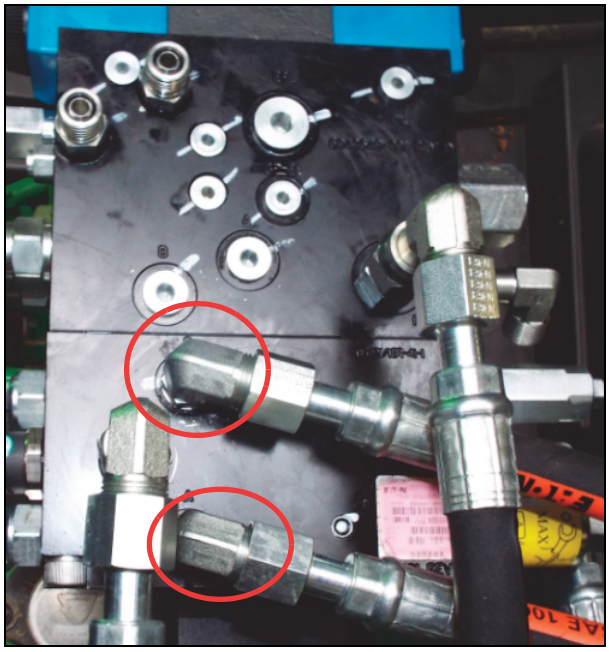
Disconnect the A and B hoses.



Step 4

Connect the straight fittings on the A and B hoses to the A and B ports on the manifold.

Route the other end of the hoses to the right side of the tractor.

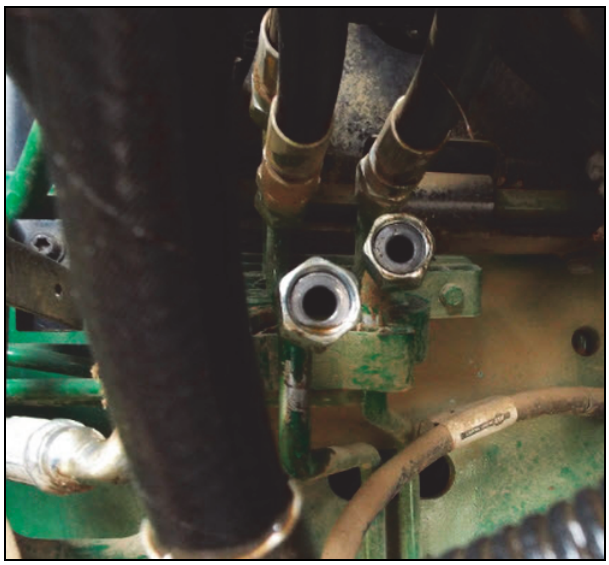


Step 5

Connect the A hose to the steel line marked A.

Connect the B hose to the steel line marked B.

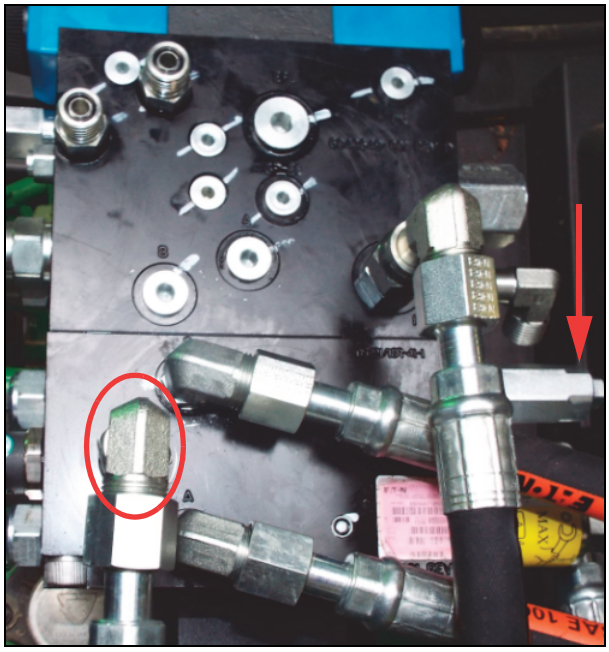
Use an 8 ELO 90° fitting to join the steel line to the 90° fitting on the hoses.



Step 6

Connect the straight fittings on the A and B hoses to the SCU-A and the SCU-B ports on the manifold.

Route the other end of the hoses to the right side of the tractor..



Step 7

Connect the SCU-A hose to the A hose coming from the tractor hand pump.

Connect the SCU-B hose to the B hose coming from the tractor hand pump.



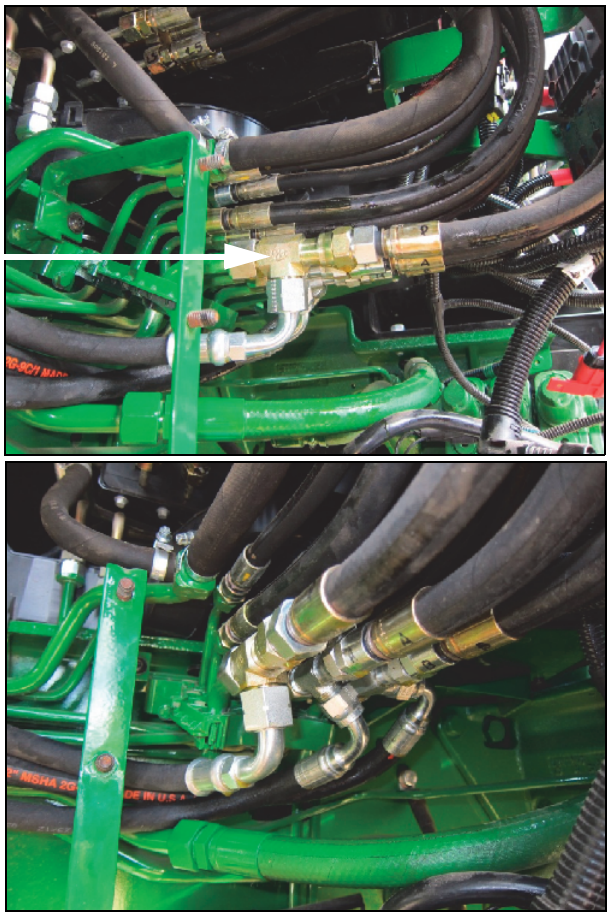
Connecting the Pressure line (all hose kit types)

Step 1

Disconnect the P hose from the hard line, install the provided -10 ORS run tee fitting and reinstall the soft line to the end of the run tee fitting.

Connect the 90° ends of the P lines to the branch of the run tee fitting and route the line to the Autopilot manifold.

NOTE – The -1000 kit installation is shown here with T fittings for the A and B line. The -2000 kits will not use T fittings on the A and B lines.



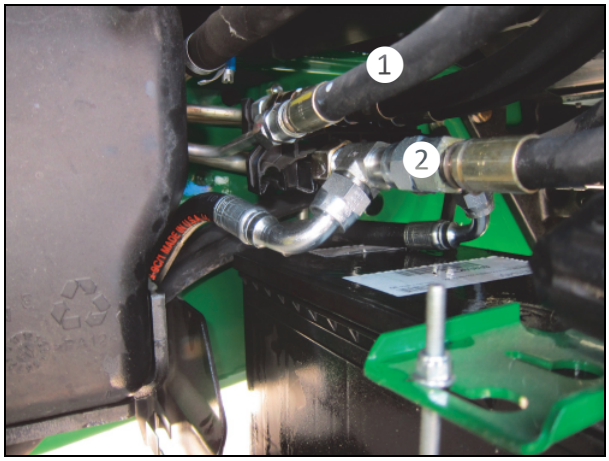
Pressure connections on four-cylinder 6R machines

Step 1

To provide space for attaching the P line, carefully move line ❶ out of the way.

Disconnect the P hose from the hard line, and then install the provided -10 ORS run tee fitting ❷. Reinstall the soft line to the end of the run tee fitting.

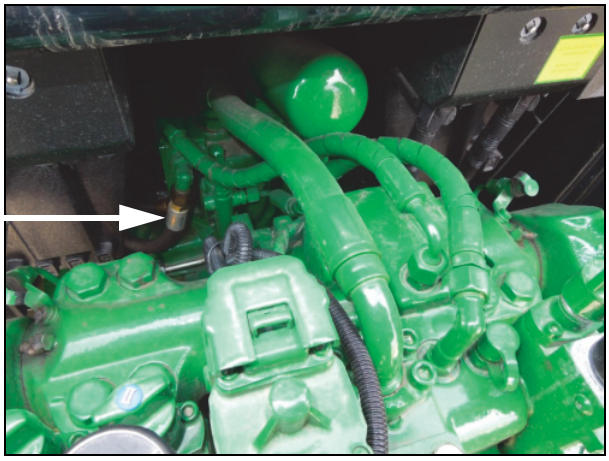
Connect the 90° ends of the P lines to the branch of the run tee fitting and then route the line to the Autopilot manifold.



Pressure connection on 6M machines: Option 1

Step 1

Locate the P line connection, at the rear of the machine by the steering priority valve.

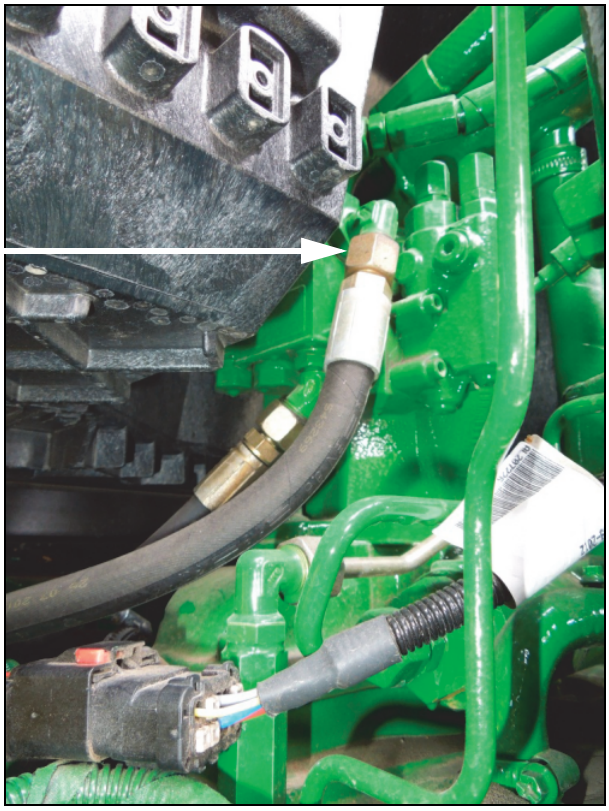


Step 2

Disconnect the P line and then install the provided -8 run tee fitting in to the line.

Reconnect the existing P line to the end of the run tee fitting.

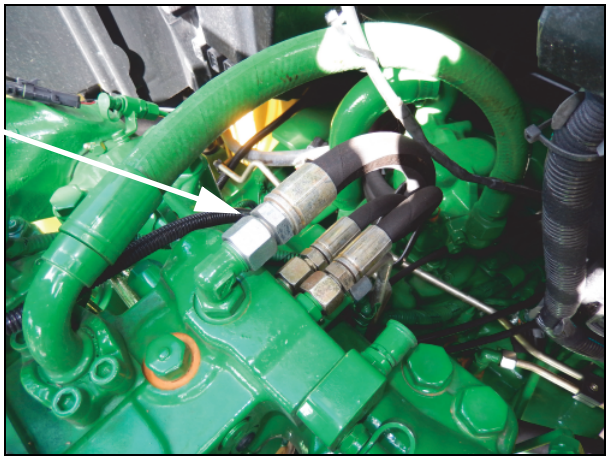
Connect the Autopilot P-m line to the branch of the run tee fitting and route the line to the Autopilot manifold P port.



Pressure connection on 6M machines: Option 2

Step 1

Locate the P line connection, at the rear of the machine by the steering priority valve.



Step 2

Disconnect the P line and then install the provided -8 run tee fitting in to the line.

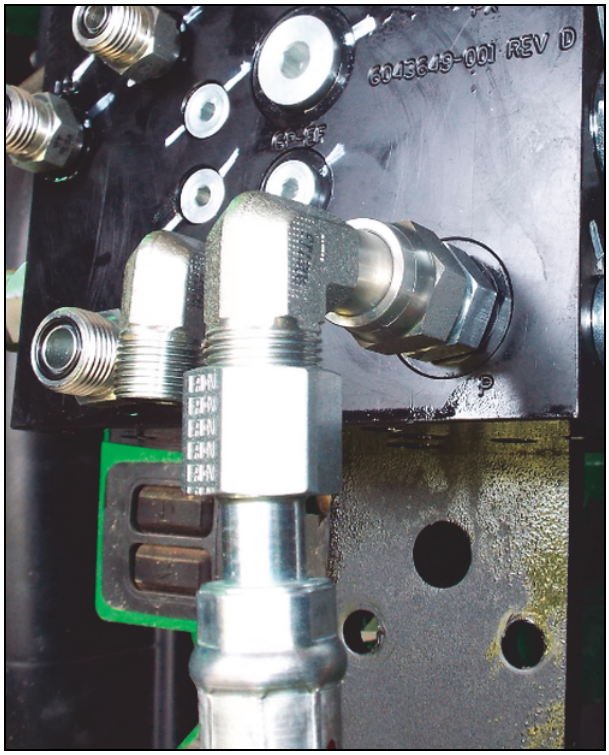
Reconnect the existing P line to the end of the run tee fitting.

Connect the Autopilot P-m line to the branch of the run tee fitting and route the line to the Autopilot manifold P port.



Step 3

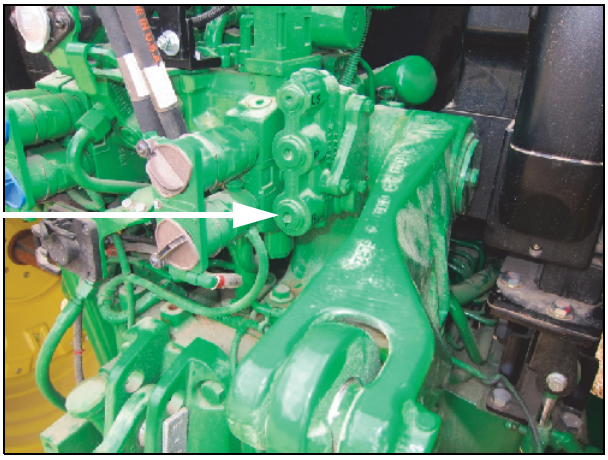
Assemble the provided swivel 90° fitting to the P port as shown, then fit the straight end of the P hose to the end of the fitting.



Connecting the Tank line (all hose kit types)

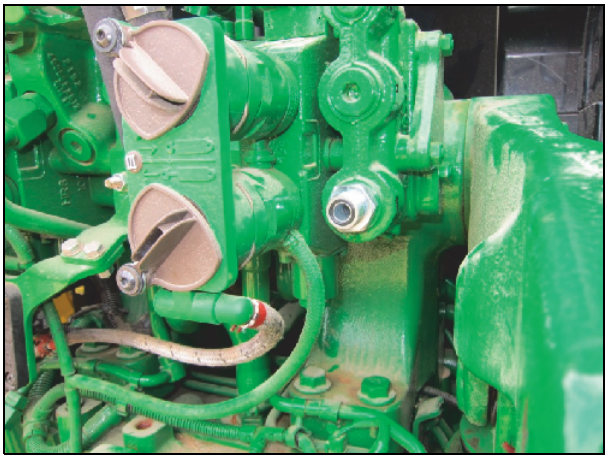
Step 1

Fit the tank line the power beyond tank port in the location shown here.



Step 2

Remove the plug from the tank port and install the provided m22-8 ORS fitting into the tank port.

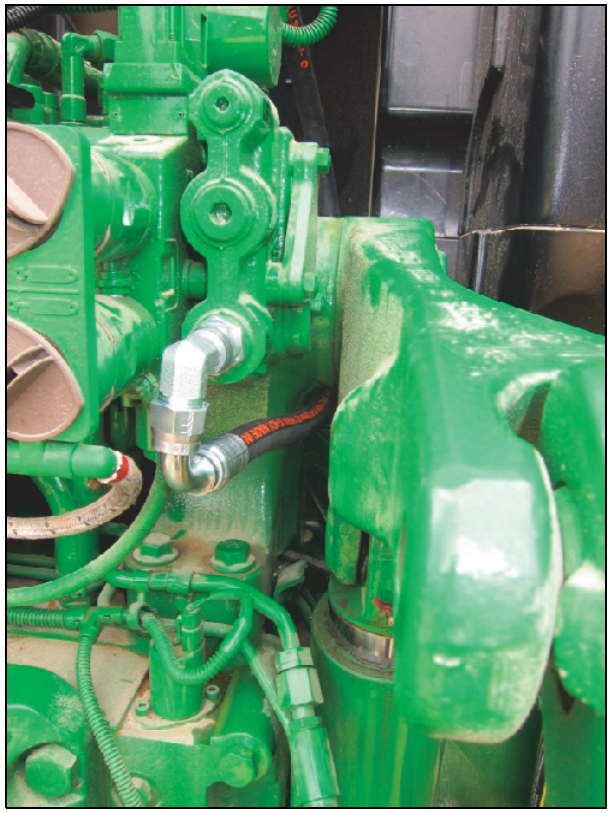


Step 3

Assemble the provided swivel 90° fitting to the tank fitting.

Then, install the 90° end of the T hose to the provided swivel 90° and then route the line to the T port of the manifold.

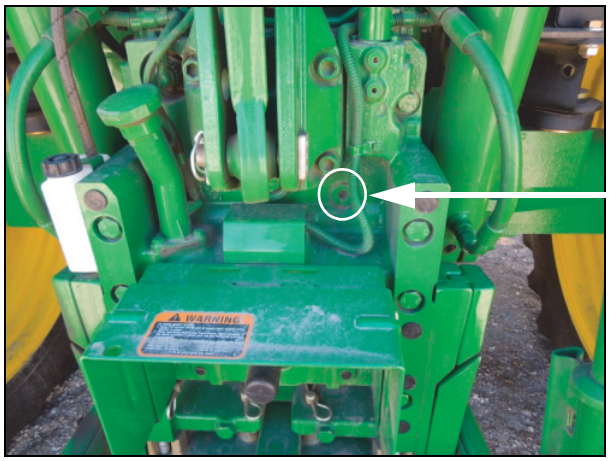
NOTE – *Make sure* that this line does not contact the 3pt lift arm as they move through their travel.



6M series machine tank connection and 6R alternate tank connection

Step 1

Locate the tank connection port, just above the PTO guard at the rear of the machine.



Step 2

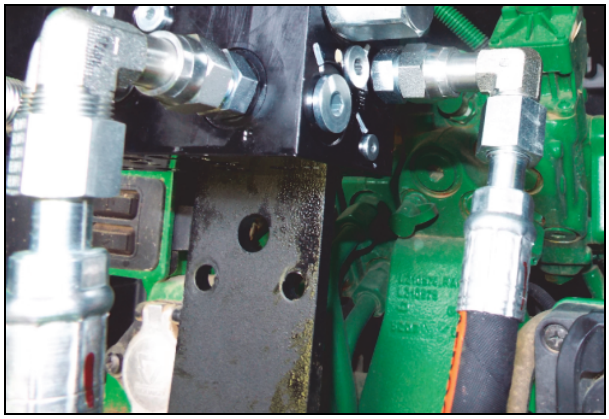
Remove the plug from the machine and install the provided m27-8 ORS port adapter.

Connect the 90° end of the T-m hose to the port adapter and then route the line to the T port on the Autopilot manifold.



Step 3

Assemble the provided swivel 90° fitting to the T port as shown then fit the straight end of the T hose to the end of the fitting.



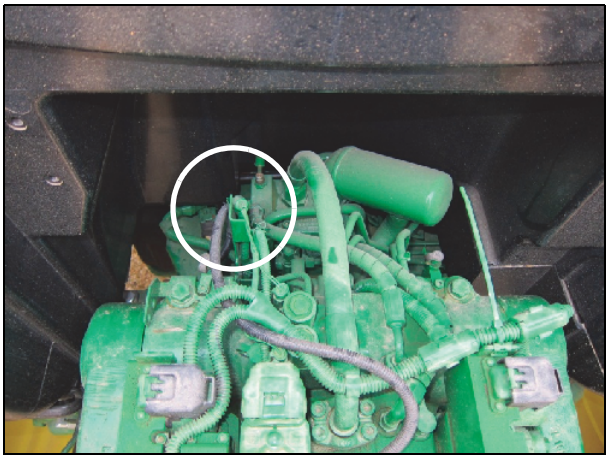
Making the load sense connections: All machines

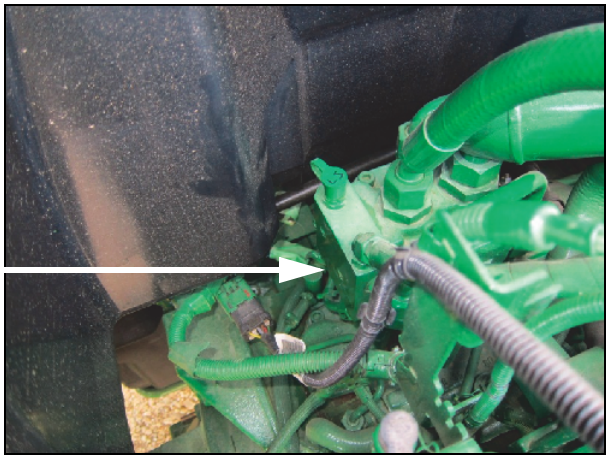
Step 1

Locate the priority valve. The location changes depending on the tractor's installed options. It can be located at the hydraulic pump behind the cab or between the remote valves.

Step 2

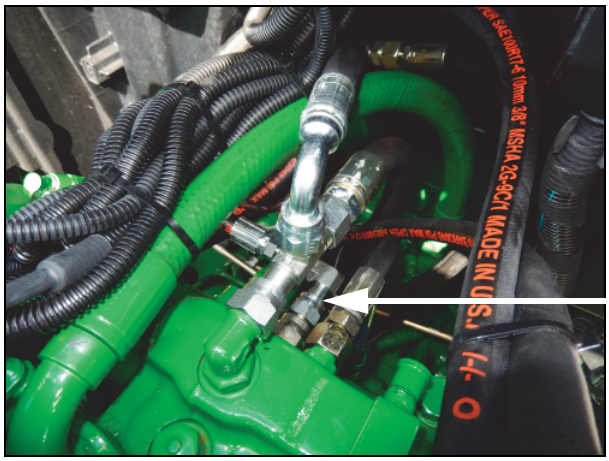
Make the load sense connection at priority valve on hydraulic pump, behind cab.





Load sense connection between remote valves

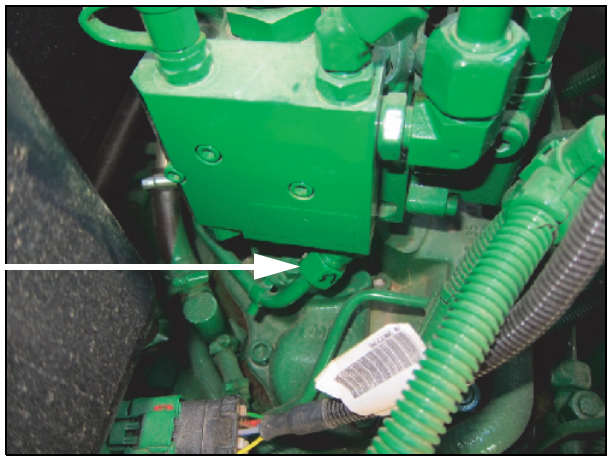
Make the load sense connection at priority valve, between remote valves at the rear of the machine.

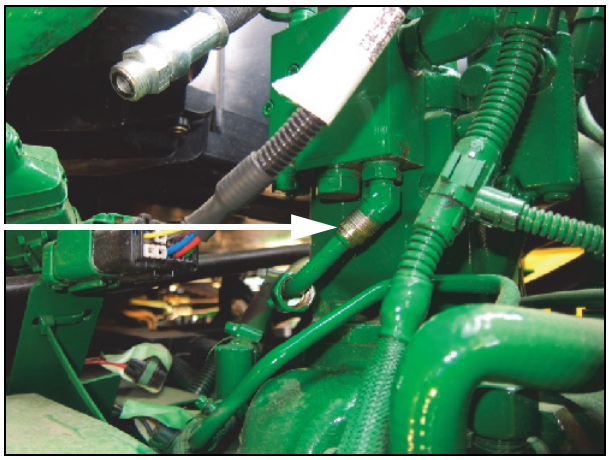


Loadsense for machines with priority valve on pump behind cab

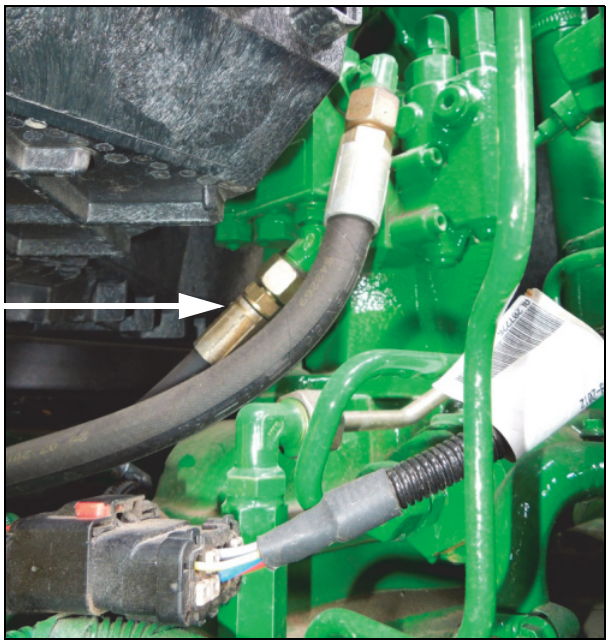
Step 1

Locate and remove the steering load sense (LS) line from the priority valve.





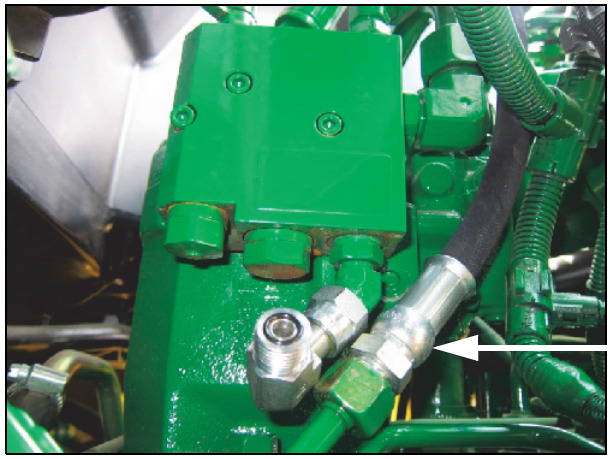
On the 6M machine the LS connection to the priority valve is a hose.



Step 2

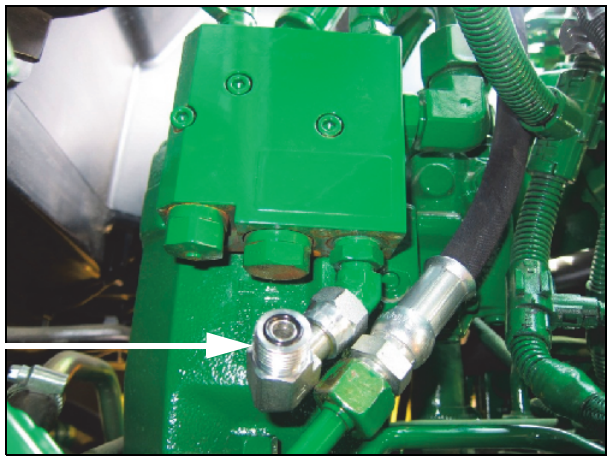
Connect the male end of the LS1 hose to the line removed in Step 1. This hose will be attached to the LS1 port on the Autopilot manifold.

NOTE – Orient the fitting on the Autopilot manifold **before** tightening this connection.



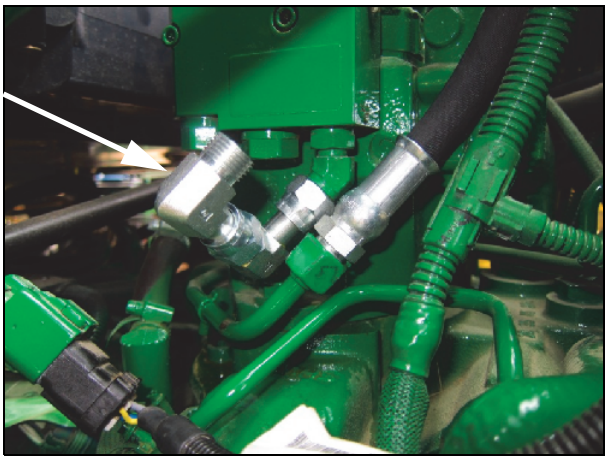
Step 3

Fit a -6 swivel 90° fitting to the fitting on the machine priority valve.



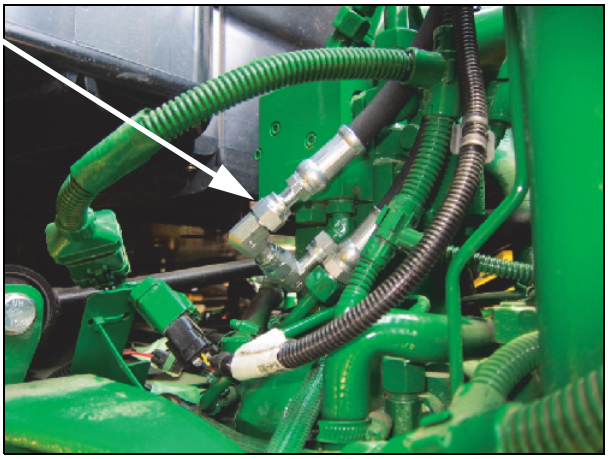
Step 4

Assemble another -6 swivel 90° fitting to the end of the swivel 90° installed in Step 2.



Step 5

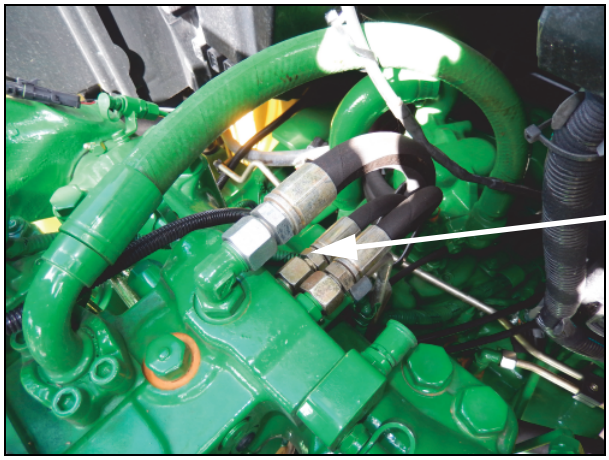
Assemble the straight end of the LS2 hose to the end of the swivel 90° fitting, as shown. (Orient the fitting at the manifold *before* tightening this connection.)



Load sense for machines with priority valve between remote valves

Step 1

Locate and remove the existing load sense line from the priority valve in the location shown.

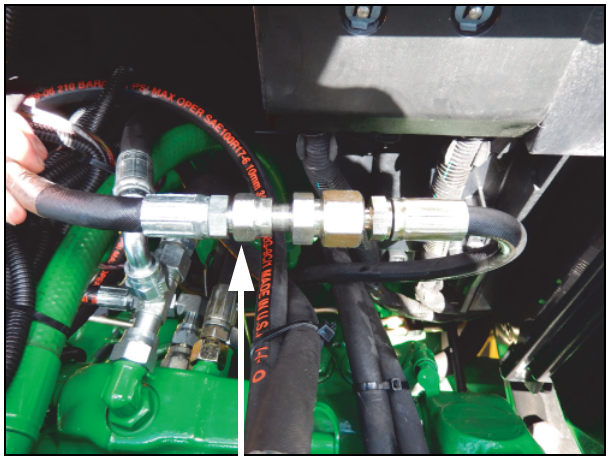


Step 2

Connect the LS1 line to the line removed in Step 1.

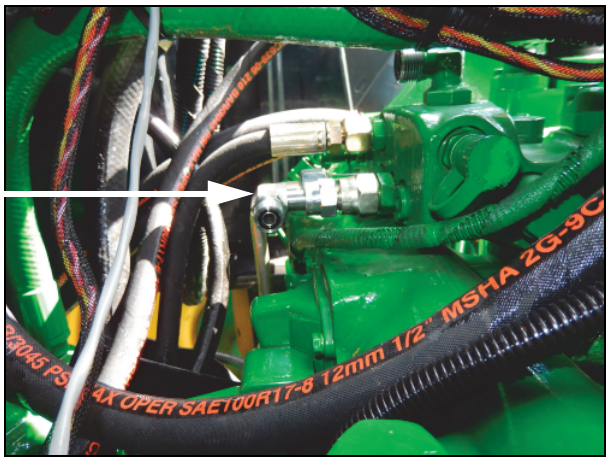
A 6-8 ORS expander has been provided in the hose kit for this connection.

Route the other end of this hose to the LS1 port on the Autopilot manifold.



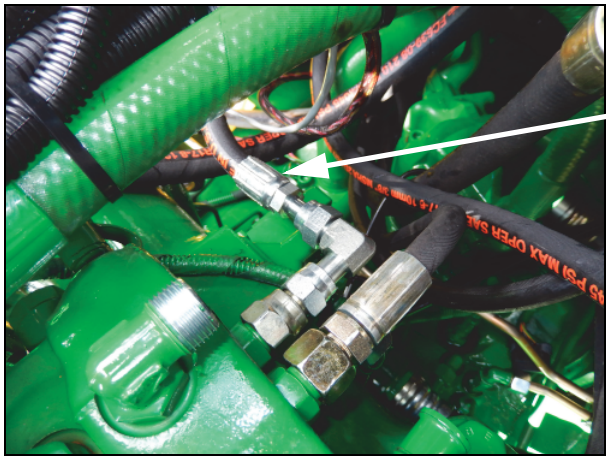
Step 3

Attach the 8-6 reducer that is provided in the hose kit to the LS port on the priority valve, then attach the provided -6 ORS swivel 90° fitting on to the reducer, as shown.



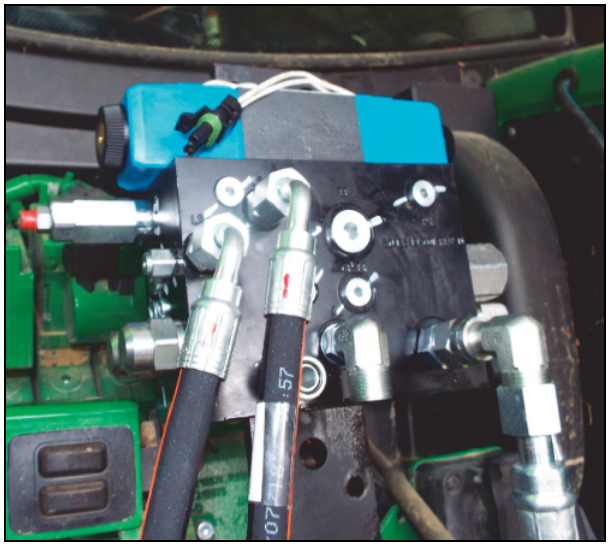
Step 4

Connect the straight end of the LS2 line to the swivel 90 installed in Step 3, then route the other end of the hose to the LS2 port of the Autopilot manifold.



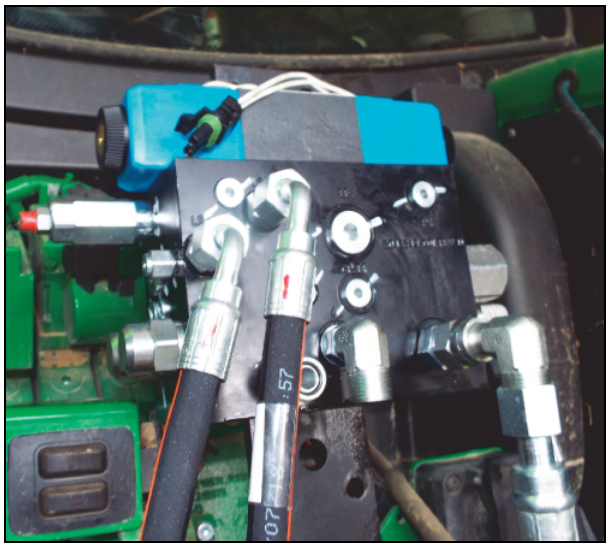
Step 5

Conect the 90° end of the LS2 hose to the LS2 port of the manifold as shown.



Step 6

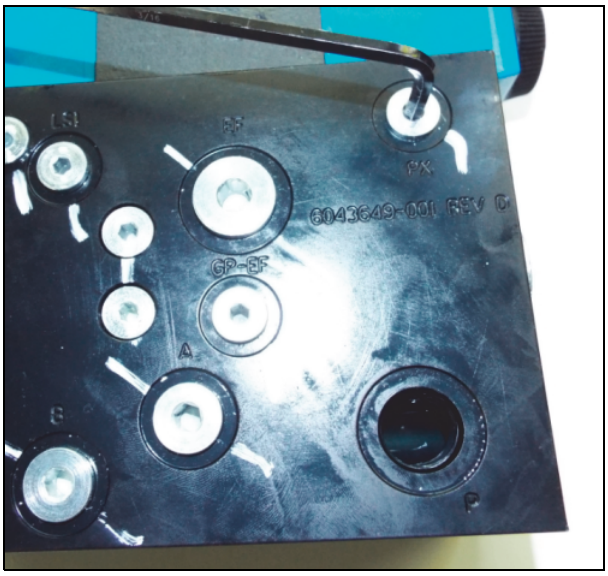
Connect the 90° end of the LS1 hose to the LS1 port of the manifold as shown.



Connecting the manual override (93845-1000 hose kit)

Step 1

Remove the plug from the PX port shown here.



Step 2

Fit the provided manual override pressure transducer into the PX port, as shown.



Connecting the manual override (93845-2000 hose kit)

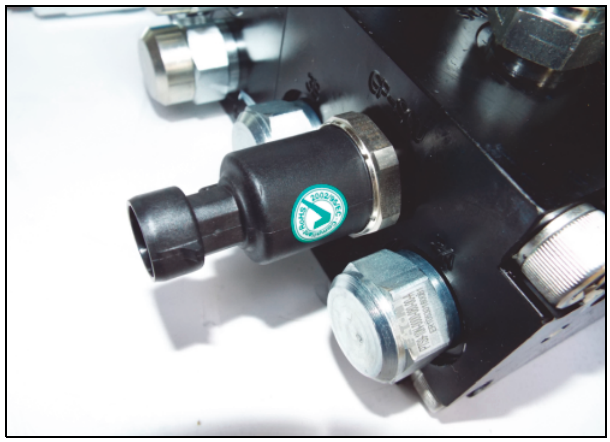
Step 1

Remove the plastic plug from the GP-SCU port.



Step 2

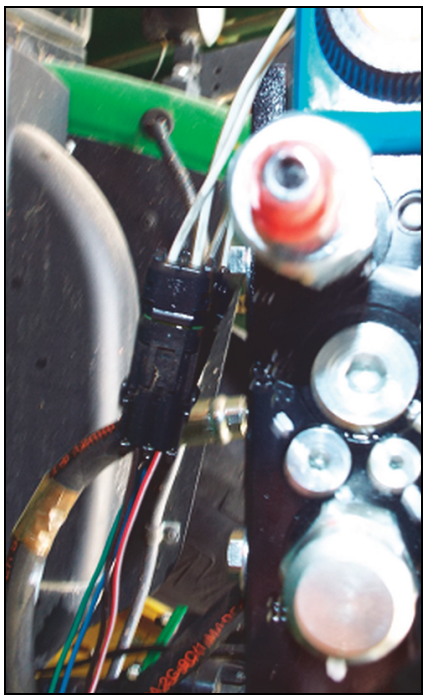
Fit the provided manual override pressure transducer into the GP-SCU port, as shown.



Valve electrical connections

Step 1

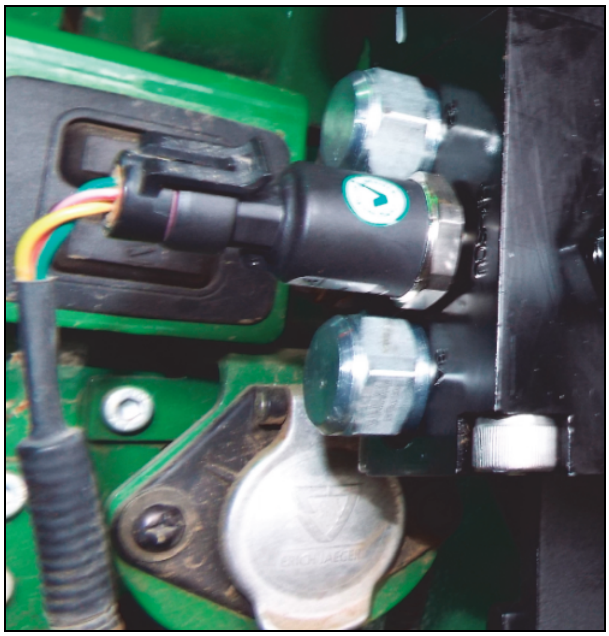
Connect the Autopilot valve connector cabling to the valve on top of the Autopilot manifold. Then route the cabling to the NavController harness.



Step 2

Connect the Autopilot manual override connector cabling to the pressure transducer and then route the cabling to the NavController harness.

NOTE – The pressure transducer location shown is for tractors utilizing the isolation block.



Checking the hydraulics

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

3

IMD-900 Steering Device Installation

- IMD-900 steering device components
- Installing the IMD-900 steering device
- Connecting the IMD-900 harness to the 54602 harness

This chapter describes how to install the IMD-900 steering device.

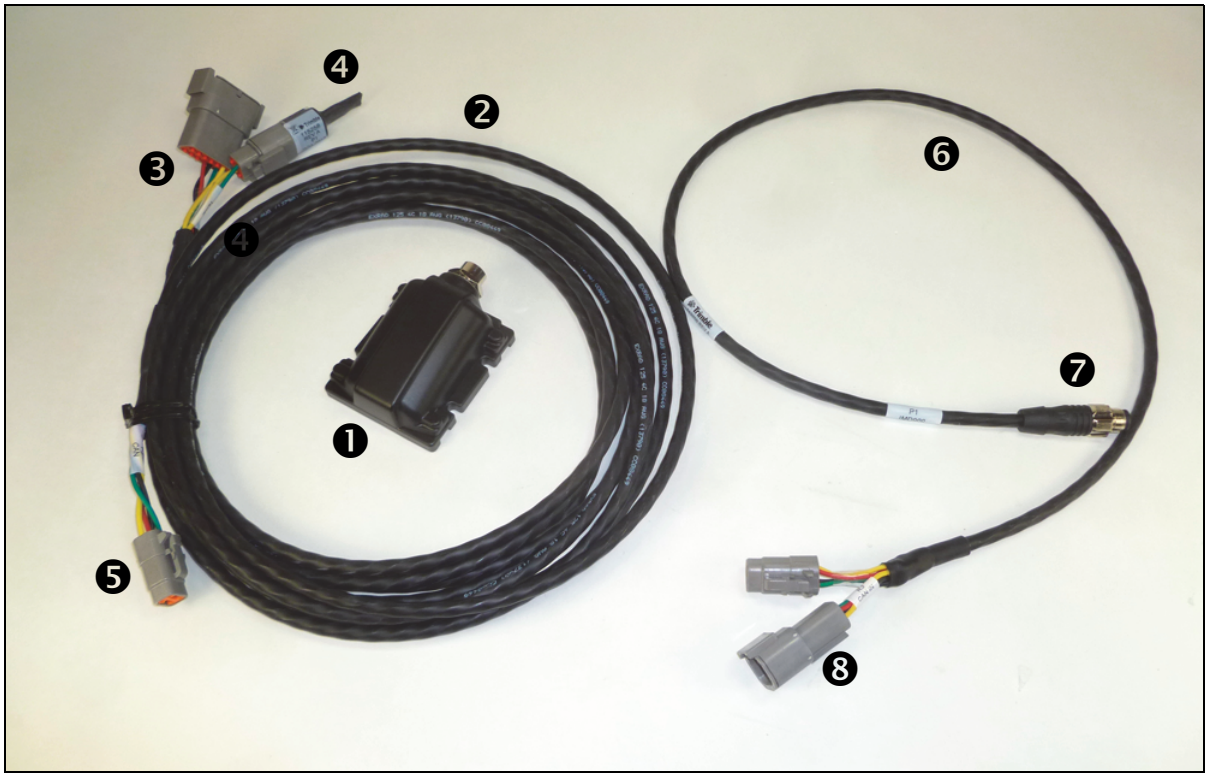
If the described mounting location is not accessible, chose a different place. To ensure proper function, the device must be located where it is free of obstructions and can rotate with the wheels when they turn.

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.

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.

The new IMD-900 steering device is shown on the right.

The process below describes how to install the IMD-900 device onto the right front hub of the machine.



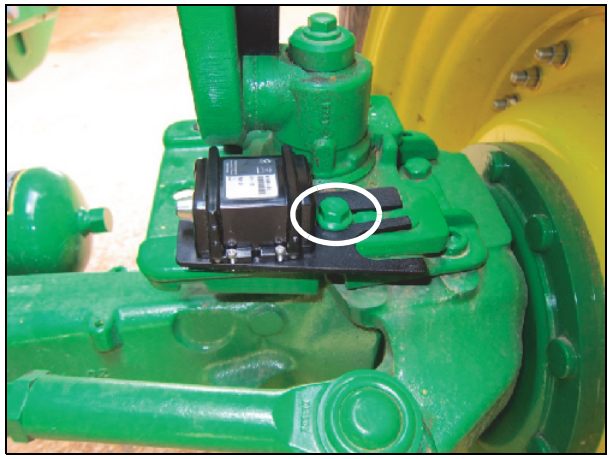
NOTE – The new sensor will install in the same way as the original AutoSense™ sensor shown here.



Step 1

Remove the bolt shown and then use it to install the provided mounting bracket to the machine.

Position the bracket so that the fender mount does not contact the device, and that the sensor will be as far away from the wheel of the machine as possible.



Step 2

Use the provided socket head cap screws to attach the IMD-900 device to the mounting bracket.



Step 3

Connect the IMD-900 cabling to the IMD-900 device and then route the cabling to the NavController II harness.

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

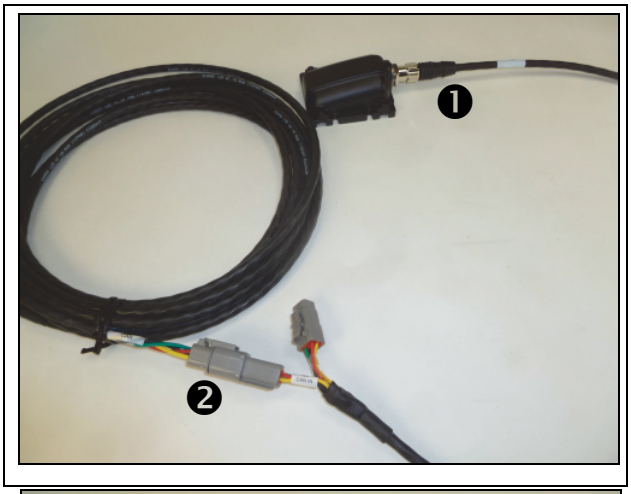


Connecting the IMD-900 harness to the 54602 harness

Step 1

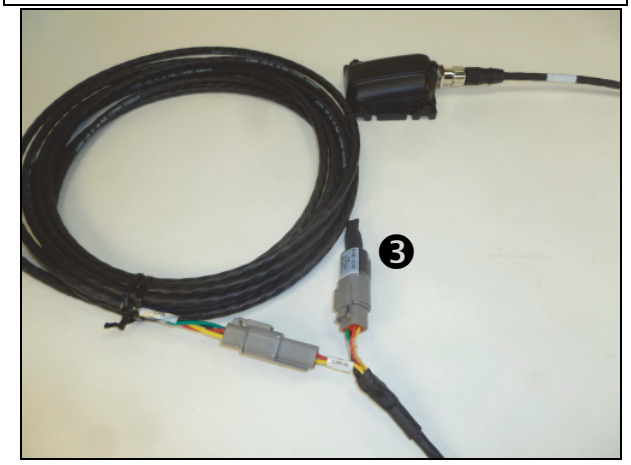
Connect the P1 connector of the 112759 cable to the IMD-900 ❶.

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.

NOTE – There should be a terminator next to the P12 connection as well as near the IMD-900 base cable 112759.



4

Antenna / External Receiver (if used) Installation

- Antenna and receiver installation options
- Mounting an adjustable spar to roof bolts
- Assembling and installing antenna solutions using the John Deere Starfire antenna bracket adaptor

To install the antenna for the display, see Chapter 5, Display Installation.

Antenna and receiver installation options

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

- **Spar mount** – This bracket mounts directly to the roof bolts and is required for all high accuracy applications such as RTK and OmniSTAR.
- **VHB mount** – Attach a 4" x 6" plate or a V plate directly to the roof with VHB (Very High Bond) adhesive for magnetic mounting. See page 67.
- **Starfire quick release mount** – Attach the required receiver or receiver mount plate as described in the Starfire adaptor section. See page 69.
- **Magnetic mounting** – Magnetic mounting for quick release is available for both VHB and spar type mounting.

Possible mounting methods

GPS receiver	V plate on spar (removable)	VHB plate on roof (removable)	Starfire mount (removable)
CFX-750 display TMX-2050	✓	✓	✓

NOTES –

– Bolt the V plate to the spar for high accuracy and repeatability.

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

Mounting an adjustable spar to roof bolts

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

Step 1

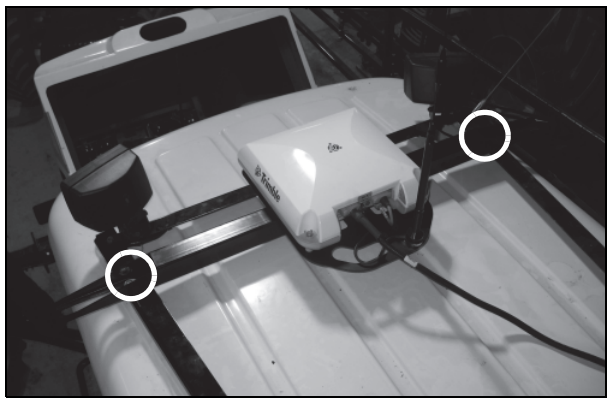
Locate the cab bolts on the roof of the vehicle.

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

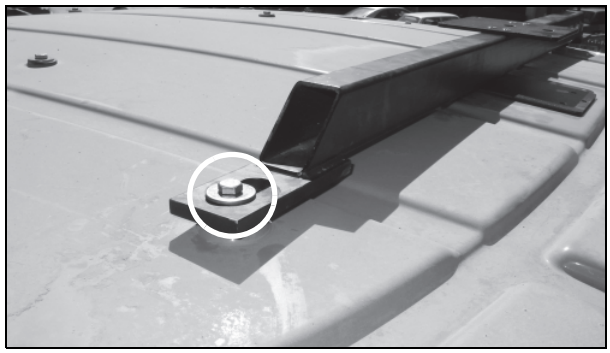


If a light bracket already occupies the roof studs, mount the spar directly onto the light bracket.



Step 2

If required, replace the existing bolts with longer bolts.



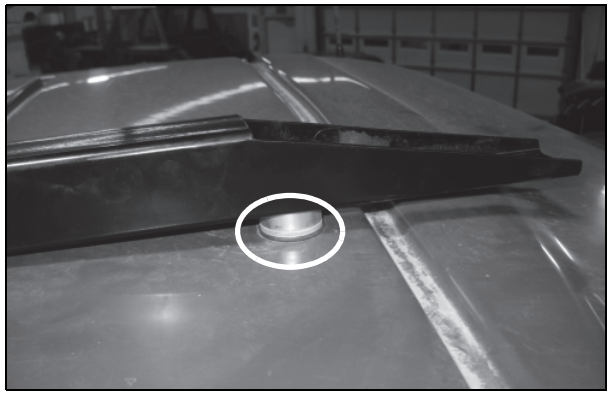
If you use the light bracket, drill two holes to match the spar width.



Step 3

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

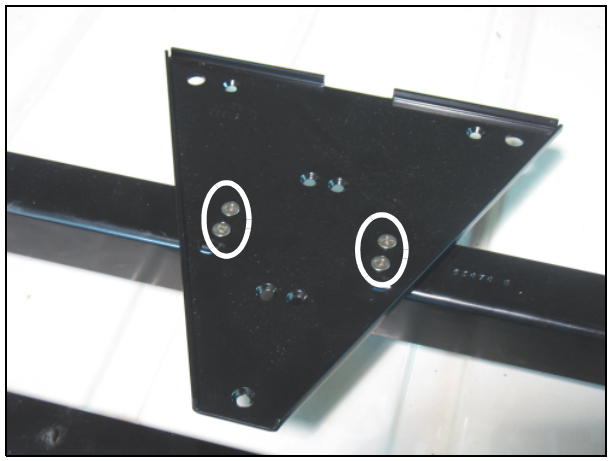
NOTE – If the receiver is offset to the left or the right of the vehicle, Autopilot system performance may be affected. Before you tighten the cab bolts, make sure that the GNSS antenna is aligned with the center of the vehicle.



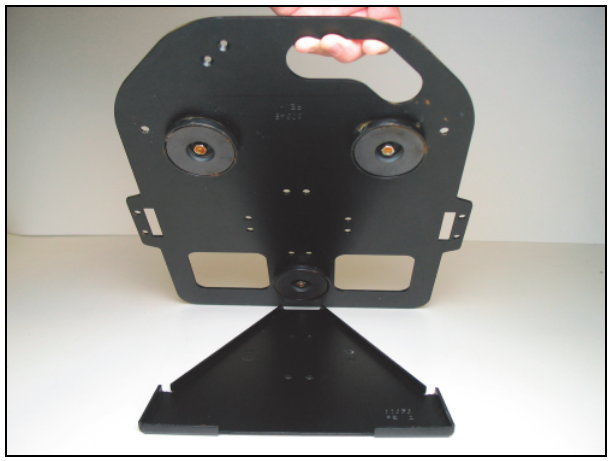
Step 4

For a single magnet antenna mount application, attach a V plate with four ¼" flathead screws.

The narrow end points to the front of the vehicle.



V plate on the spar



Magnetic mount on the V plate

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 4" x 6" plates are provided in most kits. You can use the VHB mounting method to attach either a 4" x 6" 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 4" x 6" plate for simplified installation in applications where high accuracy is not critical.

Step 1

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

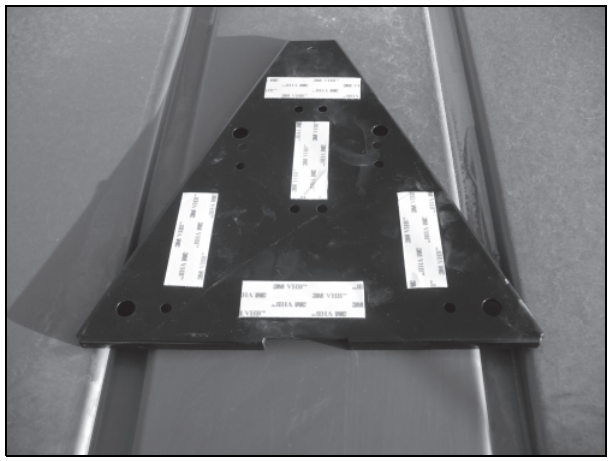


Step 2

V plate only

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

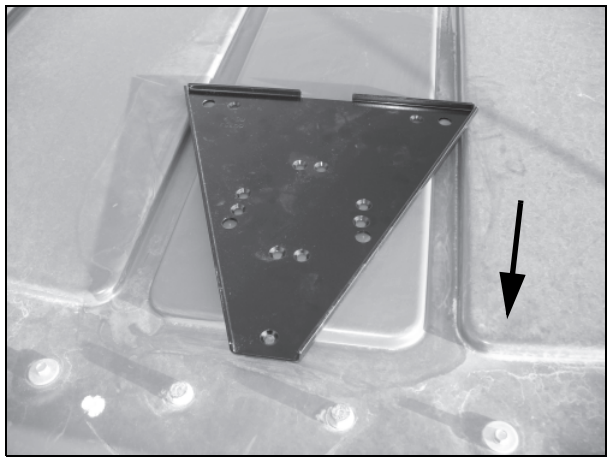
NOTE – The VHB strips are pre-applied to the 4" x 6" plate.



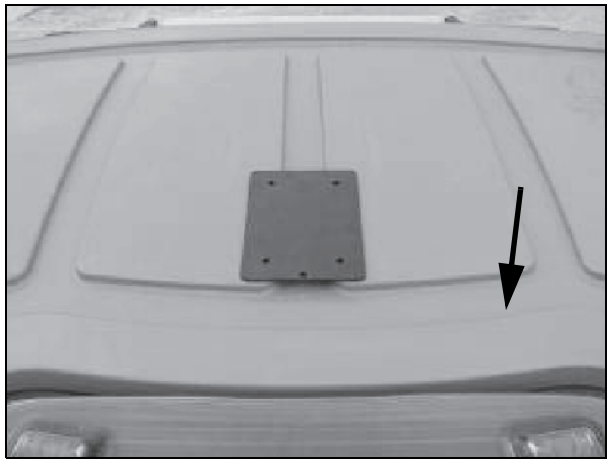
Step 3

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



4" x 6" plate

Assembling and installing antenna solutions using the John Deere Starfire antenna bracket adaptor

On vehicles equipped with the John Deere optional Starfire antenna bracket, you can use the Trimble JD ATR antenna bracket to provide a fast release antenna mount.

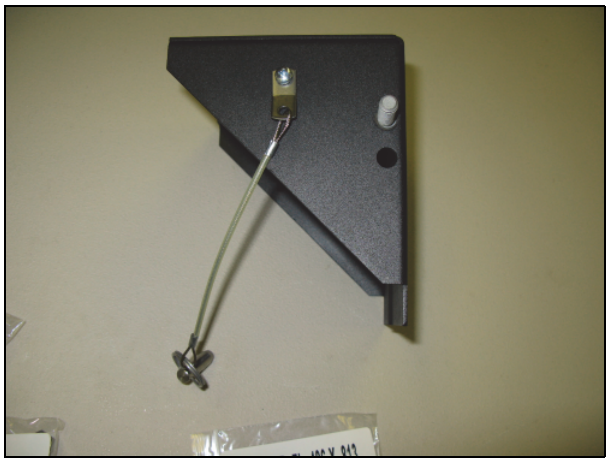
Step 1

Layout the bracket and hardware on a clean surface.



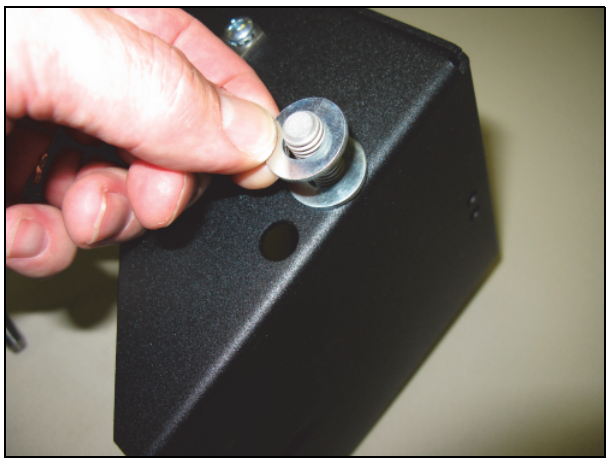
Step 2

Using the hardware provided, install the lock-pin and the lanyard as shown.



Step 3

Install two washers onto a stud.



Step 4

Install a T-knob locking handle onto the stud and then repeat Steps 3 to 4 for the second stud.



Step 5

Standard mount

For antennas using a standard $^{5}/_{8}$" - 11 threaded mount, attach the antenna to the bracket with a $^{5}/_{8}$" - 11 bolt.

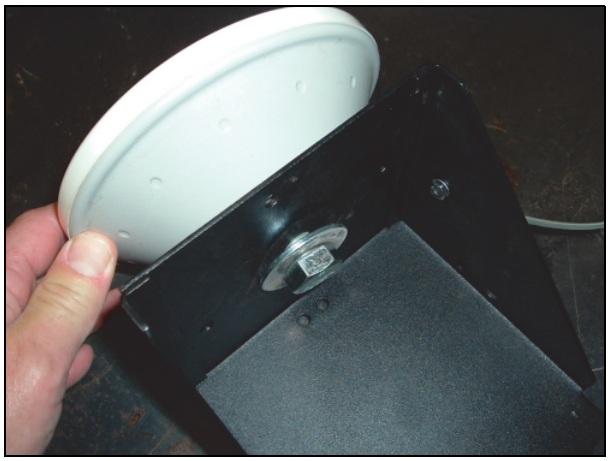
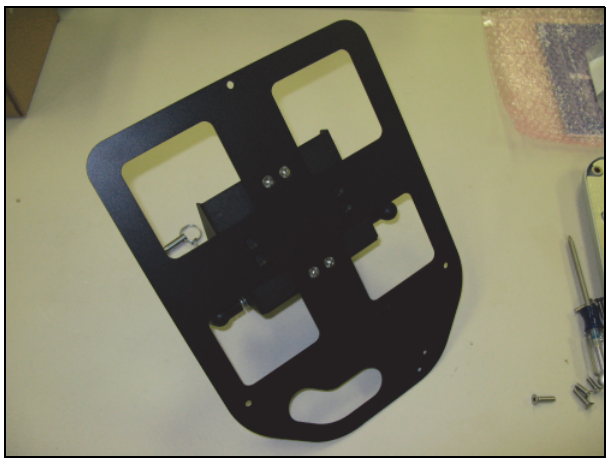


Plate mount

For antennas that use a plate mount, attach the adaptor to the plate with four ¼" - 20 flat head screws.

NOTE – A standard mount (P/N 56182) is shown; others, such as the NAV-900 base mounting plate P/N 109315, are similar.



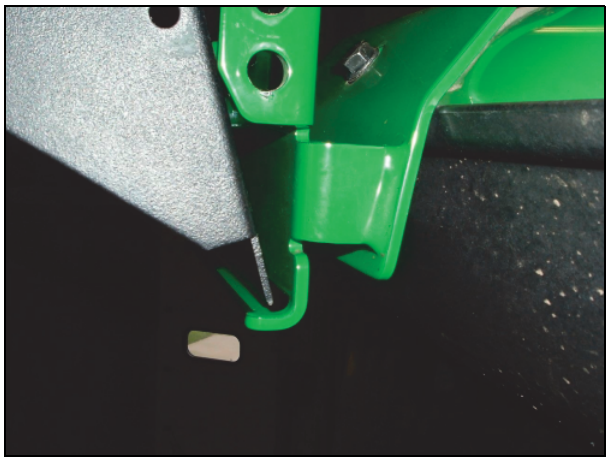
Step 6

If you are using an external radio antenna with this option, attach the radio antenna to the flat mount plate as shown.



Step 7

Insert the tab situated at the bottom of the adaptor into the slot in the vehicle mounted antenna bracket.



Step 8

Tighten both knobs securely.



Step 9

Tip the adaptor back until the pin holes line up and insert the attached steel lock pin through the bracket and the adaptor.

NOTE – The pin prevents the bracket from falling should you forget to tighten the locking knobs.



Step 10

When using the Starfire antenna bracket adaptor with an external radio antenna

Provision for mounting the radio antenna can be made using the standard adhesive backed steel plate with a standard magnetic mount as shown.

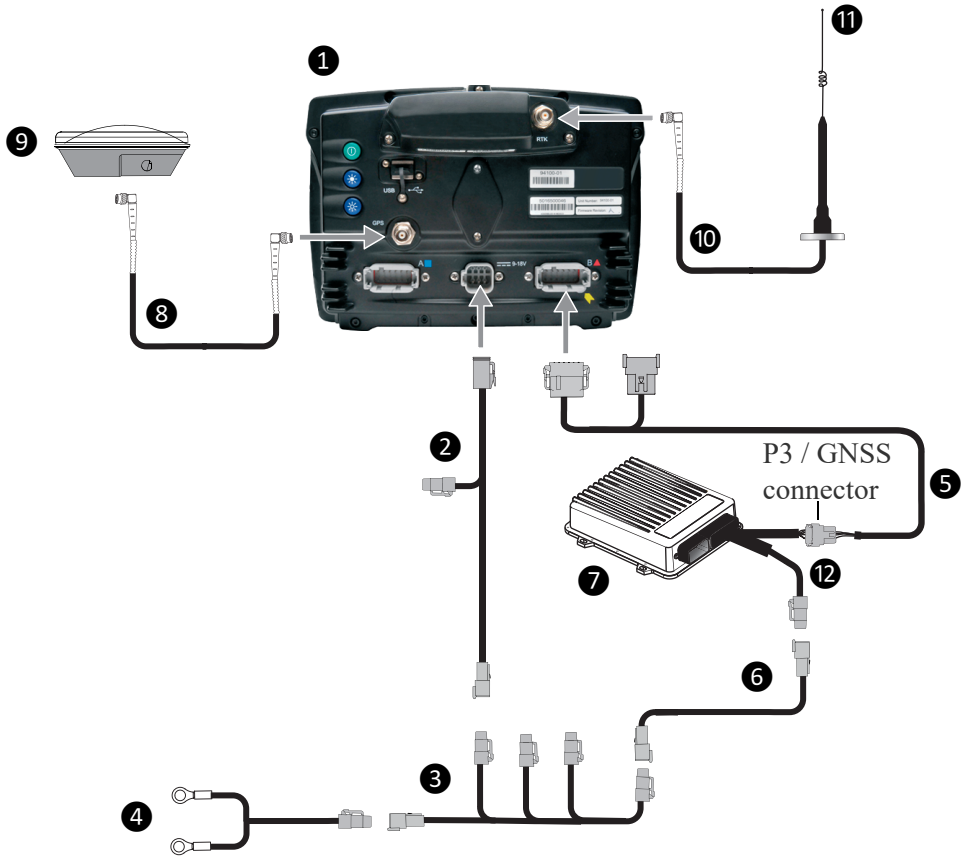


5

Display Installation

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

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.	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	Cable Assy, CFX-750/FmX/FM-750/FM-1000 to Nav II w/ 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

Item	Description	Trimble part number
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.

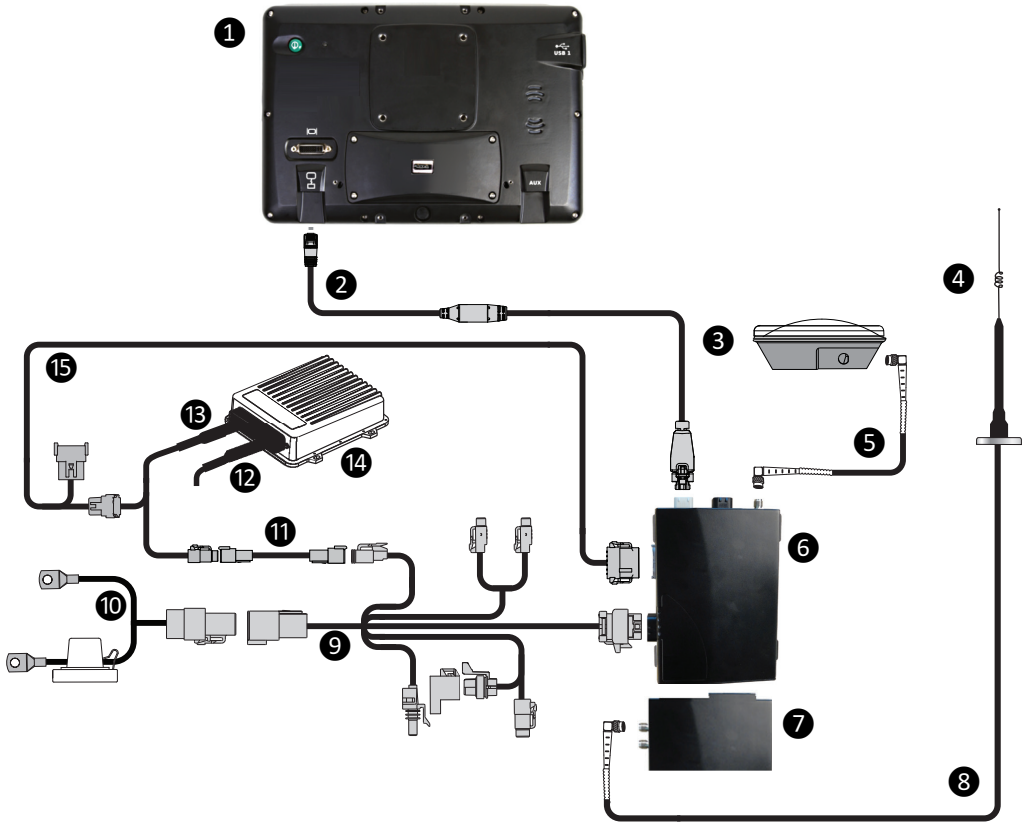
Step 2

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.



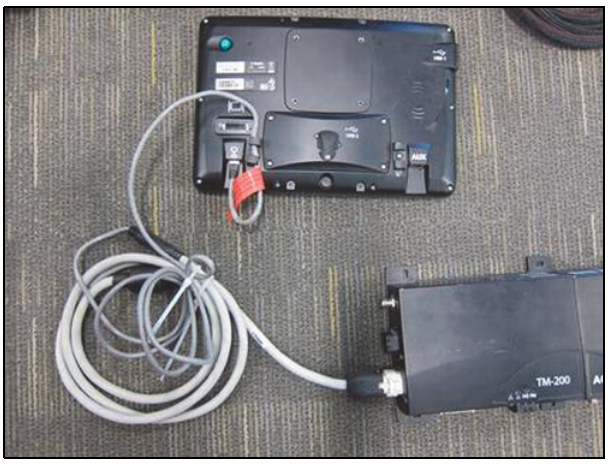
Step 3

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.



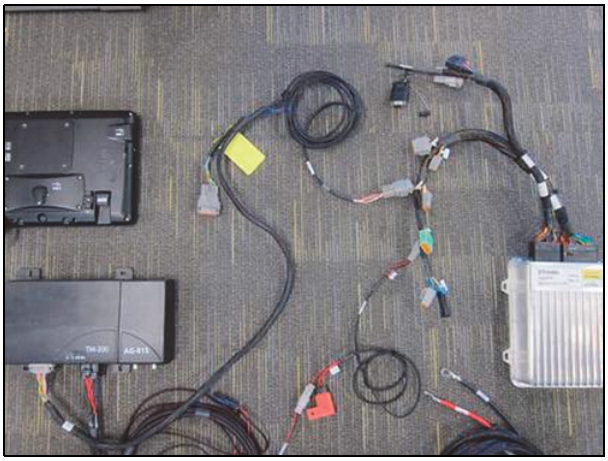
Step 5

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



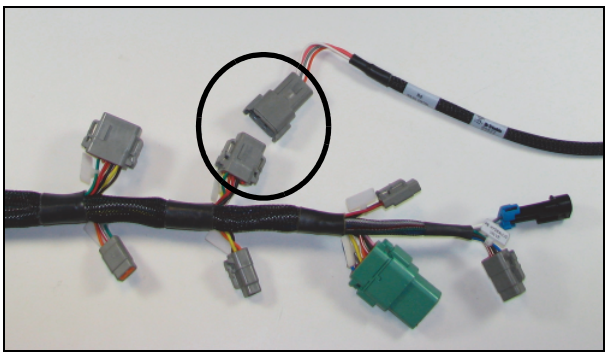
Step 6

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



Step 7

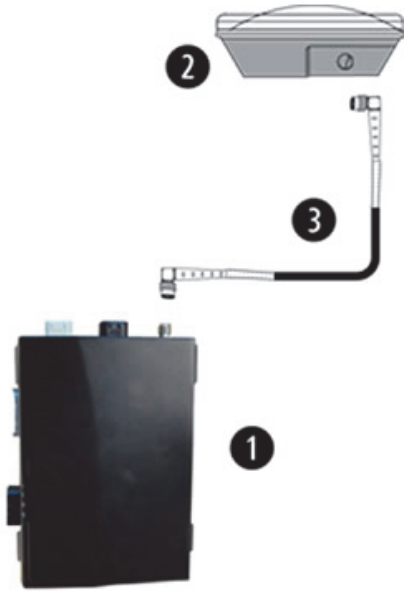
Connect the cable to the P3 connector on the NavController main harness.



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 64.

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.

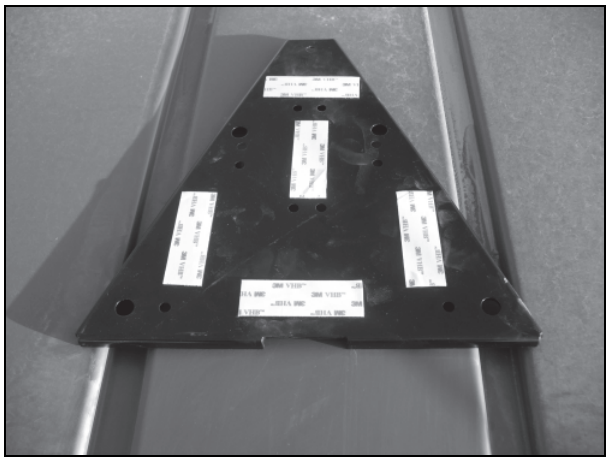


Step 2

V plate only

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

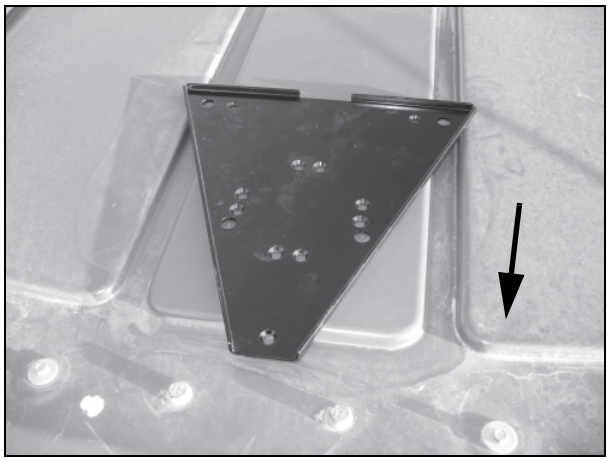
NOTE – The VHB strips are pre-applied to the 4" x 6" plate.



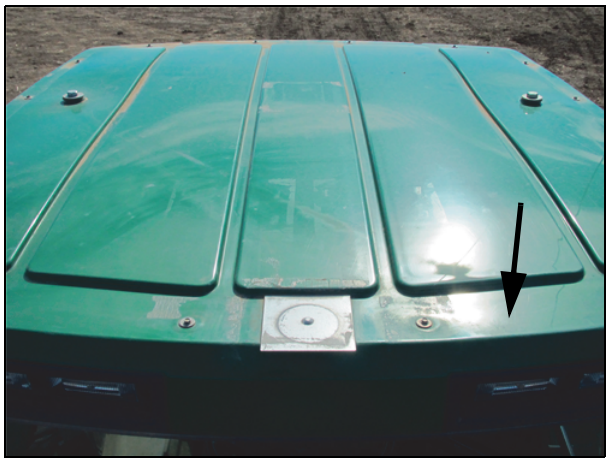
Step 3

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.



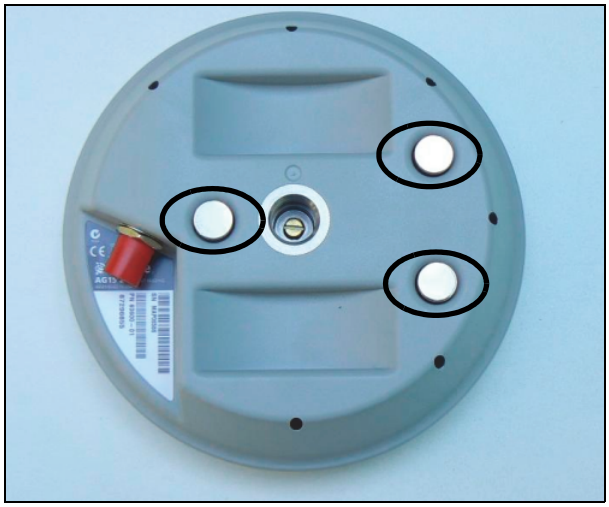
V plate



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.

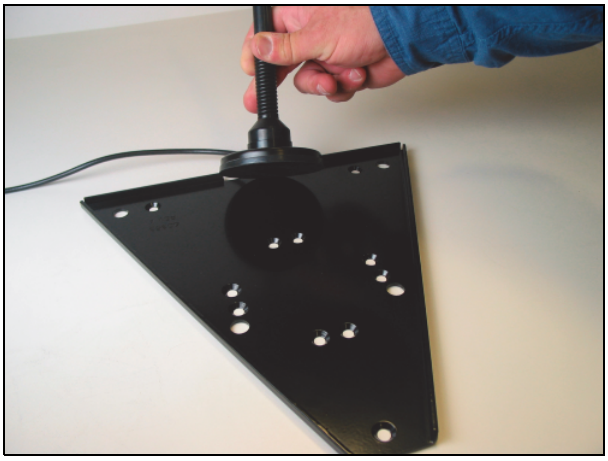
Step 1

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.

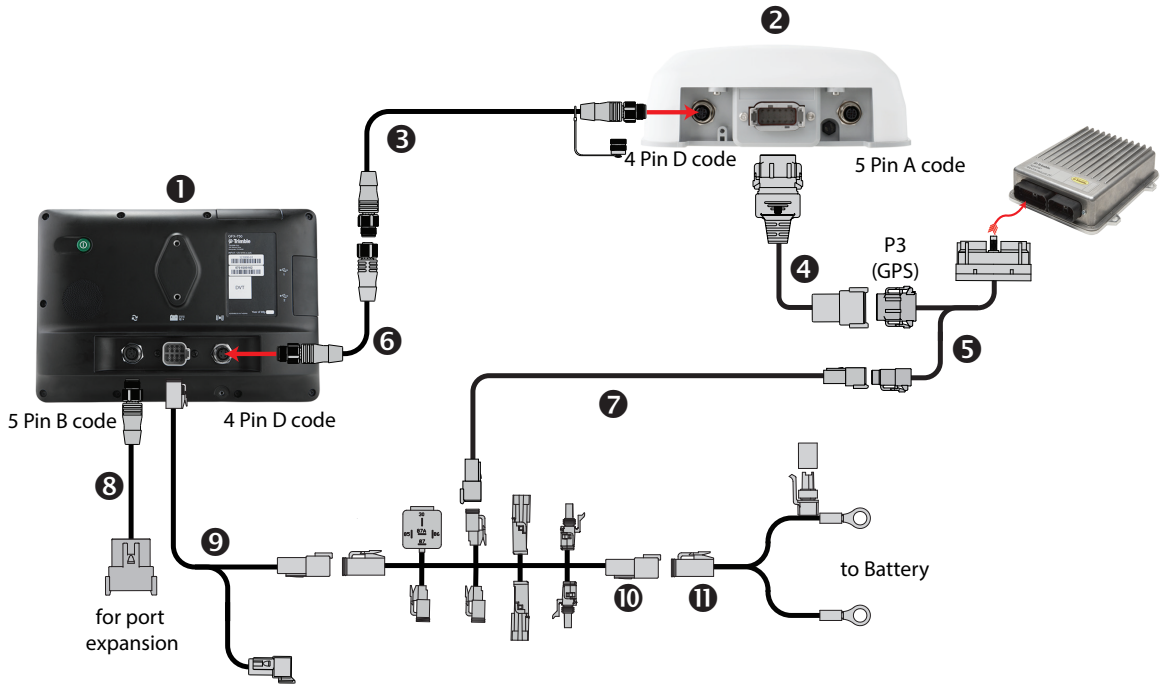
Step 4

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

Connect the RAM base mount ball to the desired bracket using the supplied V bolts or alternate (non supplied) hardware.



Step 2

Use the provided RAM clamp to join the RAM base ball and the ball attached to the display.



Step 3

Position the display as desired, with good visibility by the operator, and then tighten the handle to fix in place.



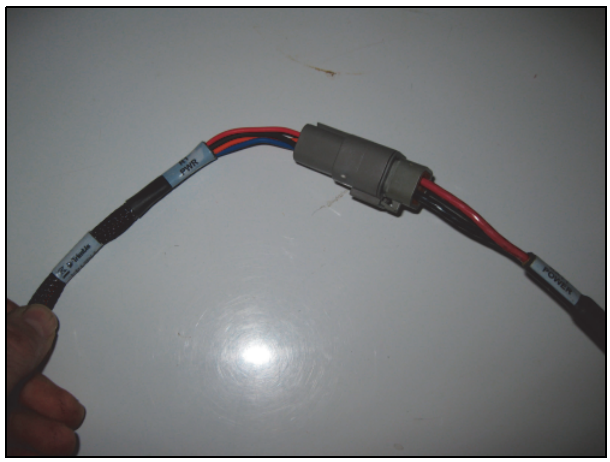
GFX-750/XCN-1050 display: Installing the wiring harness

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.



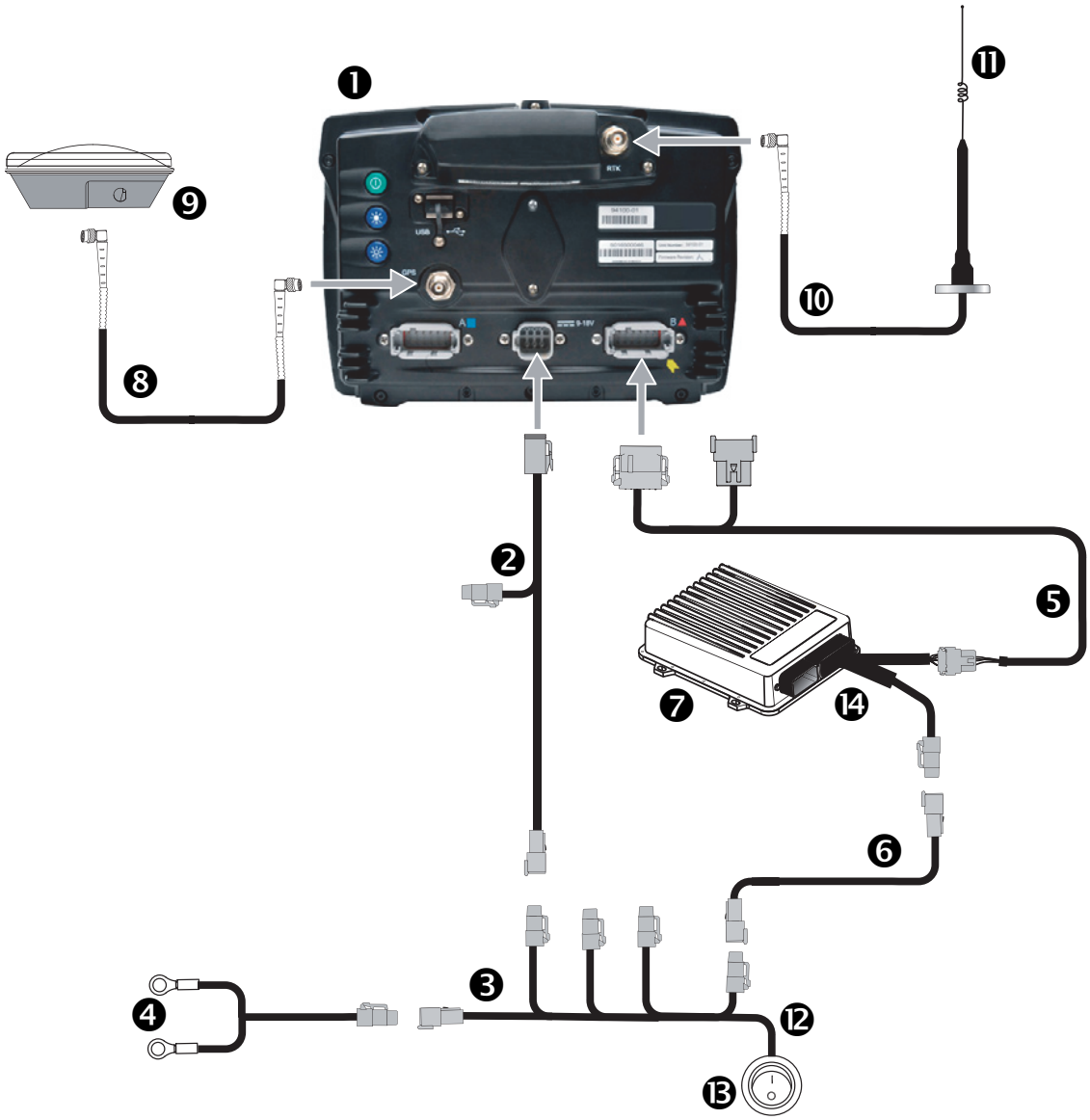


6

Power Harness Installation

- CFX-750 display: Components
- GFX-750/XCN-1050 display: Components
- CFX-750 and GFX-750 displays: Installing the power harness
- CFX-750 and GFX-750 displays: Configuring the power bus options
- TMX-2050 display: Components
- TMX-2050 display: Installing the power harness
- TMX-2050 display: Configuring the power options

CFX-750 display: Components



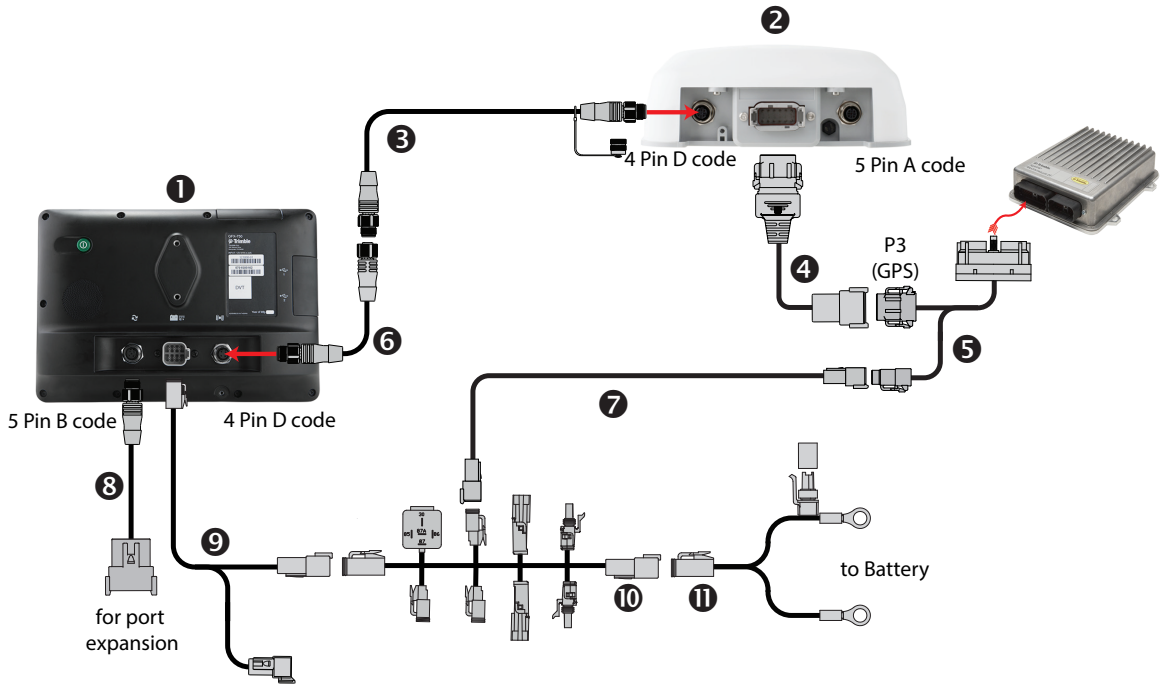
⚠ **CAUTION –** Connecting the Port Replicator on the CFX-750 display to NavController II cable ❺ to the P4 or P12 connector of the NavController II harness ⓮ will result in damage to the CFX-750 display and will void the warranty.

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

Item	Description	Trimble part number
5	Cable Assy, CFX-750/FmX/FM-750/FM-1000 to Nav II w/ Port Replicator	75741
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

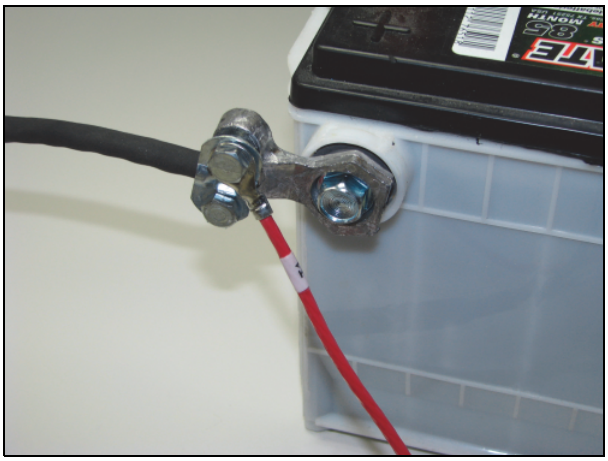
CFX-750 and GFX-750 displays: Installing the power harness

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

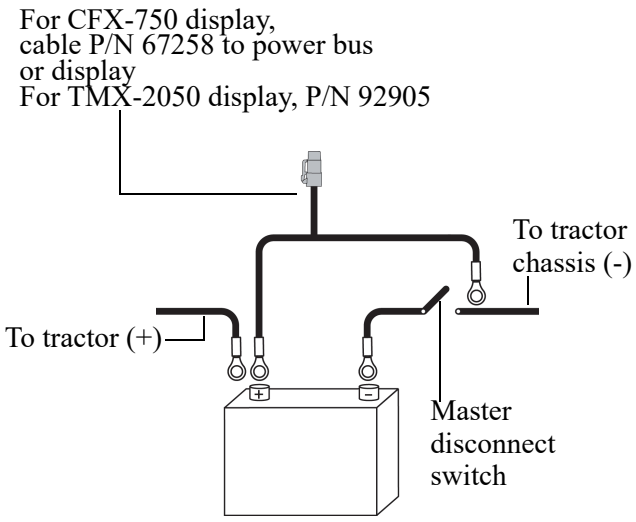
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information chapter.

Step 1

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

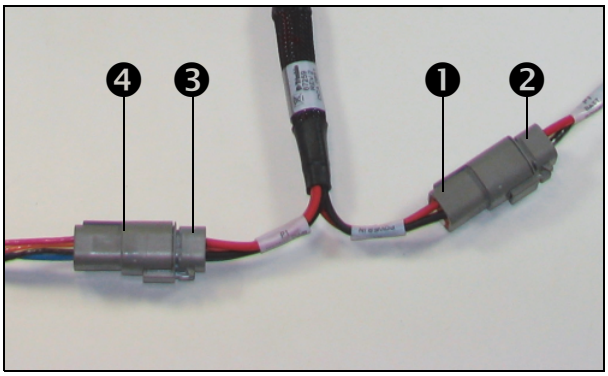


⚠ **CAUTION –** If the vehicle has a master electrical disconnect, make sure the basic power cable (P/N 67258 / 92905) is not directly attached to the battery terminal that is disconnected by the master switch - the negative pole in this example.
Attach this terminal side just past the main disconnect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



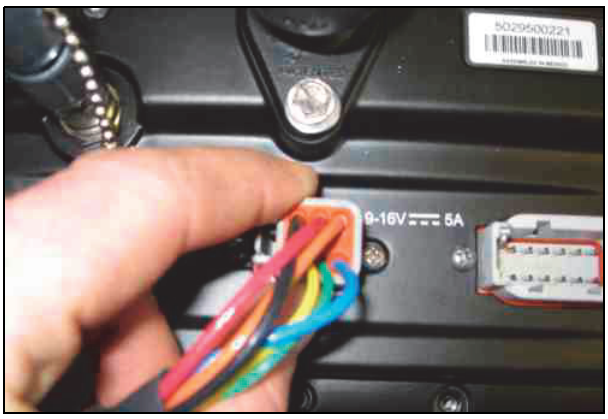
Step 2

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 adaptor.



Step 3

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



CFX-750 display

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

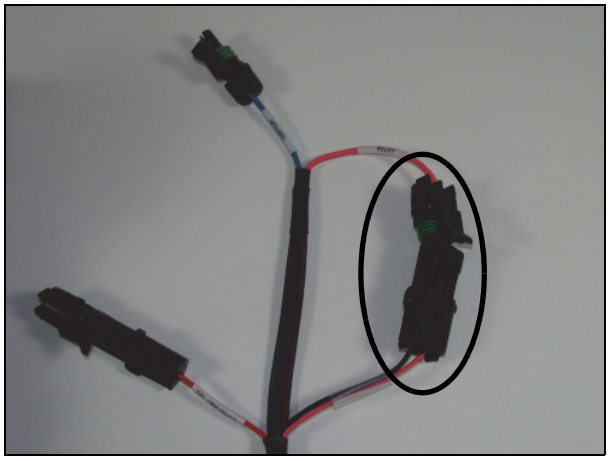
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information chapter.

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

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

Display power button is used to turn on the Autopilot system

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

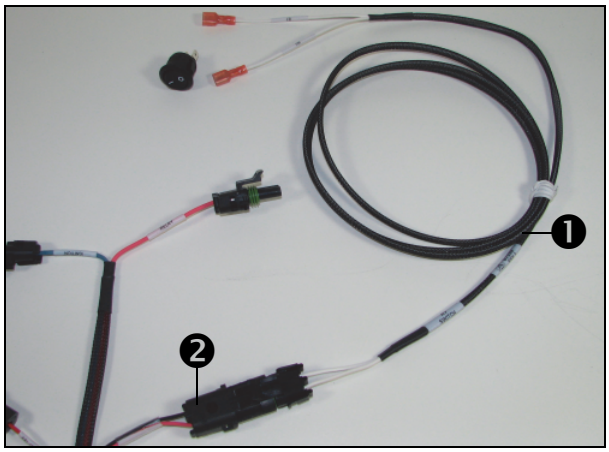


External switch is used to turn on the Autopilot system

Step 1

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

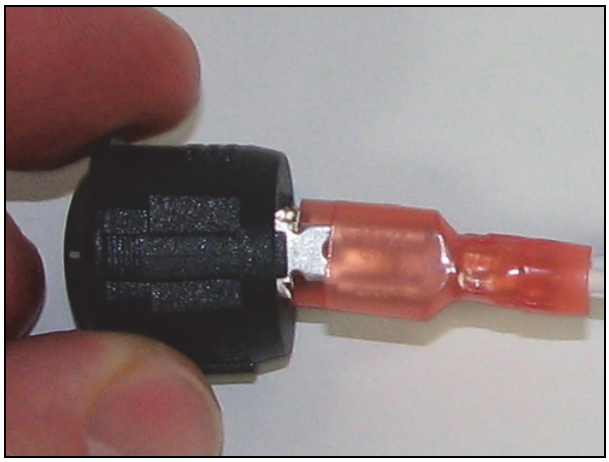
NOTE – To install the switch provided, drill a ¾" hole.



Step 2

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

NOTE – Polarity is not important.

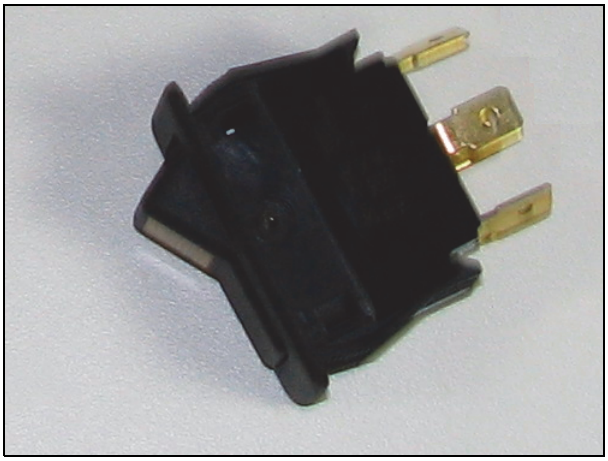


Installing the optional illuminated full or standard Euro switch

Step 1

Find an available knockout location on the vehicle console.

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

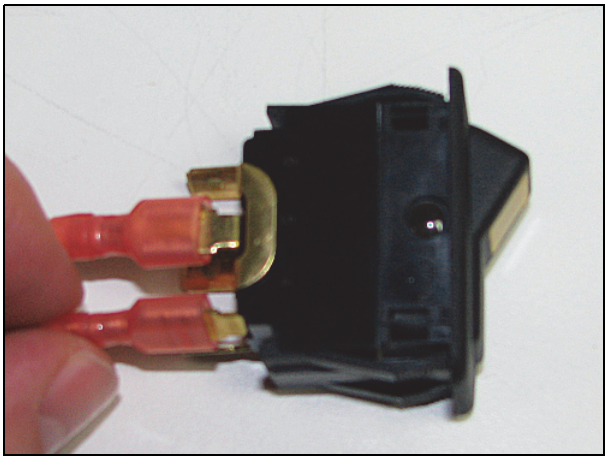


Step 2

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

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

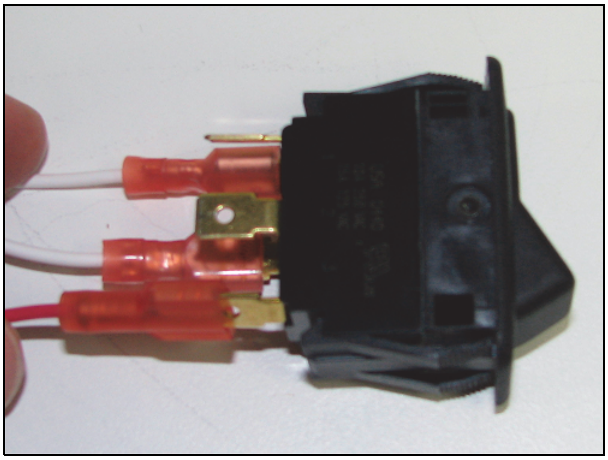
NOTE – Polarity is important.



Step 3

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

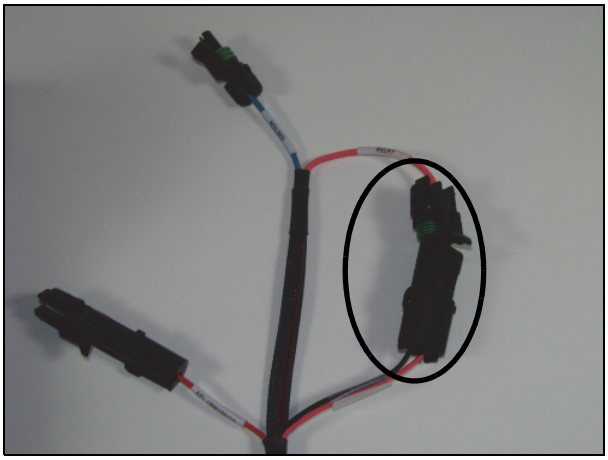
NOTE – This additional wire is required to allow the switch to illuminate.



Ignition is used to turn on the Autopilot system

Step 1

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

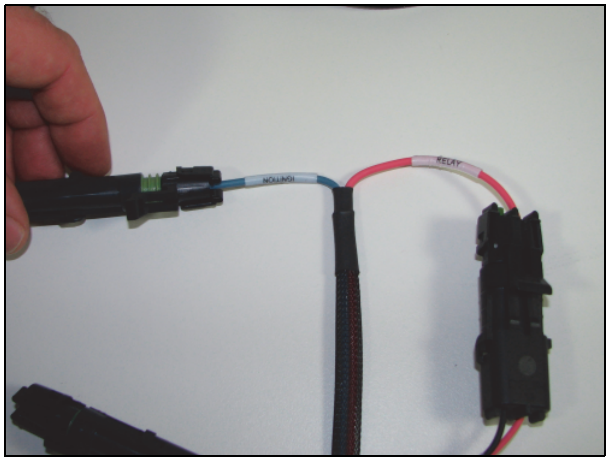


Step 2

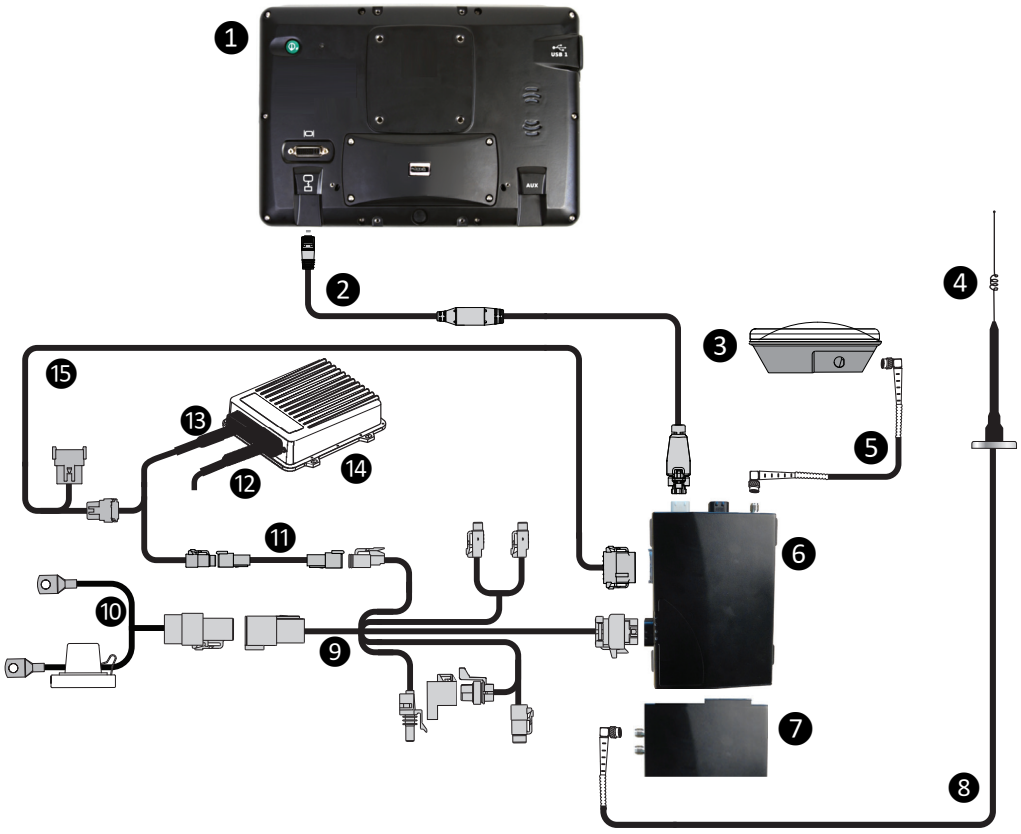
Connect the cable labeled **R8 Ignition** (included with the power bus) to connector **P3 Ignition** on the power bus.

Step 3

Route the cable to the vehicles ignition.



TMX-2050 display: Components



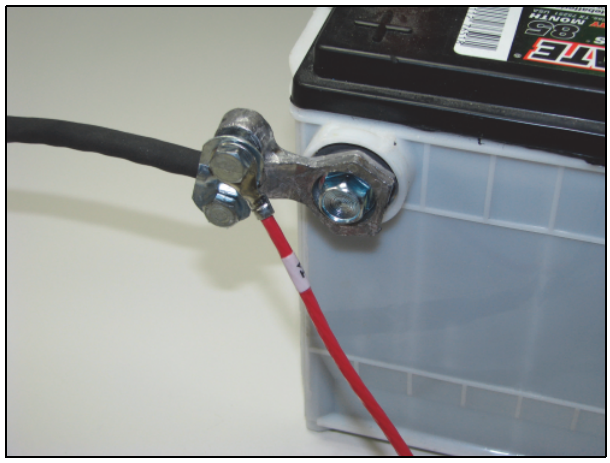
Item	Description	Trimble part number
1	TMX-2050 display	96700-00
2	TM-200 Module to display cable	93843
3	AG-25 GNSS antenna	77038-00
4	900 MHz radio antenna kit	22882-10
5	8 m GNSS TNC/TNC RT angle cable	50449
6	TM-200 Module	95060-00
7	AG-815 radio	
8	NMO-to-TNC 20 ft antenna cable and base	72122
9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

TMX-2050 display: Installing the power harness

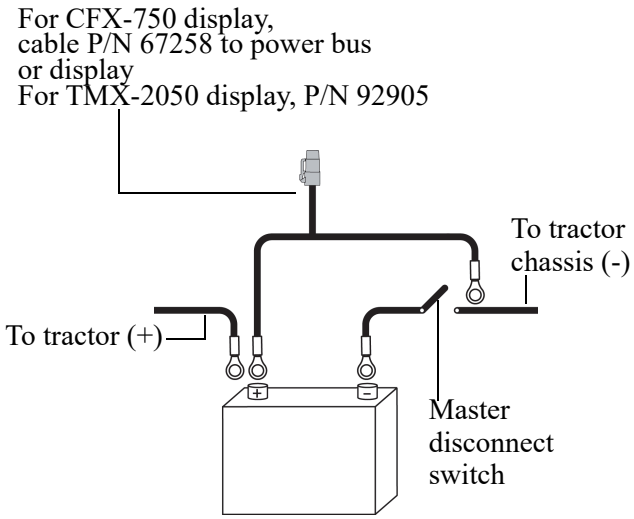
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information.

Step 1

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



⚠ **CAUTION –** If the vehicle has a master electrical disconnect, make sure the basic power cable (P/N 67258 / 92905) is not directly attached to the battery terminal that is disconnected by the master switch - the negative pole in this example.
Attach this terminal side just past the main disconnect so that it is as close as possible to the battery but still gets disconnected when the master disconnect is turned off. Failure to do so can result in damaging the display.



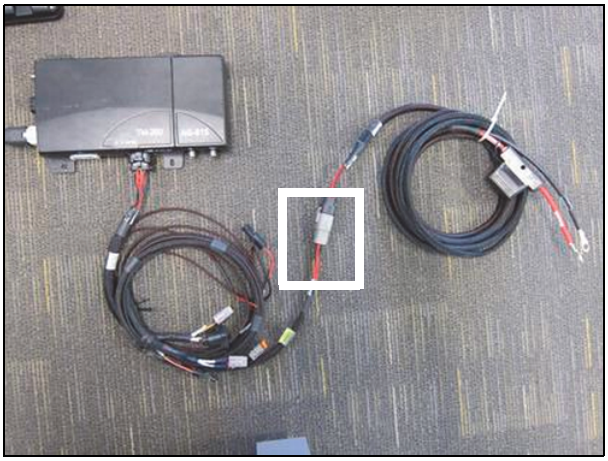
Step 2

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



Step 3

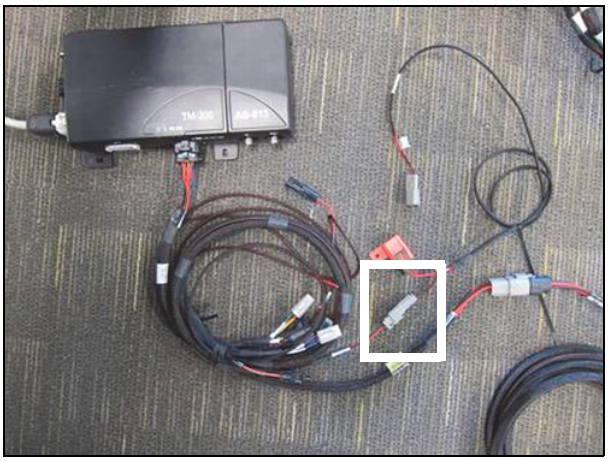
Route the power cable P/N 92905 that you previously connected to the battery and connect it to the R3 power in plug on the P/N 92676 cable.



Step 4

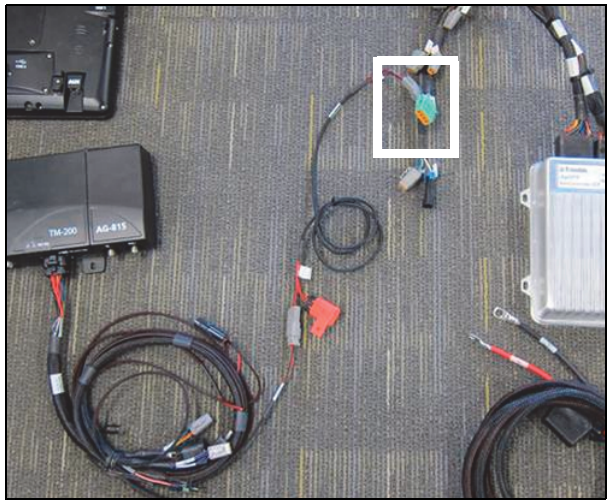
Connect the 2-pin DTM to 2-pin DT power adaptor P/N 67095 to the P2 power out connector on the P/N 92676 cable.

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



Step 5

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



TMX-2050 display: Configuring the power options

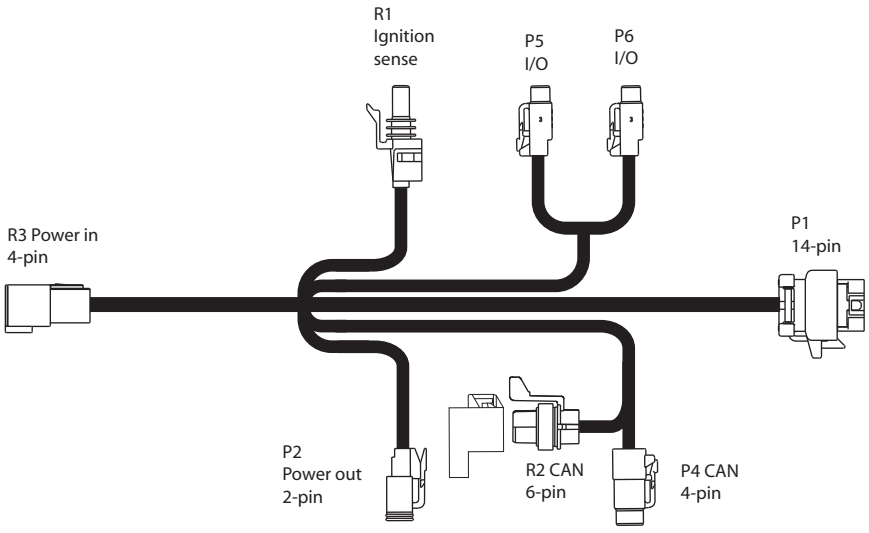
⚠ **WARNING –** To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information.

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

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

Ignition sensing

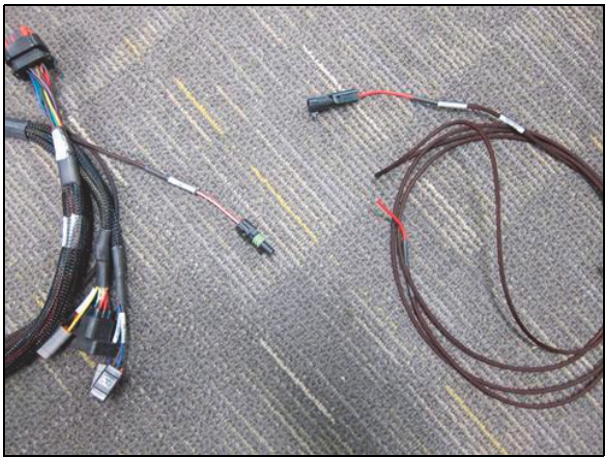
For ignition sensing with the TMX-2050 display, connect the ignition on the power supply to the R1 connector on the harness, P/N 92676.



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

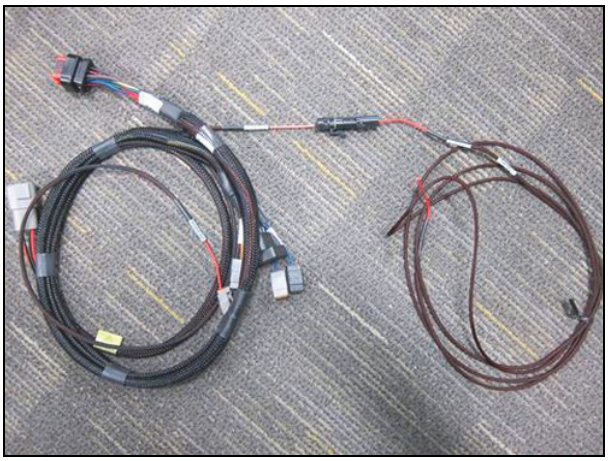
Step 1

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



Step 2

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

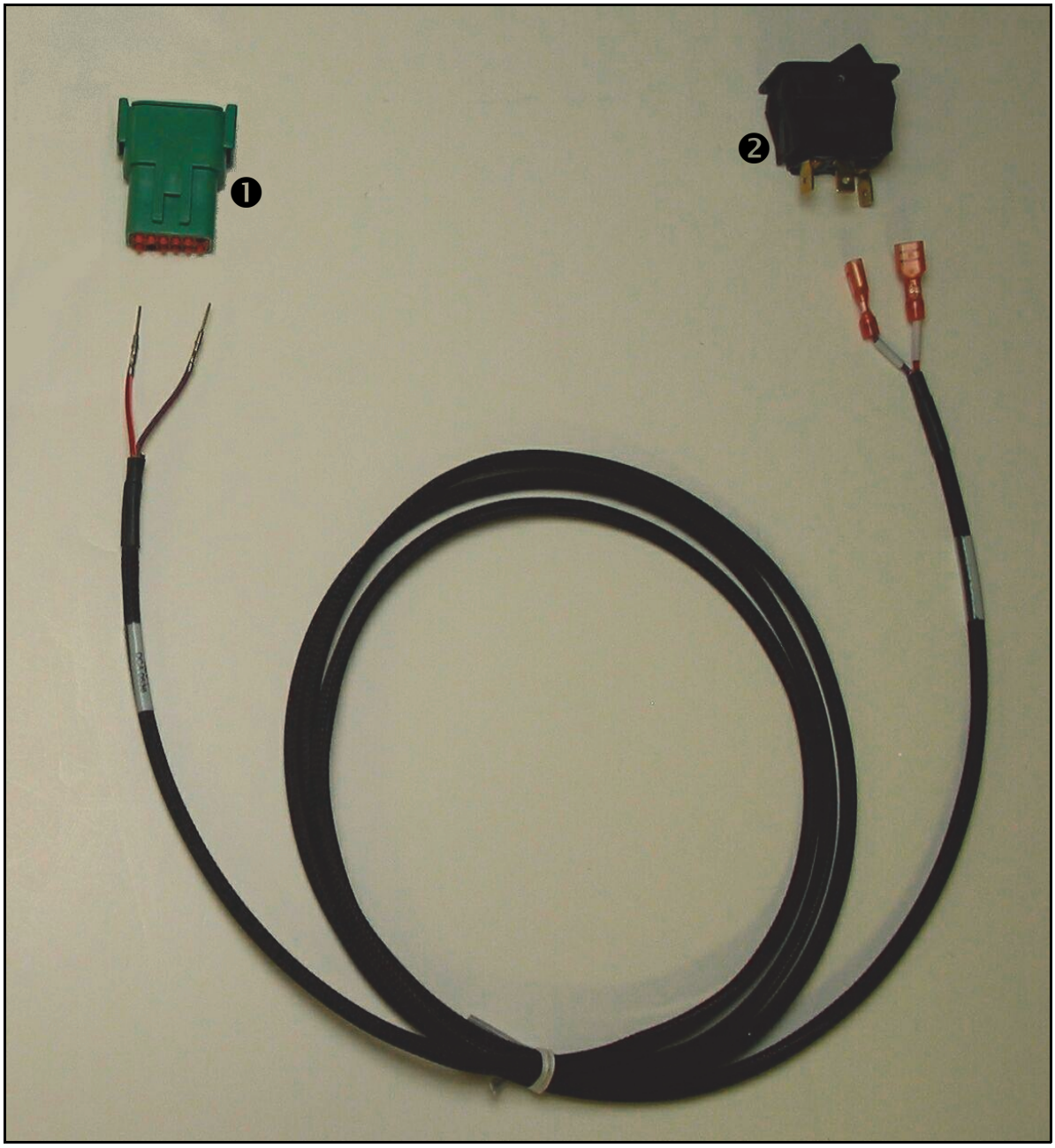


7

Remote Engage Switch Installation

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

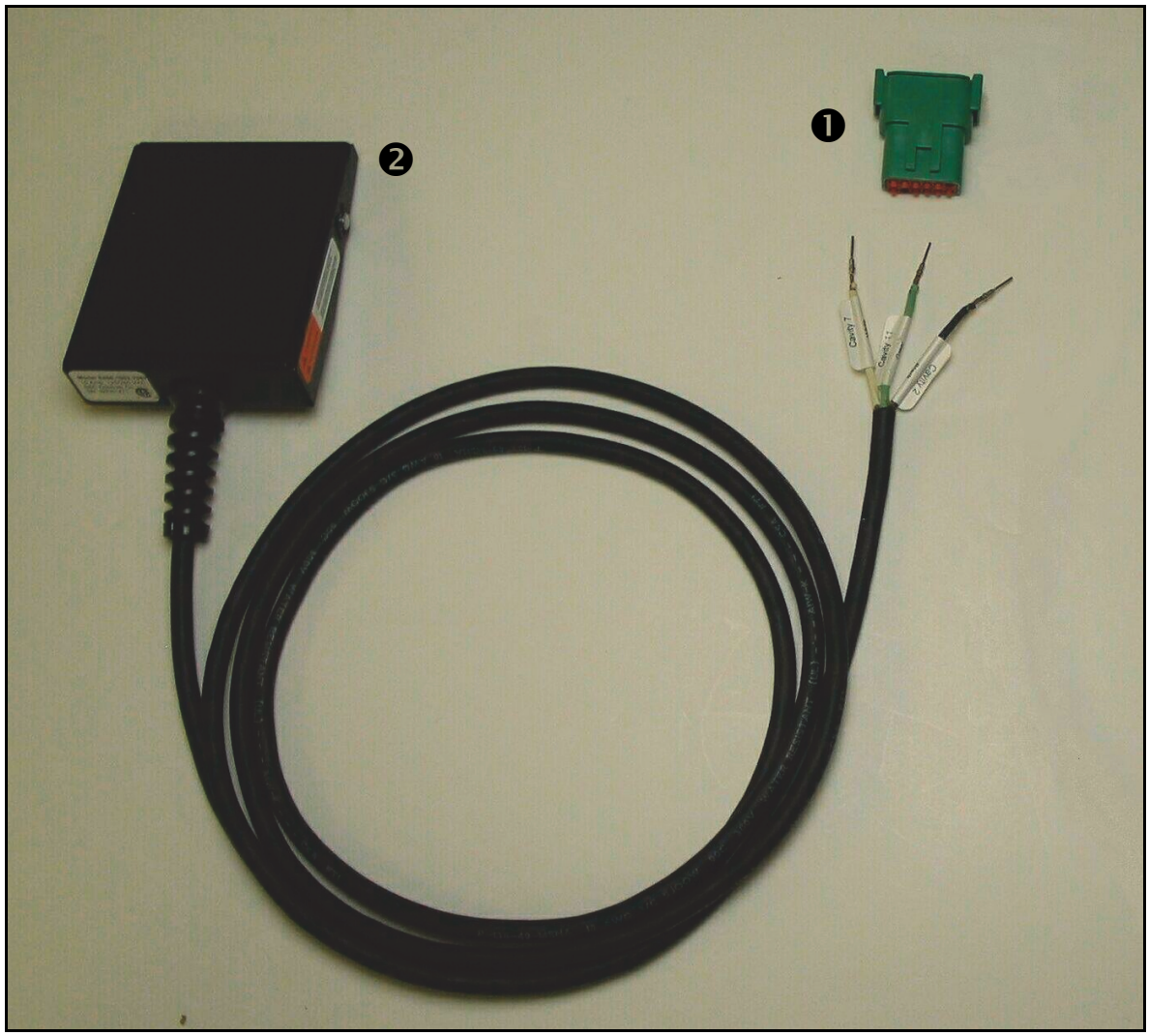
Remote engage switch components: Rocker switch



Item	Description
1	DTM receptacle
2	Remote engage rocker switch

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

Remote engage switch components: Foot switch

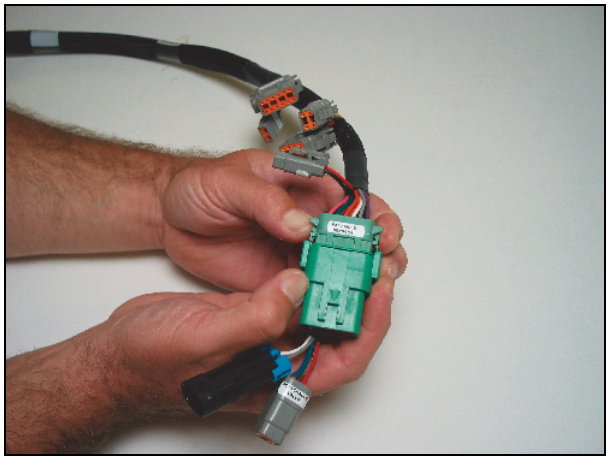


Item	Description
1	DTM receptacle
2	Remote engage foot switch

Preparing the remote engage cable

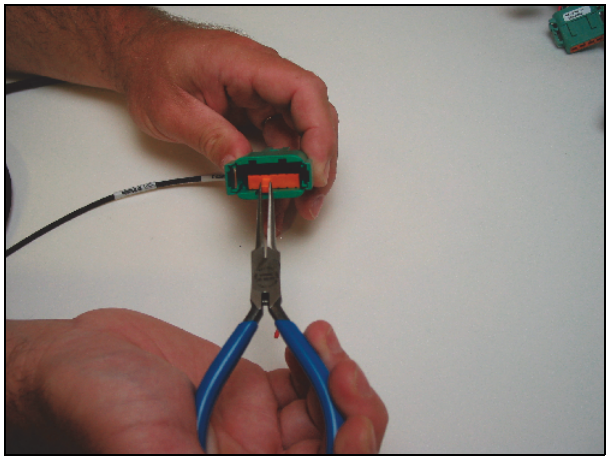
Step 1

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



Step 2

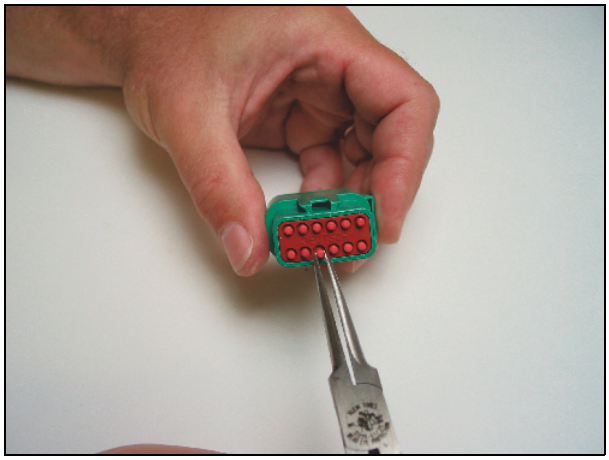
Remove the wedge from the connector.



Step 3

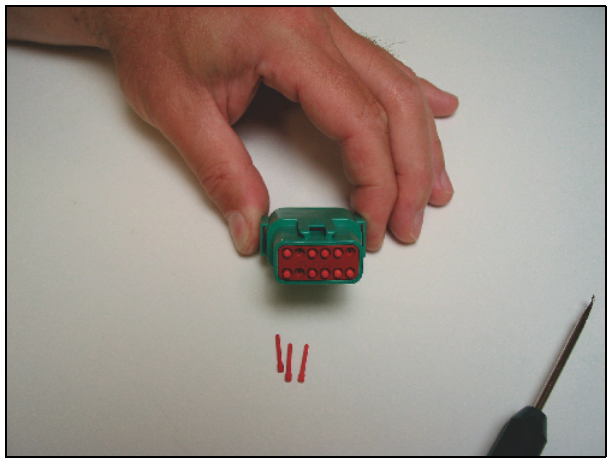
Rocker switch only

Remove the plugs from cavity 2 and cavity 7.



Foot switch only

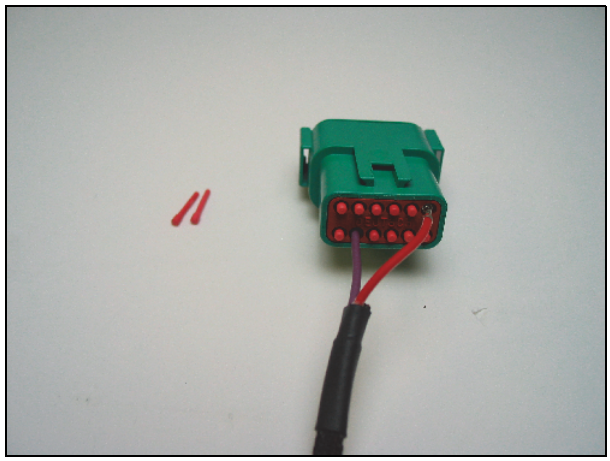
Remove the plugs from cavity 2, cavity 7, and cavity 11.



Step 4

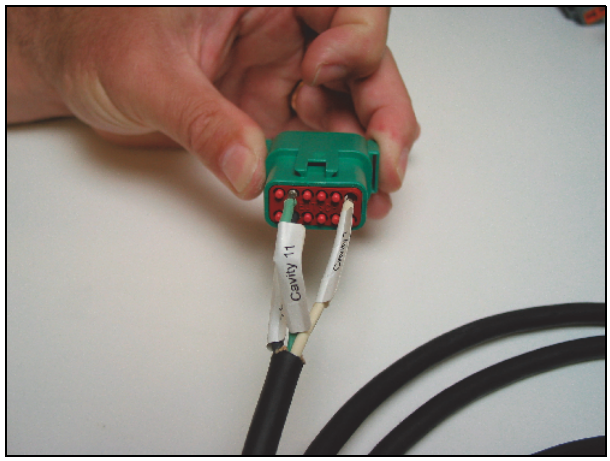
Rocker switch only

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



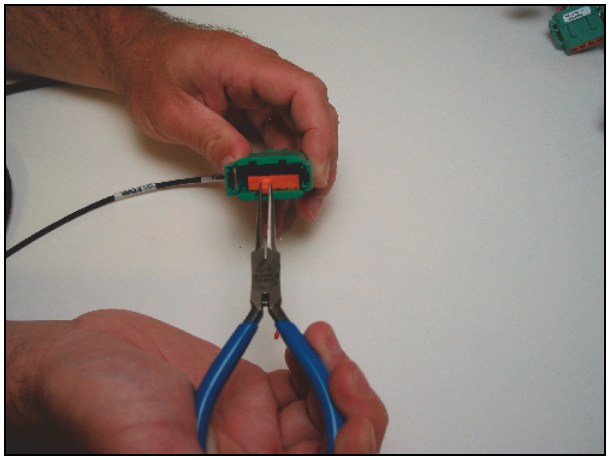
Foot switch only

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



Step 5

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



Step 6

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

Step 7

Rocker switch only

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



Foot switch only

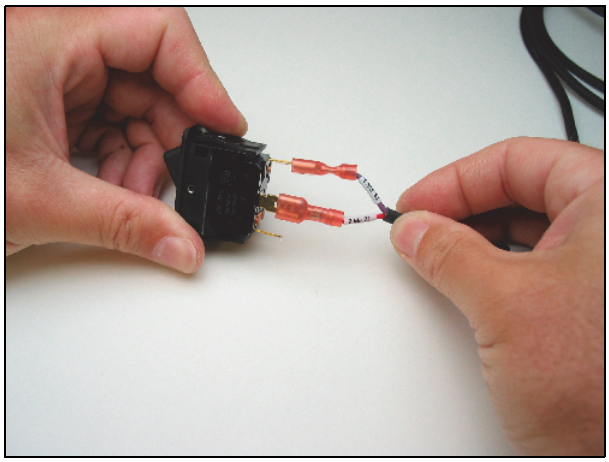
Run the cable to a clear location on the floor board. Use double-sided tape to secure the pedal. Route the cable under the floor mat.



Step 8

Rocker switch only

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



Step 9

Rocker switch only

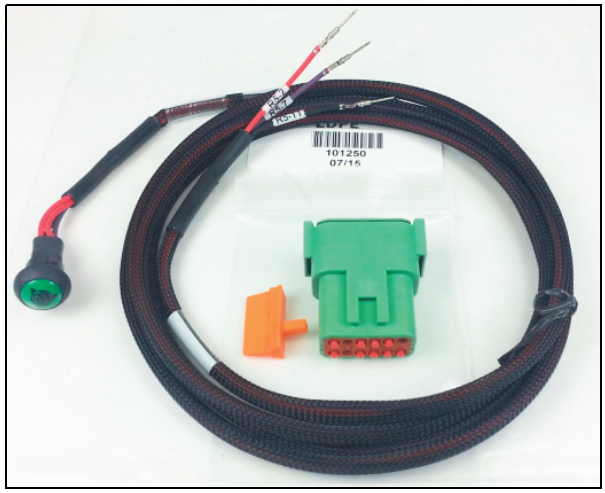
Place the switch in the console.



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

Step 1

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



Step 2

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



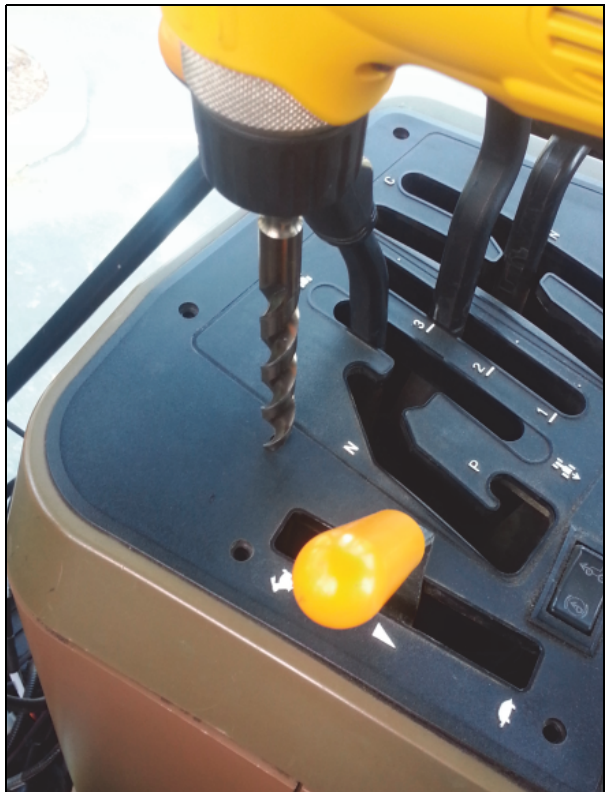
Step 3

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



Step 4

Drill a ½" hole for the switch.



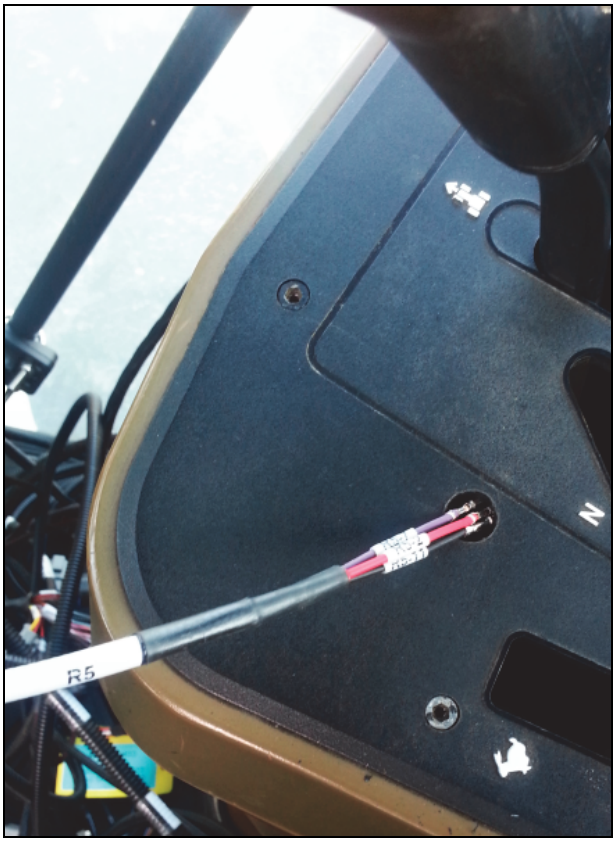
Step 5

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



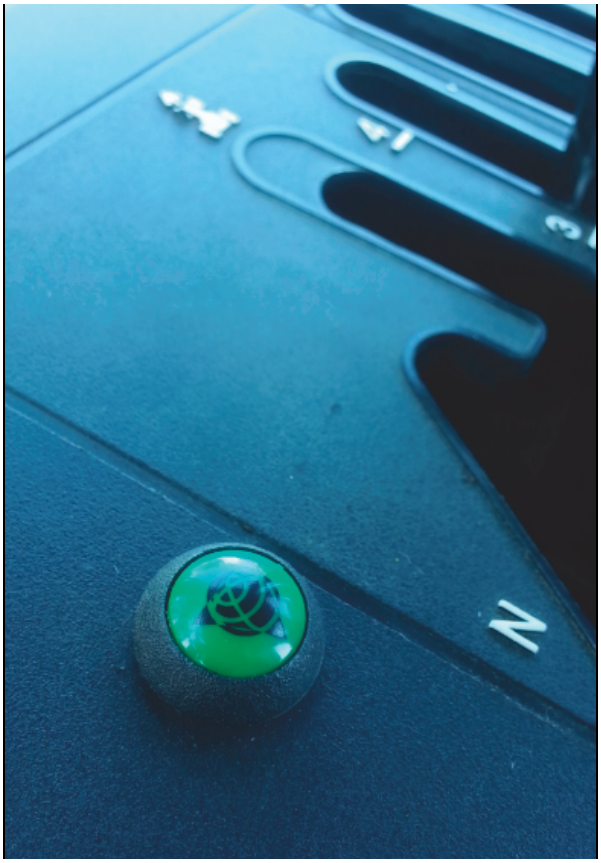
Step 6

Thread the cable through the hole in the instrument panel.



Step 7

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



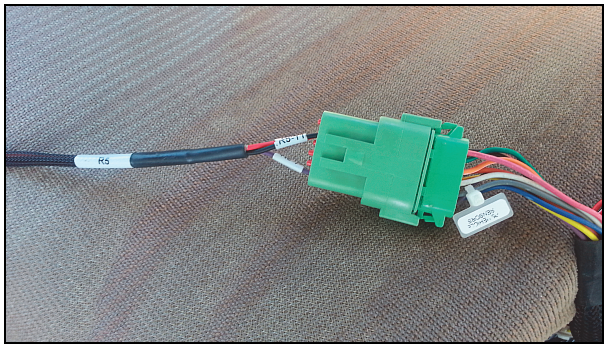
Step 8

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



Step 9

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



Step 10

Reinstall the panel and secure loose cables with wire ties.



Using the remote engage switch

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

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

The system engages when you release the switch.

8

Controller Installation

- Installing the controller
- Controller connections

Installing the controller

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

The process below describes how to install the NavController II next to the seat, along the wall of the machine, as shown.

The orientation is:

- Yaw: 270
- Pitch: 90
- Roll: 0





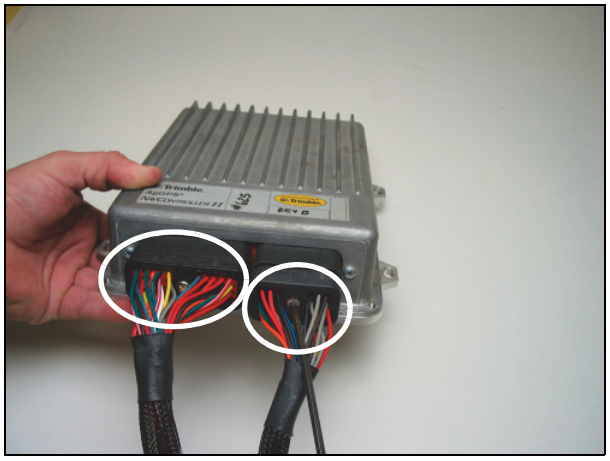
Step 1

Using the NavController II bracket as a template, carefully level the bracket then mark and drill four 5/16" holes for fixing the bracket to the machine.

Then, use the provided ¼" hardware to attach the bracket to the machine.

Step 2

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



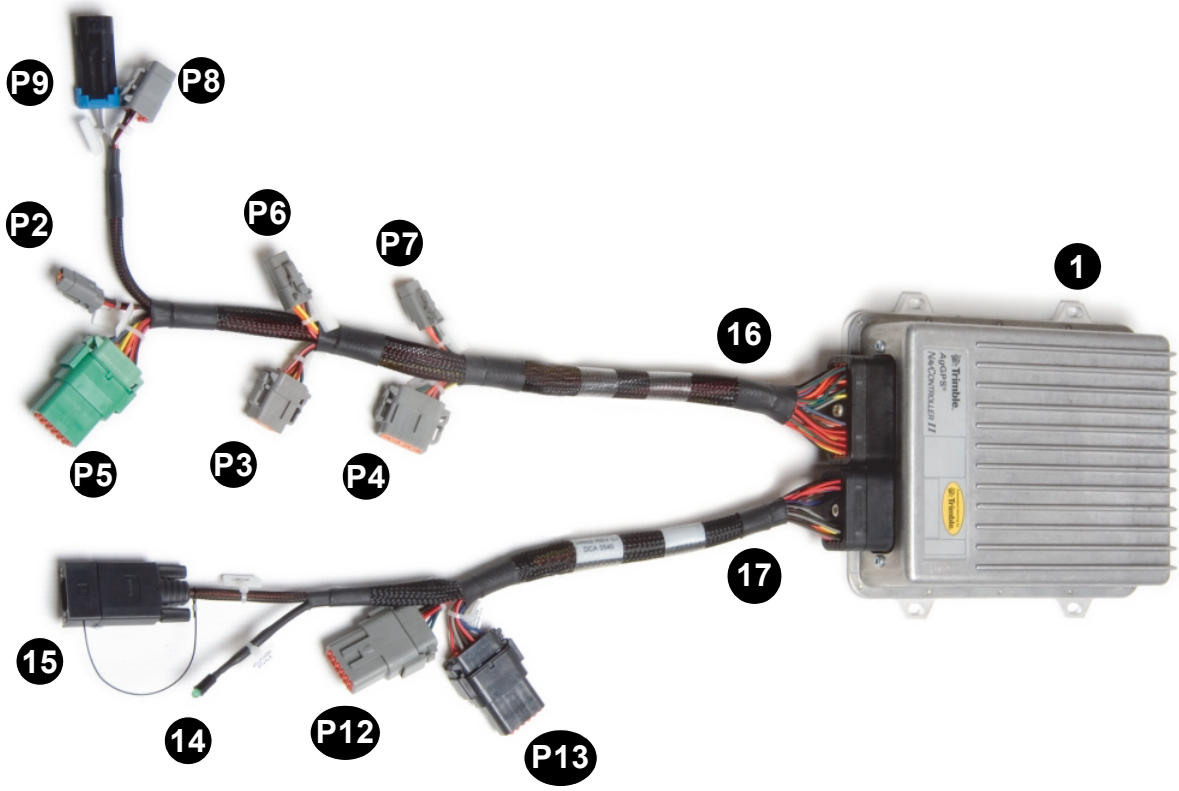
Step 3

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





Controller connections

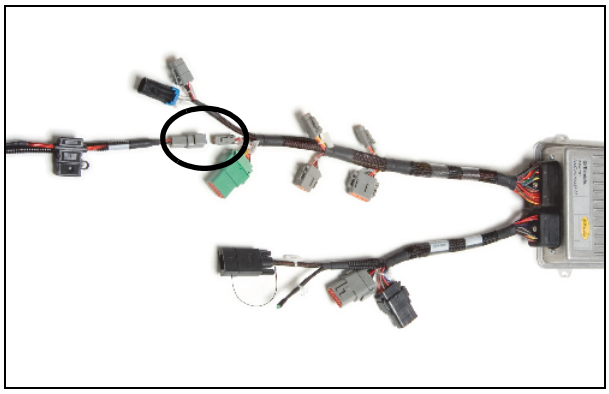


Item	Description	Item	Description
1	NavController II controller	**P9**	Sonalert connector
P2	Power connector	**P12**	Lightbar/spare connector
P3	GNSS connector	**P13**	Spare sensors connector
P4	Display connector	**14**	Status indicator
P5	Vehicle sensors connector	**15**	Laptop connector
P6	Steering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

Step 1

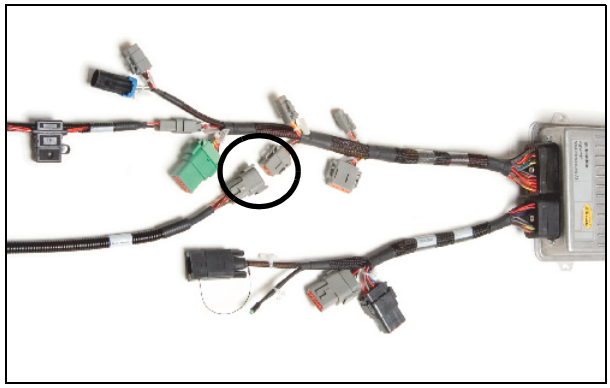
Connect the power cable connection to P2, which is labeled **Power**. P2 is located on the main wiring harness.

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



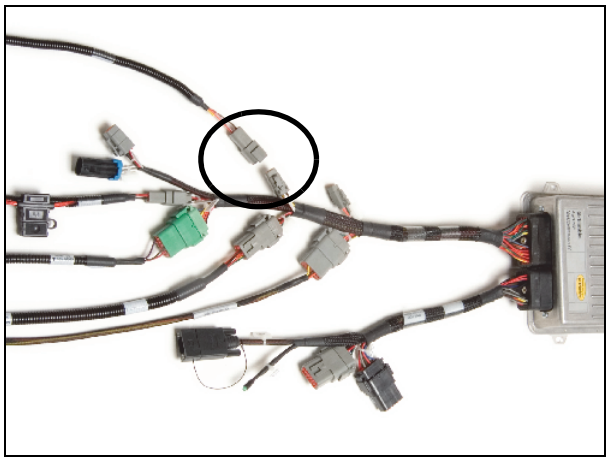
Step 2

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



Step 3

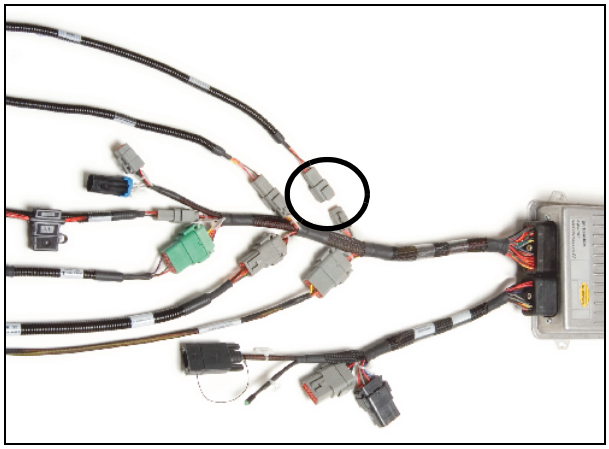
Connect the steering sensor cable connection to P6, which is labeled **Steering Sensor**. P6 is located on the main wiring harness.



Step 4

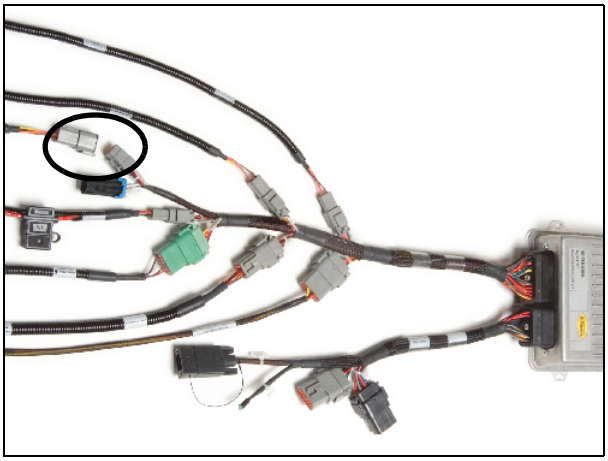
Connect the manual override cable connection to P7, which is labeled **Manual Override**. P7 is located on the main wiring harness.

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



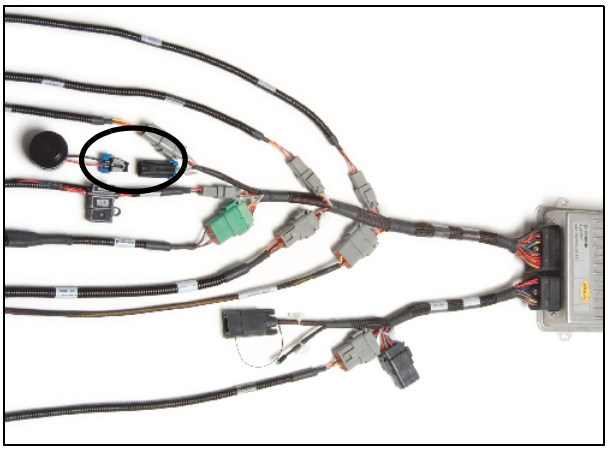
Step 5

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



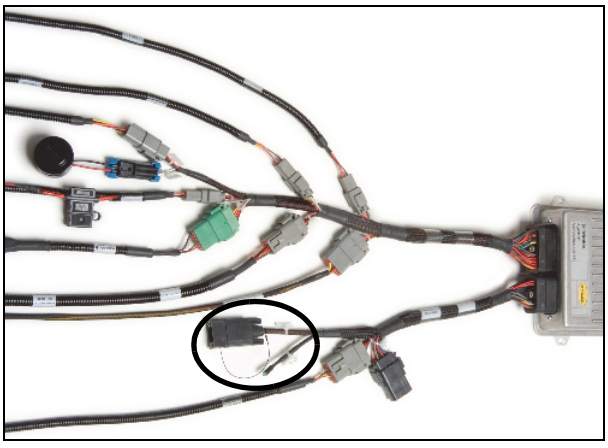
Step 6

Connect the Sonalert P9 to the 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 7

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



Step 8

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

9

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)

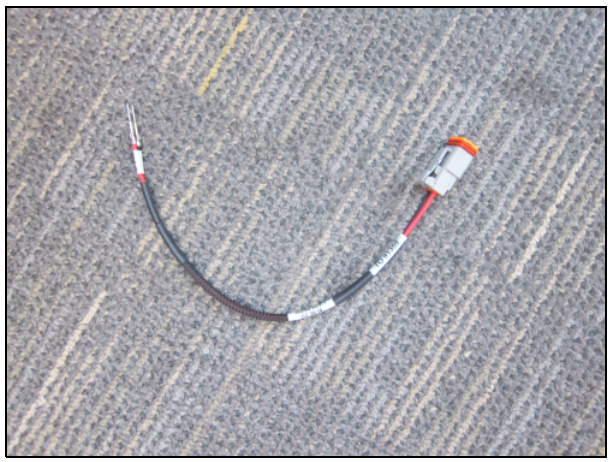
These instructions must only be completed by users familiar with operation of H4 manifold.

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)

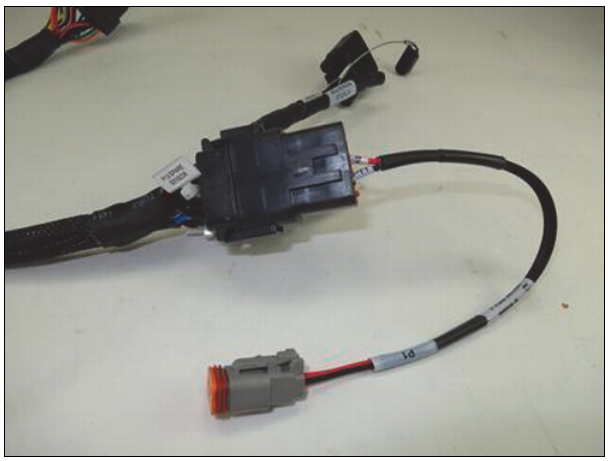
NOTE – This feature is not available with the NavController II.

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

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

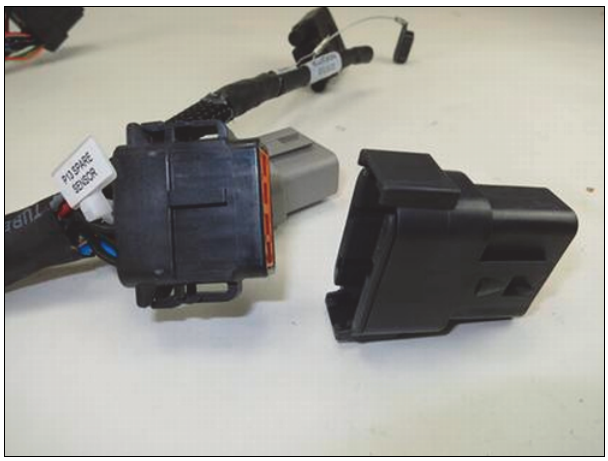
Step 1

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



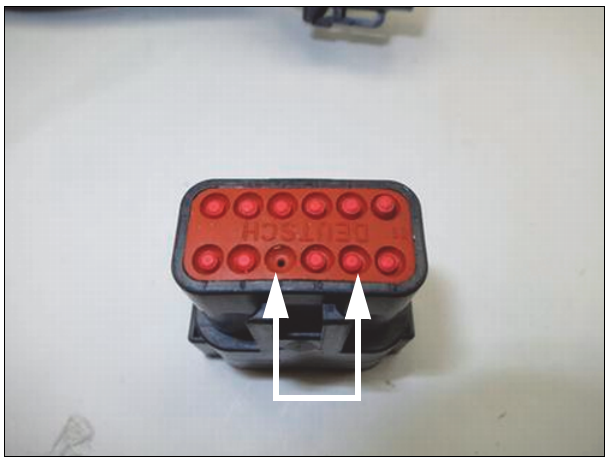
Step 2

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



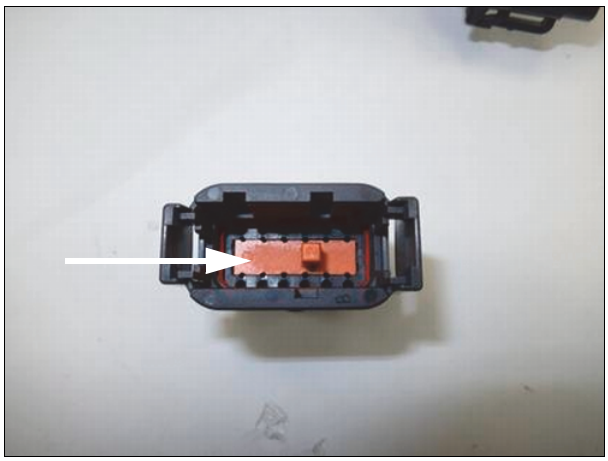
Step 3

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.



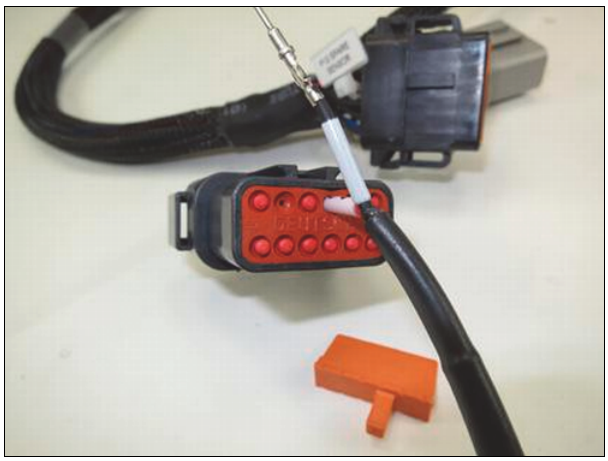
Step 5

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



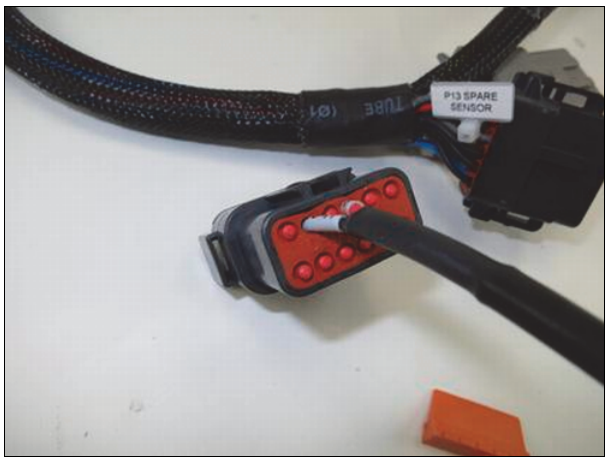
Step 6

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



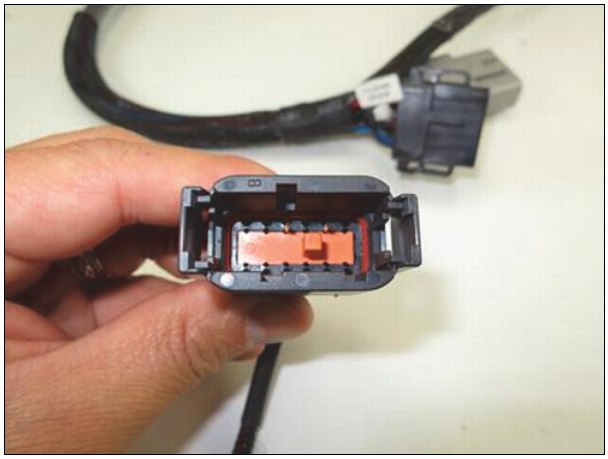
Step 7

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



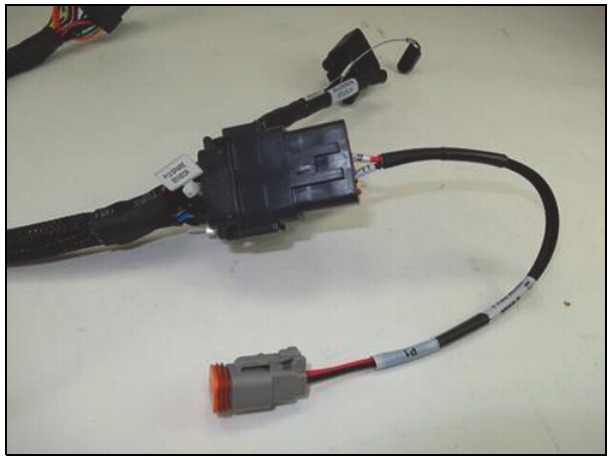
Step 8

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



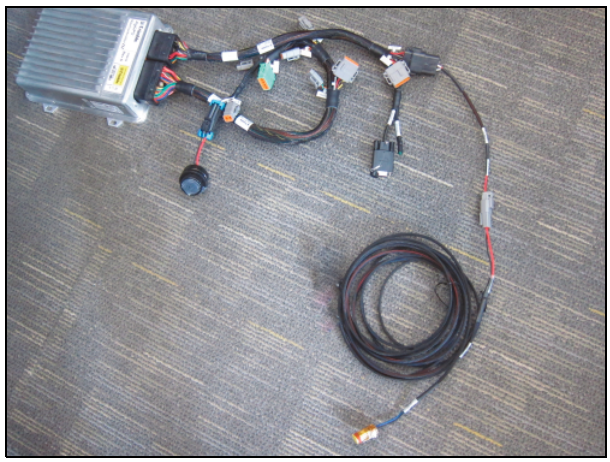
Step 9

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



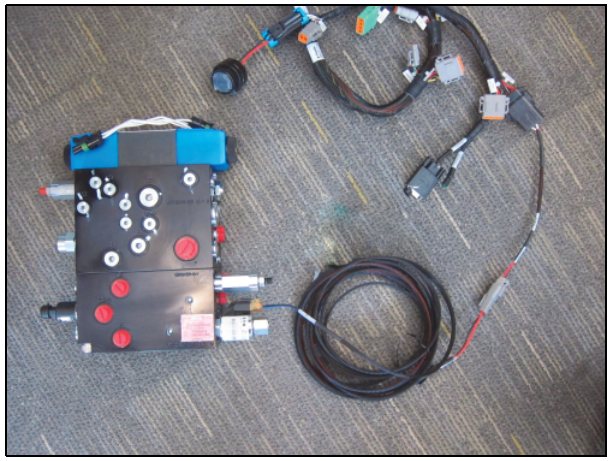
Step 10

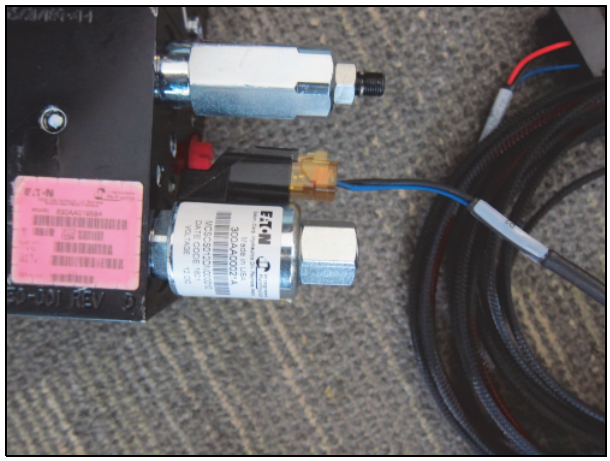
Connect the R1 connector on cable P/N 103378 to the P1 connector on cable P/N 100799.



Step 11 - Connecting to the solenoid

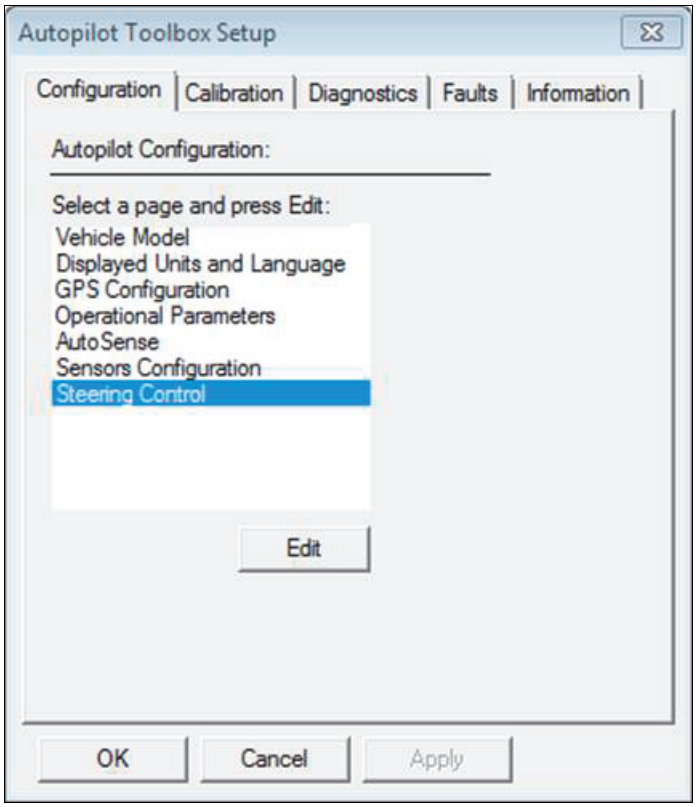
Route the P2 plug of cable P/N 103378 to the Autopilot manifold isolation solenoid and connect it as shown.



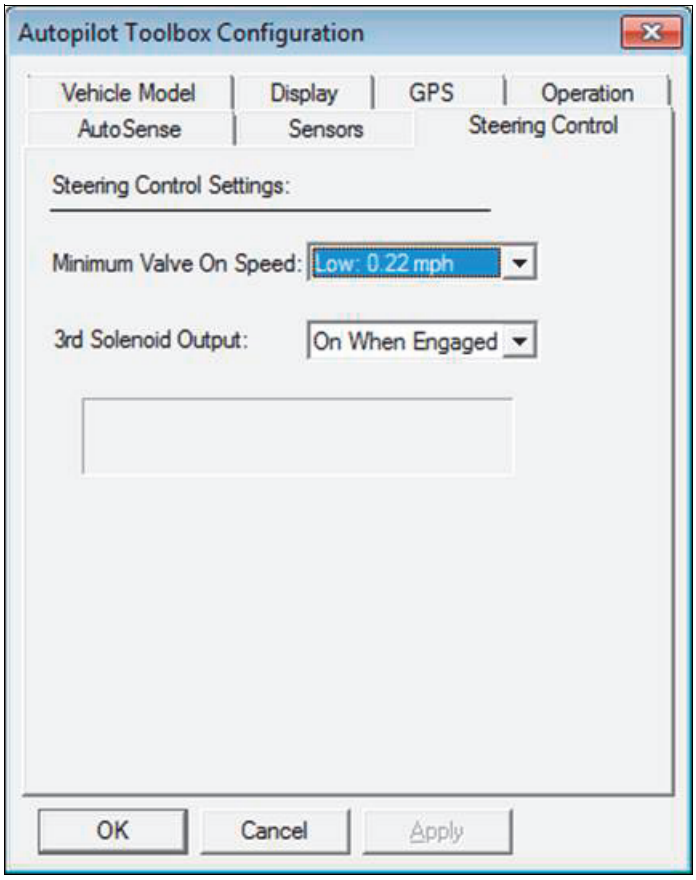


Configuring the NavController III to turn on the electronic isolation manifold

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.

Version 5.61 of TMX-2050 firmware and v1.61 of GFX-750 firmware have the third solenoid UI in both **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

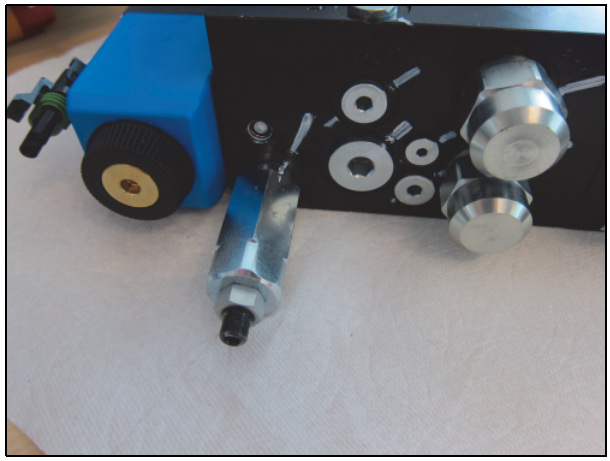
Connect the T line of the manifold to an oil tank or return line on the remote of a tractor.

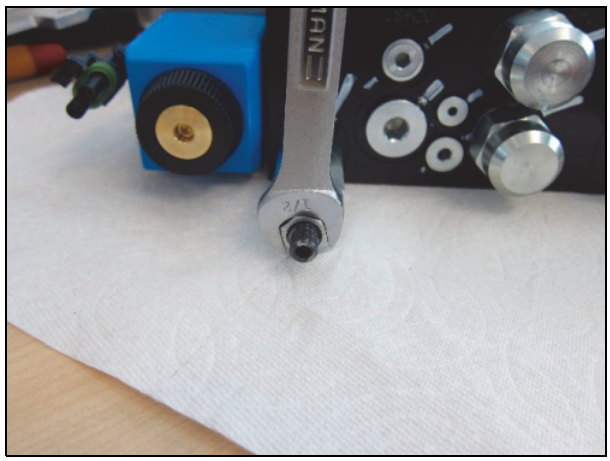
Step 4

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

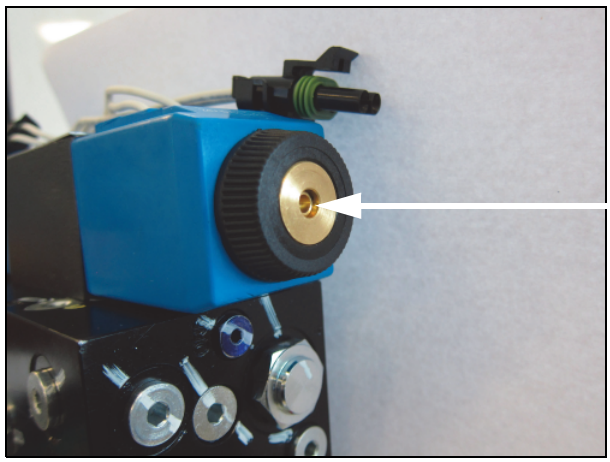
Loosen the jam nut on the LS relief valve'





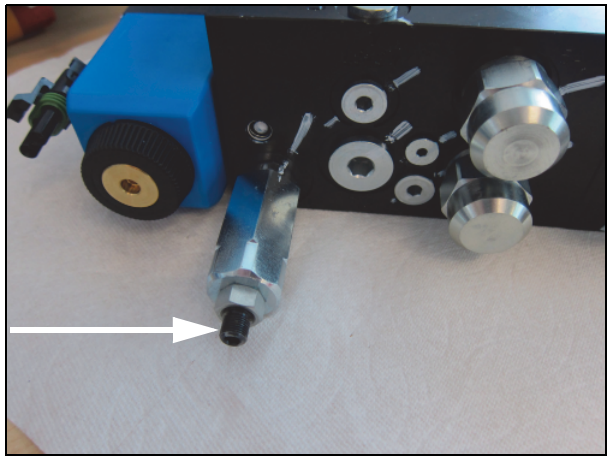
Step 6

With pressure applied to the P port (on machines with the isolation manifold, power must be applied to the isolation solenoid), 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.

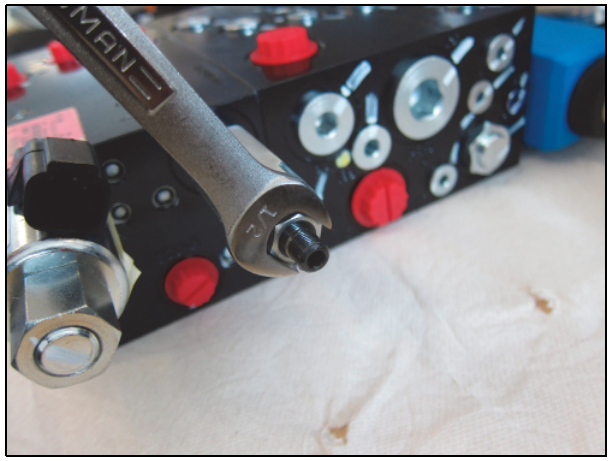
In some machines, it may be necessary to adjust the PRV setting in order to bias the cartridges more towards the manual steering or towards the Autopilot steering.

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.

10

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 .

To perform the final machine check:

1. Connect the battery.
2. Start the machine and check for hydraulic leaks. Correct as needed.
3. Update the Trimble display and the Autopilot NavController II to the latest firmware from http://agpartners.trimble.com.

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

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

   You can use Autopilot Toolbox II software version 4.02 or later to load the configuration file into the Autopilot controller. You can download the Autopilot Toolbox II software from http://agpartners.trimble.com.
5. Calibrate the Autopilot system using the Trimble display or Autopilot Toolbox II software version 4.02 or later. Depending on your machine type, the following items must be calibrated before you can use the Autopilot system:
   - NavController mounting orientation
   - Manual override
   - IMD-900 mounting orientation
   - Valve deadzone
   - Autopilot P-gain
   - Antenna height/Antenna axle offset, and Roll offset