Installation Instructions

*Ag*GPS® Autopilot™ Automated Steering System

AGCO

- **Spra-Coupe 4055**
- **Spra-Coupe 4060**
- **Spra-Coupe 4455**
- **Spra-Coupe 4460**

Version 4.00
Revision A
October 2008
Part Number 54037-56-E04

Trimble®

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Class B Statement – Notice to Users. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communication. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

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Safety Information

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



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



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

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

Warnings



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



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



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



WARNING – Vehicle cabs can be quite high in the air. Falling from this height can cause broken bones and internal injuries. To avoid falling from the vehicle, ensure that when you enter or exit the vehicle, you face the vehicle and use the steps and handrails.

Cautions



CAUTION – When the vehicle has been running, parts of the vehicle, including the engine and exhaust, can become extremely hot. These hot parts 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. These can cause poisoning. Ensure that you wash you hands thoroughly after you have finished working on the system.



CAUTION – Battery posts, terminals, and related accessories contain lead and lead compounds. Lead poisoning can cause lowered intelligence and kidney problems. To avoid ingesting lead, ensure that you wash you 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 proper protective welders clothing if you want to complete any 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 sprayer 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.

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CHAPTER

1

Introduction

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

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

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

Technical assistance

1. If you have a problem and cannot find the information you need in the product documentation, contact Trimble technical support:
2. Go to the Trimble website (www.trimble.com).
3. Hover over the *Support and Training* link at the top of the screen. The list of Support and Training options appears.
4. Click the *Support A–Z List* link. The list of products appears.
5. Scroll to the bottom of the list.
6. Click the *Submit An Inquiry* link. A form appears.
7. Complete the form and then click **Send**.

Manual system upgrade to Autopilot

*Ag*GPS 150 EZ-Guide Plus lightbar

Retain	Remove
*Ag*GPS 150 EZ-Guide® Plus lightbar	
Antenna for *Ag*GPS 150 EZ-Guide Plus lightbar	
Antenna to receiver cable	
(Optional) Remote keypad	

EZ-Guide 500 manual guidance upgrade

Retain	Remove
EZ-Guide 500 lightbar	Power cable (for modification)
Antenna for EZ-Guide 500 lightbar	
Antenna to receiver cable	
(Optional) Remote keypad	

Required components

Kits required	Special tools
Platform kit: P/N 54037-56	$^{5}/_{16}$" drill bit
Hydraulic hose kit: P/N 63215	$^{9}/_{16}$" drill bit
Roof bracket kit: P/N 53676	Allen wrench set (metric and SAE)
	Cut-out tool or die grinder for standard Euro switch

Antenna mounting kits

Antenna options
Antenna spar mount: P/N 53676
Antenna V plate mount and *Ag*GPS 252 receiver magnetic mount: P/N 62388-01 (includes magnets for quick release of the AgGPS 252 receiver – see Chapter 2, Hydraulic Control Valve Installation).

Autopilot hardware organization: As shipped

Hardware	Component	See...
Platform kit **(P/N 54037-56)**	Hydraulic valve	Chapter 2
	Hydraulic manifold	Chapter 2
	Transducer flow switch	Chapter 2
	Manual override cable	Chapter 2
	Hydraulic brackets and bolt kits	Chapter 2
	Hydraulic valve cable	Chapter 2
	AutoSense steering device and cabling	Chapter 3
	AutoSense mounting bracket and hardware	Chapter 3
	Power cable and switch	Chapter 6
	Controller mounting bracket	Chapter 8
	Bolt kit controller	Chapter 8
Common parts	Controller	Chapter 8
	Cable kit: • Main wiring harness • Auxiliary wiring harness • Sonalert alarm	Chapter 8
GPS receiver	GPS receiver	Chapter 4
	GPS antenna	Chapter 4
	GPS receiver mounting bracket	Chapter 4
	GPS receiver power/data cable	Chapter 4
	RTK radio, cable, and radio antenna	Chapter 4
Display	*Ag*GPS FieldManager display	Chapter 5
	EZ-Guide 500 lightbar	Chapter 5
	Display cable	Chapter 5
	Mounting bracket	Chapter 5
	*Ag*GPS 150 lightbar	Chapter 5
Hydraulic hose kit **(P/N 63215)**	Hydraulic hoses	Chapter 2
	Hydraulic adaptors	Chapter 2
Roof bracket kit **(P/N 53676)**	Roof brackets	Chapter 4
	Bolt kit, roof bracket	Chapter 4

Autopilot hardware organization: As installed

Hardware	Component	See...
Hydraulics	• Hydraulic valve, manifold, pressure transducer, or flow switch • Hydraulic valve cable • Manual override cable • Hydraulic brackets and bolt kits	Chapter 2
AutoSense steering device	• AutoSense steering device and cabling • AutoSense mounting brackets and hardware	Chapter 3
GPS receiver	• GPS receiver • GPS antenna • GPS receiver mounting bracket • GPS receiver power/data cable • Roof brackets	Chapter 4
Display	• EZ-Guide 500 lightbar • *Ag*GPS FieldManager display • Display cable(s) • Mounting bracket • EZ-Guide Plus lightbar	Chapter 5
Power	• Power cable and switch	Chapter 6
Controller	• Controller • Mounting plate • Bolt kit - controller • Main wiring harness • Aux. wiring harness • Sonalert alarm	Chapter 8

Preparing the vehicle for installation

Step 1

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

Step 2

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

Step 3

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

Step 4

Open all kit boxes and check the contents of the box against the packing list/s. Lay all of the parts out on a clean workbench.

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

Your comments

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

CHAPTER

2

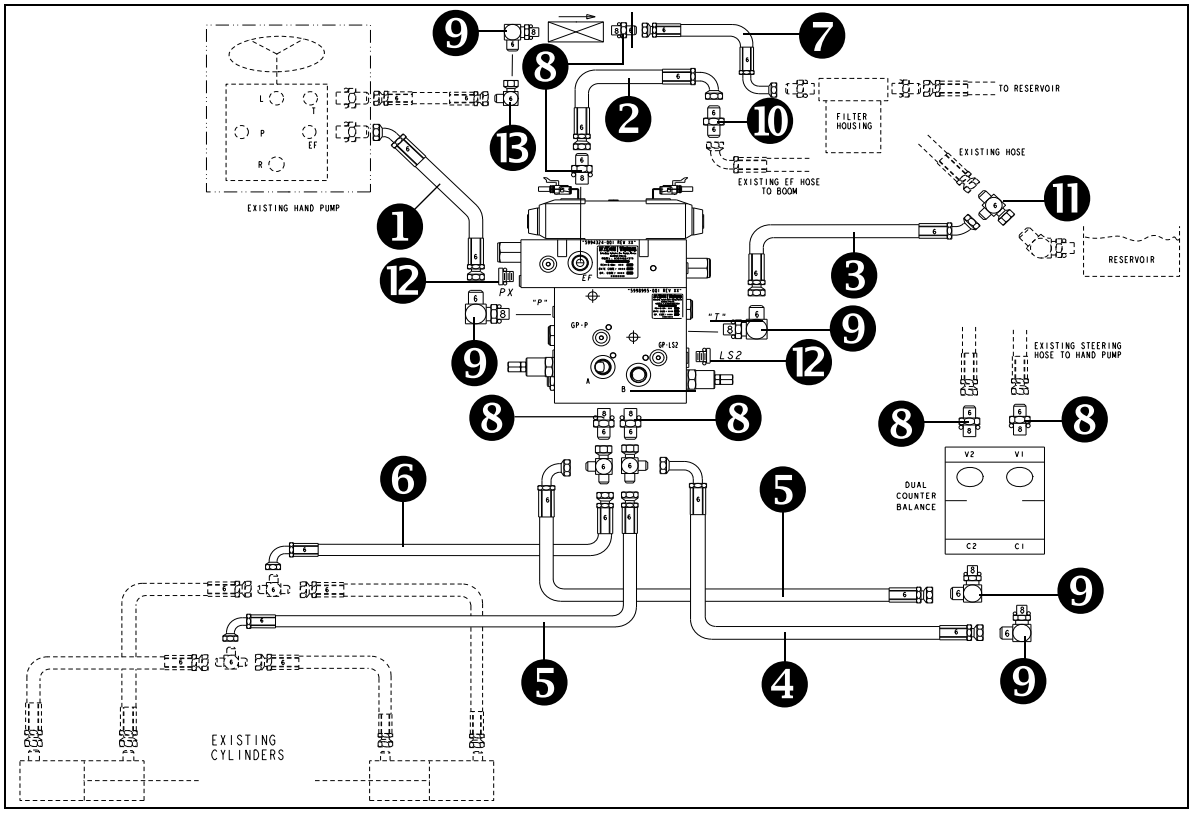
Hydraulic Control Valve Installation

In this chapter:

- Hydraulic components
- Preparing the manifold, hydraulic control valve, and the bypass valve
- Preparing the counterbalance valve
- Installing the hydraulic manifold
- Installing the hydraulic hoses
- Attaching the electrical connections
- Setting the pressure relief valve

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

Hydraulic components



Item	Description	Part number
❶	78 inch hose	F451TC0637-06-06-06-78
❷	67 inch hose	F451TC0639-06-06-06-67
❸	58 inch hose	F451TC0637-06-06-06-58
❹	18 inch hose	F451TC0641-06-06-06-18
❺	16 inch hose (x2)	F451TC0639-06-06-06-16
❻	15 inch hose	F451TC0639-06-06-06-15
❼	9 inch hoses	F451TC0641-06-06-06-9

Item	Description	Part number
❽	Fitting (x6)	6-8 F50X-S
❾	Fitting (x5)	6-8 C50X-S
❿	Fitting	6 HTX-S
⓫	Fitting	6 R6X-S
⓬	Fitting (x2)	4 HP50N-S
⓭	Fitting	6 C6X-S

Note – *Part numbers are Parker numbers and are for reference only.*

Preparing the manifold, hydraulic control valve, and the bypass valve

Note – *Place the hydraulic control valve and manifold on a clean work surface. Ensure the cartridge and orifice remain very clean. Any small particles introduced into the system can cause obstruction.*

Step 1

Locate the pre-configured main manifold and PFR sandwich valve.



Step 2

Install the following fittings:

❶ -6 JIC 90° fitting into the T port

❷ -4 ORB plug into the LS2 port



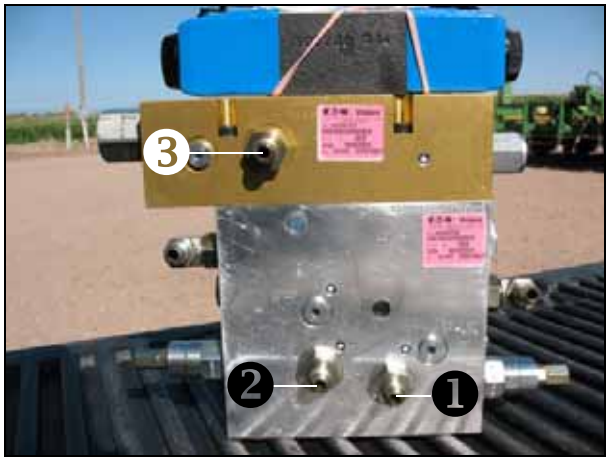
Step 3

Install the following fittings:

❶ -6 JIC straight into the B port

❷ -6 JIC straight into the A port

❸ -6 JIC straight into the EF port



Step 4

Insert a -6 JIC 90° fitting into the P port ❶.



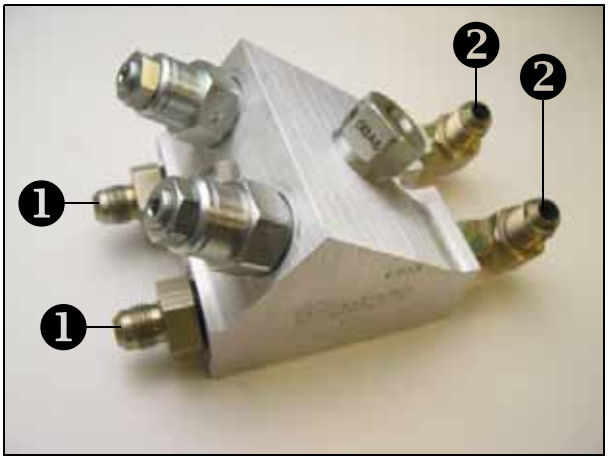
Preparing the counterbalance valve

Step 1

Install the following fittings to the counterbalance valve:

❶ -6 JIC straight to the V1 and V2 ports

❷ -6 JIC 90° to the C1 and C2 ports



Step 2

Install the -4 ORB plug into the shuttle port.



Installing the hydraulic manifold

Step 1

Locate the hydraulic manifold mounting area on the right side of the hood frame.



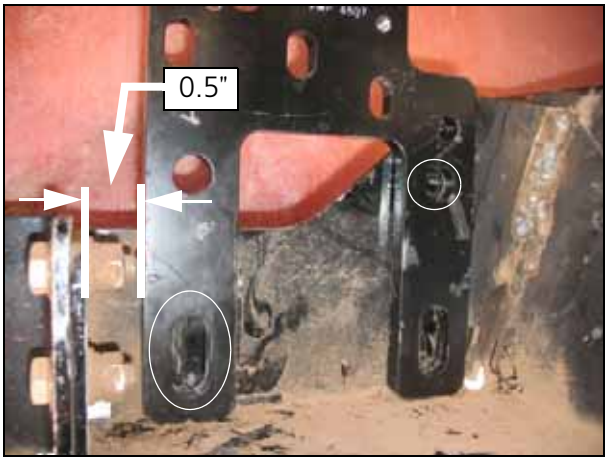
Step 2

Position the bracket on the right frame rail.



Step 3

Use the supplied guidelines to position the bracket and mark the upper right and lower left holes.



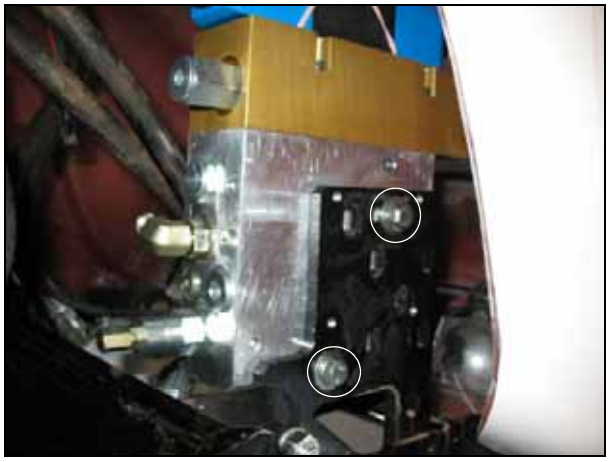
Step 4

Drill two $^{9}/_{16}$" holes and secure the bracket with $^{1}/_{2}$" x 1 $^{1}/_{2}$" long bolts, washers and lock-nuts.



Step 5

Mount the manifold to the bracket using the supplied $^{3}/_{8}$" bolts and the blind tapped holes on the rear of the manifold.



Installing the hydraulic hoses

Steering cylinder connections

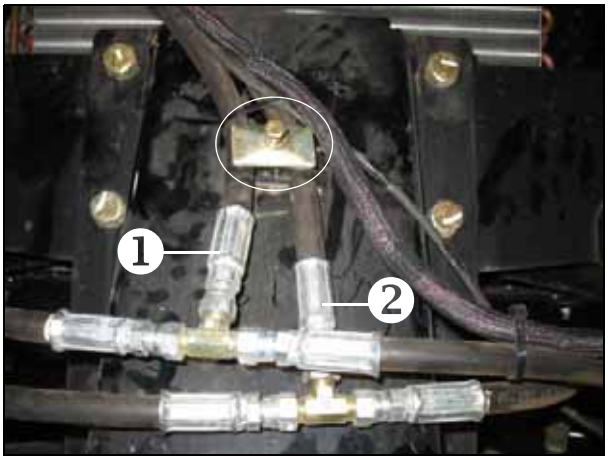
Step 1

Locate the steering line tap points.



Step 2

Label and disconnect the left ❶ and right ❷ steering lines at the unions and the hose ends. Remove the hose clamp and bolt.



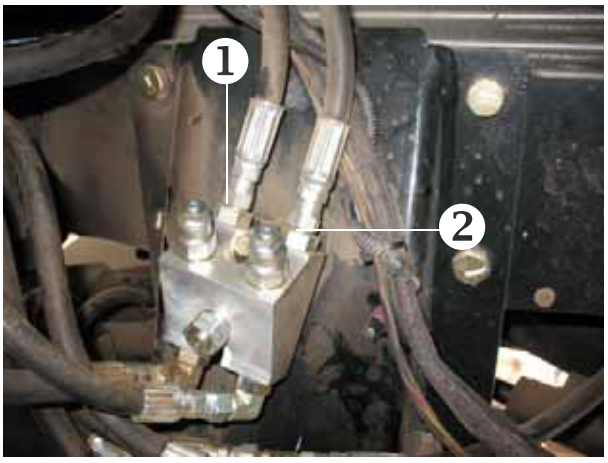
Step 3

Install the dual counterbalance manifold to the existing hose clamp threaded tap. Use the $^{5}/_{16}$" x 2" long hex head cap screw provided and the existing lock-washer to secure the manifold.



Step 4

Connect the left hose ❶ from the steering pump to the V2 port and the right hose ❷ to the V1 port.



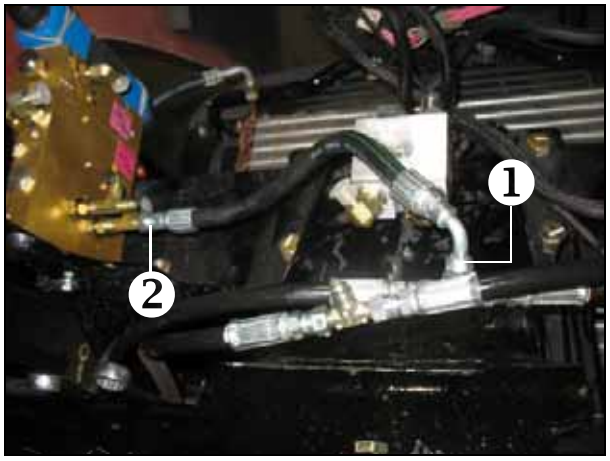
Step 5

Install two run tees to the A and B ports.



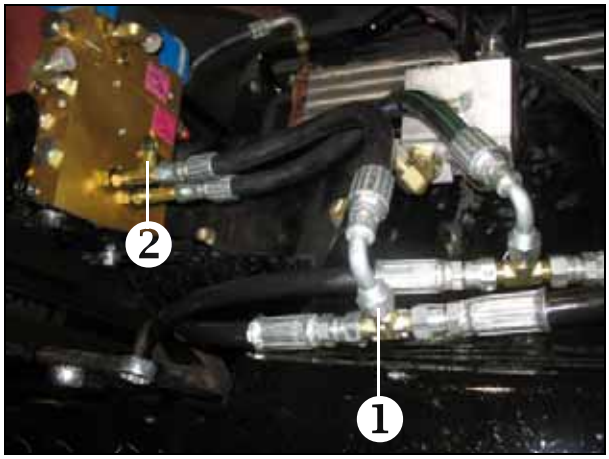
Step 6

Connect the 16" long hose from the right steering cylinder union tee ❶ to the manifold B port tee ❷ as shown.



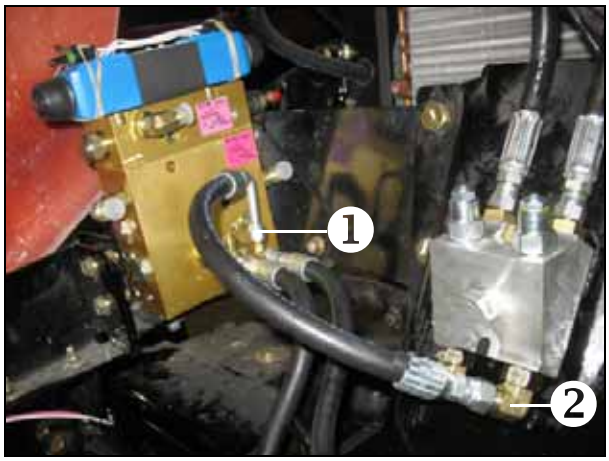
Step 7

Connect the 15" long hose from the left steering cylinder union tee ❶ to the manifold A port tee ❷ as shown.



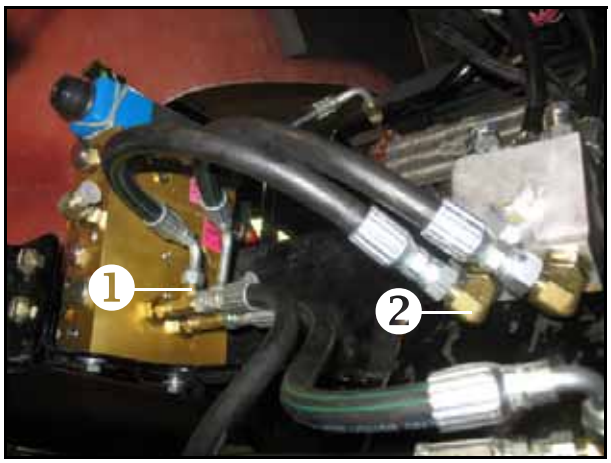
Step 8

Connect the 18" long hose from the manifold B port tee ❶ to the counter balance C1 port ❷ as shown.



Step 9

Connect the 16" long hose from the manifold A port tee ❶ to the counter balance C2 port ❷ as shown.



Pressure and excess flow connections

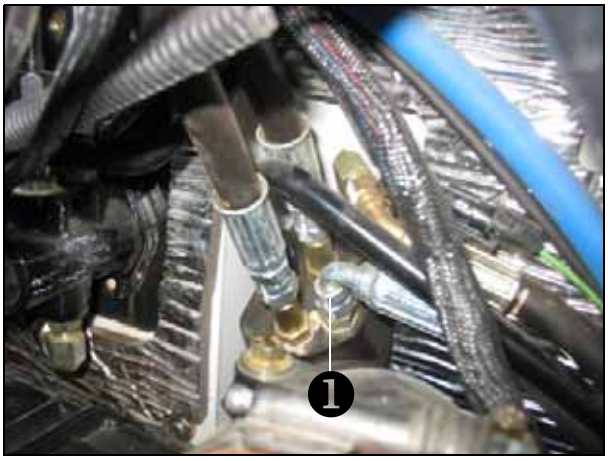
Step 1

Locate the steering hand pump.



Step 2

Identify and label the EF port ❶ on the hand pump. Disconnect and label the hose end.



Step 3

Disconnect the hose and remove the lower fitting to access the EF line.



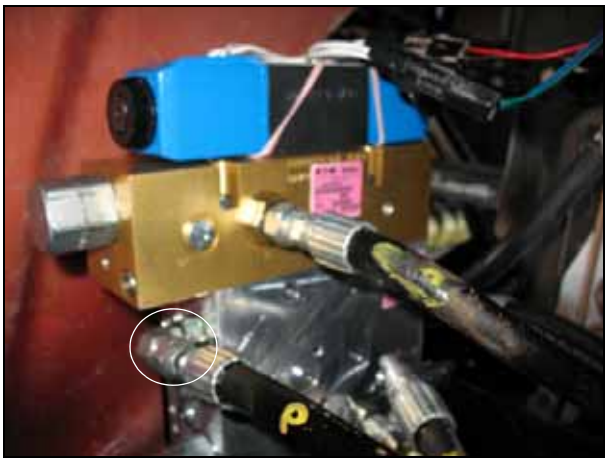
Step 4

Connect the -6 JIC female 45° end ❶ of the 78" kit supplied hose to the hand pump EF fitting.



Step 5

Connect the opposite end of the 78" hose from the hand pump to the *Ag*GPS manifold P port.



Step 6

Reinstall the fitting and hose previously removed.



Step 7

Add a male-to-male union to the existing hose that was disconnected from the hand pump.



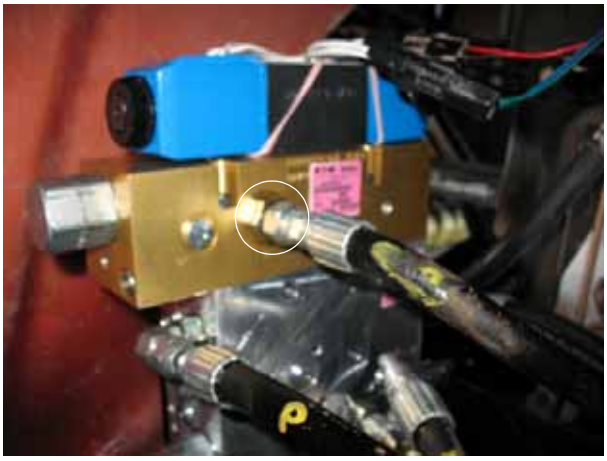
Step 8

Join the 90° end of the kit supplied 67" hose to the union. Route the hose to the manifold.



Step 9

Connect the 67" hose to the EF port on the manifold.



Step 10

Route the hoses along existing lines as shown.



Step 11

Remove material as required.



Tank connections

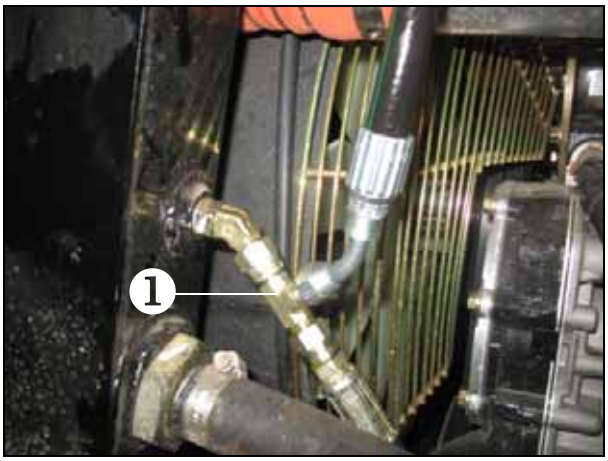
Step 1

Locate the hydraulic reservoir on the left of the engine.



Step 2

Install a -6 JIC run tee ❶ to the existing return line.



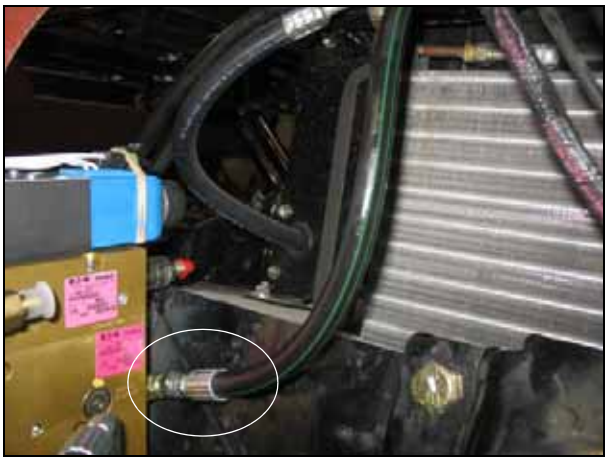
Step 3

Connect the 45° swivel end of the 58" kit supplied tank hose to the tee. Route the hose to the manifold.



Step 4

Connect the tank line to the T port on the manifold.



Step 5

Secure the hoses with cable ties to avoid interference with the radiator or coolers.



Manual Over-ride Connections

Step 1

Install the following fittings to the flow switch:

❶ -6 JIC x 8 ORB 90° to the upstream end.

❷ -6 JIC x 8 ORB Straight to the downstream end.

Note – *This flow switch (P/N 59810) is designed for low flow and is not the same as many previously released Autopilot kits.*



Step 2

Locate the hydraulic filter manifold under the left hand side of the sprayer.



Step 3

Locate the hose that connects the filter housing to the hand pump T port. Remove the hose and the 90° fitting from the inlet on the filter housing.



Step 4

Connect the supplied jumper hose to the outlet of the flow switch with clocking as shown.



Step 5

Connect the 90° end of the hose connected to the flow switch to the filter housing and route the flow switch over the housing to the front of the sprayer. The arrow on the flow switch should point to the filter housing.



Step 6

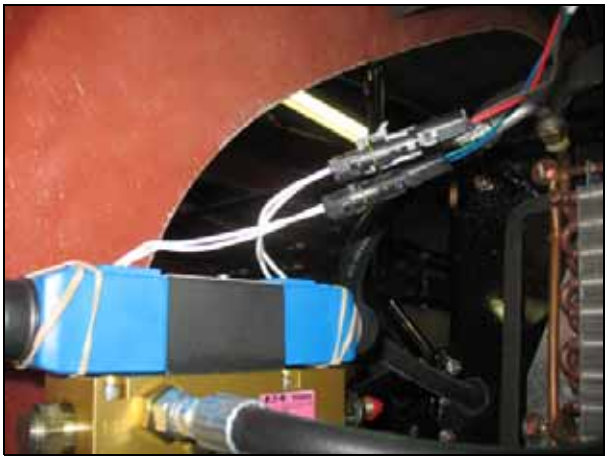
Re-route the existing hose that was previously connected to the filter housing to the inlet of the flow switch. Position the flow switch behind the coolant reservoir. Where required install protective shielding.



Attaching the electrical connections

Step 1

Connect the hydraulic steering valve cable to the corresponding connectors and route to the cab.



Step 2

Connect the manual override cable to the flow switch and route to the cab.



Setting the pressure relief valve

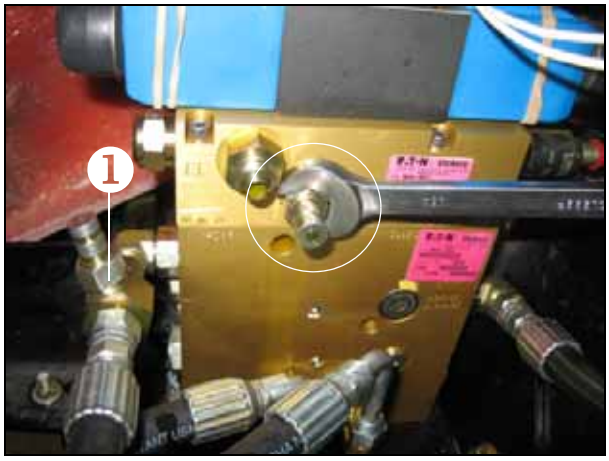
Step 1

Disconnect the EF line at the manifold and cap the port and hose.



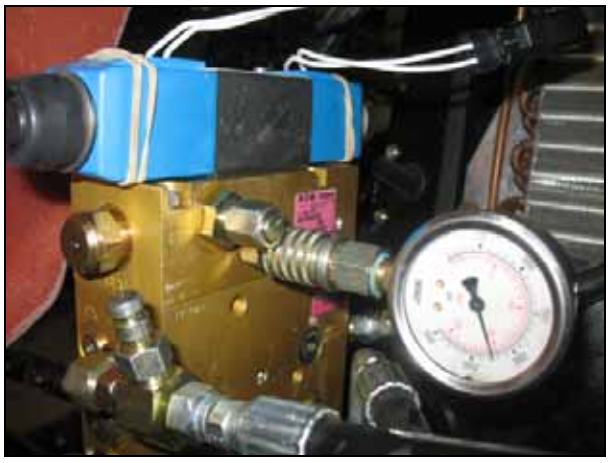
Step 2

The pressure relief valve protects the system from over pressurization. Install a diagnostic fitting into the GP port on the manifold. You can also measure pressure on the P line by installing an inline test port as shown at ❶.



Step 3

Install a 5000 PSI gauge on the diagnostic receptacle. Install an extension hose if required.



Step 4

Crank the engine without starting. Check the pressure gauge. The working pressure should reach 2250 to 2350 PSI. This pressure is the maximum system pressure established by the pump. Continue by running the engine at full RPM.

Note – *Do not run the engine for very long during this test as the oil heats up very quickly.*



Step 5

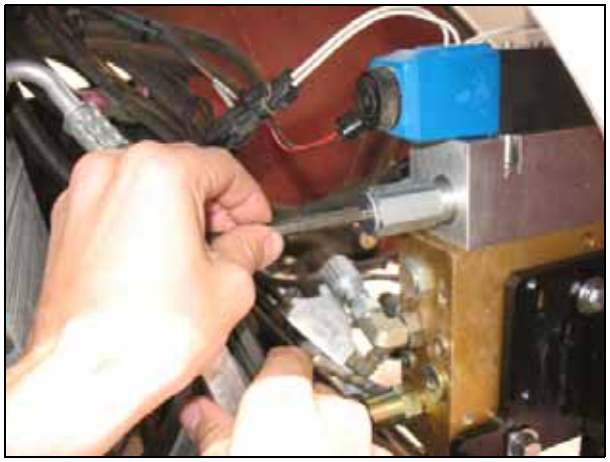
To access the pressure relief adjustment screw remove the cap and adjust with an allen wrench.



Step 6

Note – *Only adjust the pressure relief valve if the valve relieves below 2250 PSI.*

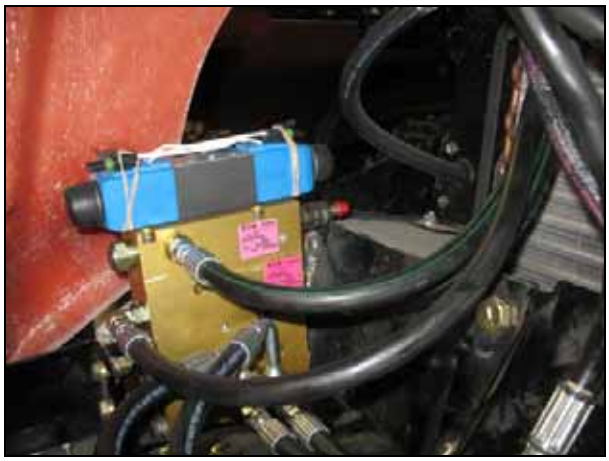
Adjust the pressure relief valve to a higher pressure by turning the adjustment screw clockwise. Increase the pressure slowly until the pressure reaches 2250 psi or stops increasing. If the pressure stops increasing before 2250 psi, turn the screw 1/4 turn past the point at which the pressure stops increasing. The valve is normally pre-set at 2500 PSI.



Step 7

After the relief pressure is set, reconnect the line from the steering hand pump to the EF port. See previous steps.

Note – *These fittings were capped previously for relief valve testing.*



CHAPTER

3

AutoSense Steering Device Installation

In this chapter:

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

This chapter describes how to install the *Ag*GPS AutoSense™ steering device.

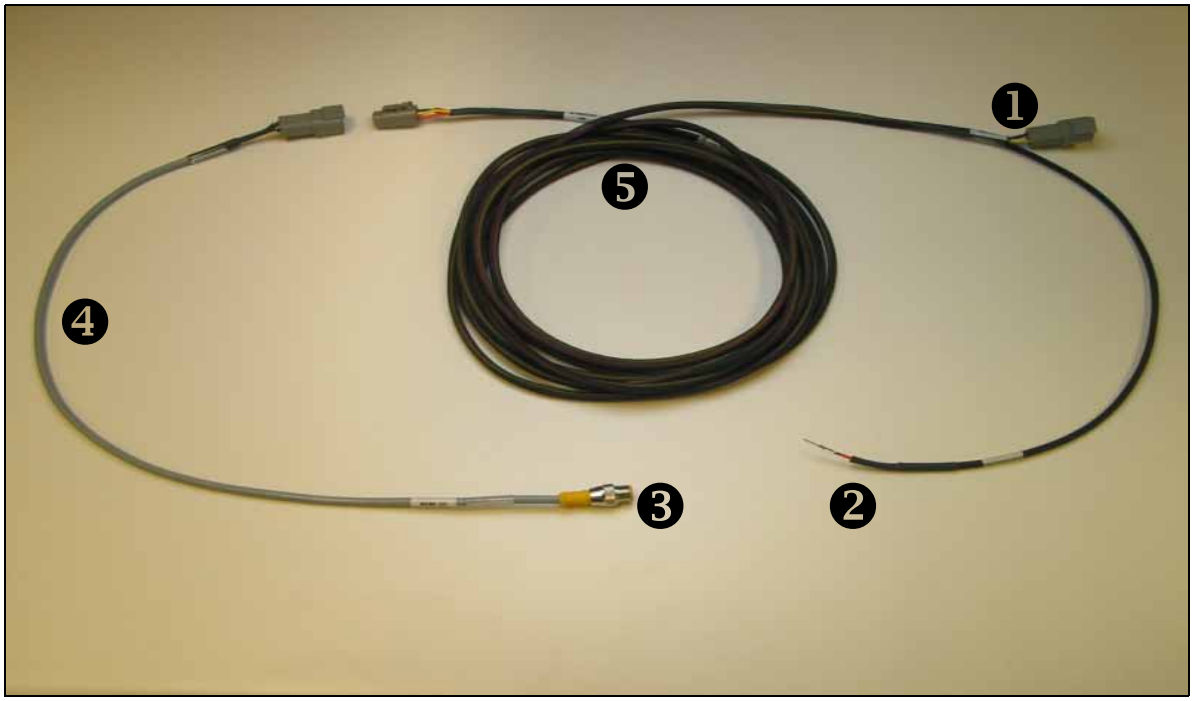
If the described mounting location is not accessible, chose an alternate location. To ensure proper function, the AutoSense device must be located in a position that is free of obstructions and allows it to rotate with the wheels when they turn.

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

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

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

AutoSense steering device components



Item	Description
❶	P-6 connector
❷	Power connector
❸	AutoSense connector
❹	Jumper cable (P/N 57560)
❺	AutoSense steering cable (P/N 57885)

Installing the AutoSense steering device

Step 1

Locate the mounting location on the left front tie rod end.



Step 2

Remove the cotter pin and castle nut from the tie rod end.



Step 3

Install the adaptor nut and reinstall the cotter pin.



Step 4

Use the included 3/8 bolt and Loctite to attach the AutoSense mount plate to the adaptor nut. Tighten securely.



Step 5

Mount the AutoSense device using the included #6-32 screws with the connector pointing to the center of the vehicle.



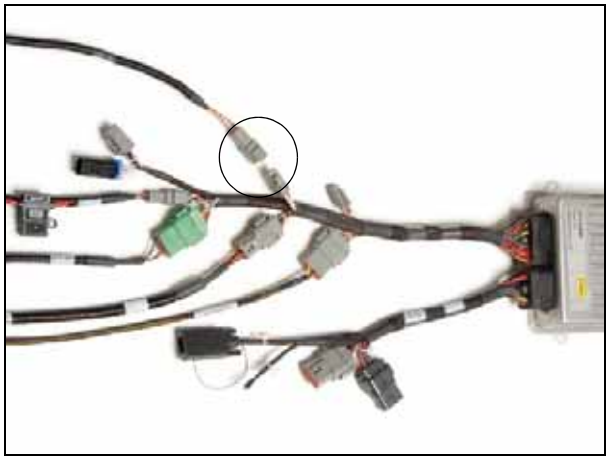
Step 6

Route the steering cable to the steering device behind the axle along the existing cabling to avoid damage from stalks. Connect the cable to the steering device. Leave adequate length on the service loop to avoid stretching the cable.



Step 7

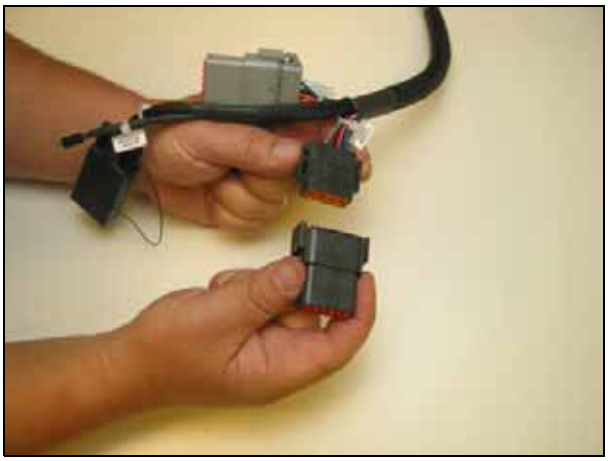
Connect the steering device cable connection to P-6 on the main wiring harness. P-6 is labeled “Steering Sensor”.



Preparing the harness (P/N 54602 Rev C)

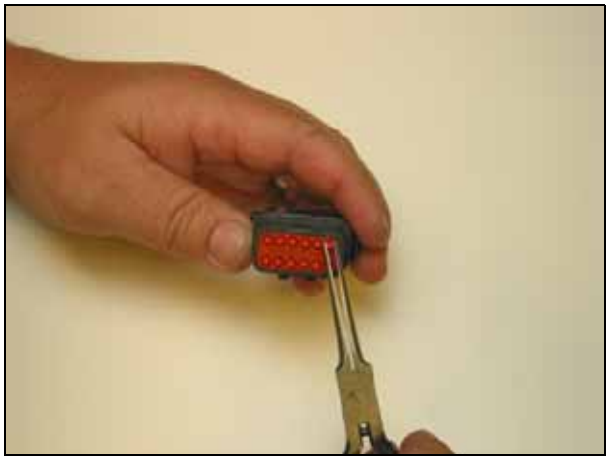
Step 1

Remove the black Deutsch DTM receptacle from the P-13 sensors leg of the auxiliary harness. See Chapter 8, Controller Connections.



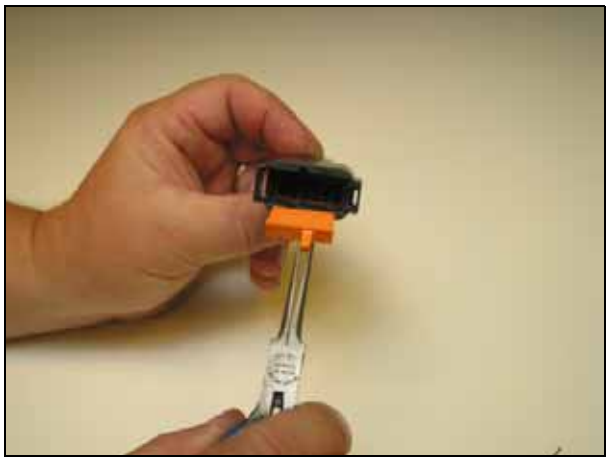
Step 2

Remove the plug from cavity number 1.



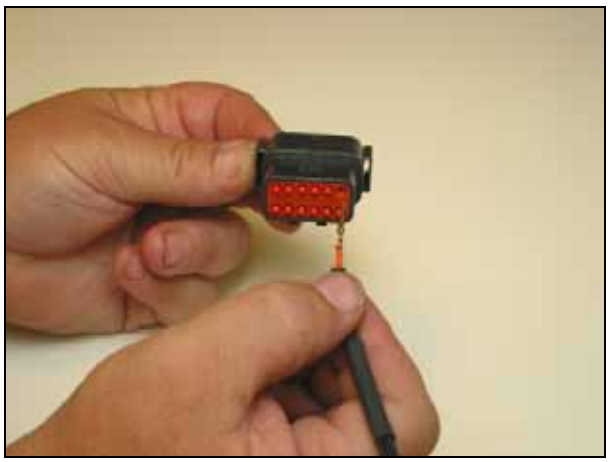
Step 3

Remove the wedge from the connector.



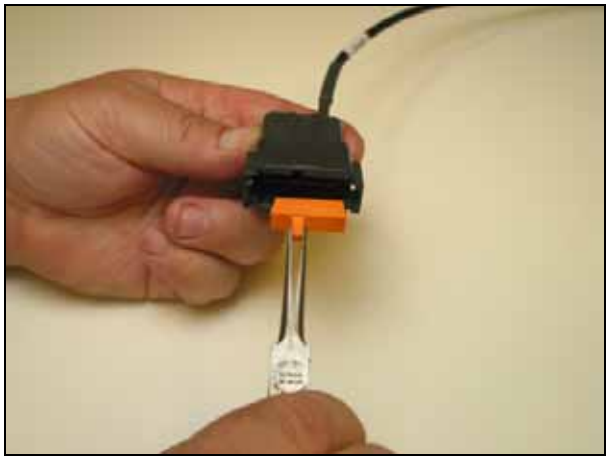
Step 4

Insert the DTM pin labeled “Cavity 1” into the connector.



Step 5

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



CHAPTER

4

Antenna/Receiver Installation

In this chapter:

- Antenna and receiver installation options
- AgGPS 252 GPS receiver with AgGPS 450/900 radio module (if equipped) components
- Installing the AgGPS 252 GPS receiver with AgGPS 450/900 radio module (if equipped)
- Installing an AgGPS 252 receiver with magnetic feet
- AgGPS 332 receiver components
- Installing the AgGPS 332 receiver
- AgGPS 442/432 receiver components
- Installing the AgGPS 442/432 receiver
- Installing a SiteNet radio and antenna
- Installing a PDL radio modem

This chapter describes how to install an *Ag*GPS 252 receiver and *Ag*GPS radio module, an *Ag*GPS 332 receiver and antenna, or an *Ag*GPS 442 receiver and antenna.

Note – *To install the antenna for an EZ-Guide 500 system, see Chapter 5, Display Installation.*

Antenna and receiver installation options

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

- **Spar mount** – This bracket mounts directly to the roof bolts and is required for all high accuracy applications such as RTK and OmniSTAR. Trimble recommends this method for mounting an *Ag*GPS 252 receiver. Bolt a metal spar to the roof or to a light bracket and then attach either a V plate for magnetic mounting or an *Ag*GPS 252 receiver plate for permanent mounting.
- **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 50.
- **Magnetic mounting** – Magnetic mounting for quick release is available for both VHB and spar type mounting:
  - For quick release magnetic mounting with an *Ag*GPS 252 receiver, order the kit listed in Antenna mounting kits, page 11 and bolt the V plate to the spar. When spar mounting is not available and high accuracy is required, see Installing an AgGPS 252 receiver with magnetic feet, page 58.
  - With all other antennas, bolt the V plate to the spar for high accuracy and repeatability.
  - For WAAS, EGNOS, OmniSTAR VBS, Beacon, and DGPS applications, place either of the plates in a firm location using the VHB.

Possible mounting methods for each GPS receiver are:

GPS receiver	V plate on spar (removable)	VHB plate on roof (removable)	Standard *Ag*GPS 252 plate bolted to spar (permanent)
*Ag*GPS 252 receiver	✓	X	✓
*Ag*GPS 332 receiver	✓	✓	X
*Ag*GPS 432/442 receiver	✓	X	X
EZ-Guide 500 lightbar	✓	✓	X

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 section.

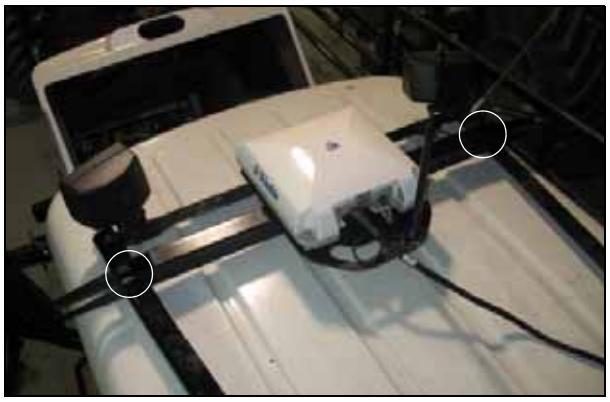
Step 1

Position the cab bolts on the roof of the vehicle.



Step 2

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

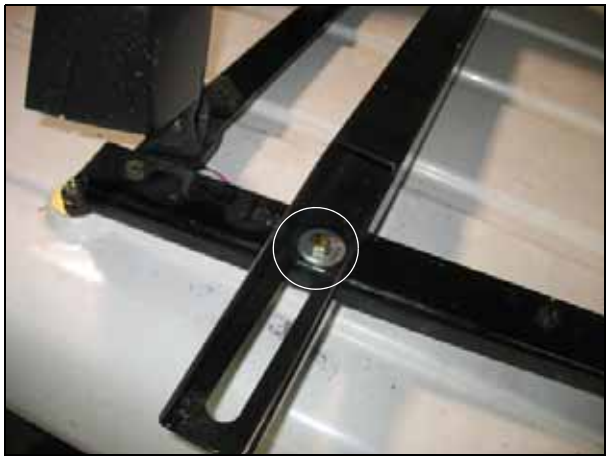


Step 3

If required, replace the existing bolts with longer bolts.



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



Step 4

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, AgGPS Autopilot system performance may be affected. Before you tighten the cab bolts, make sure that the GPS antenna is aligned with the center of the vehicle.*



Step 5

For either of the following applications:

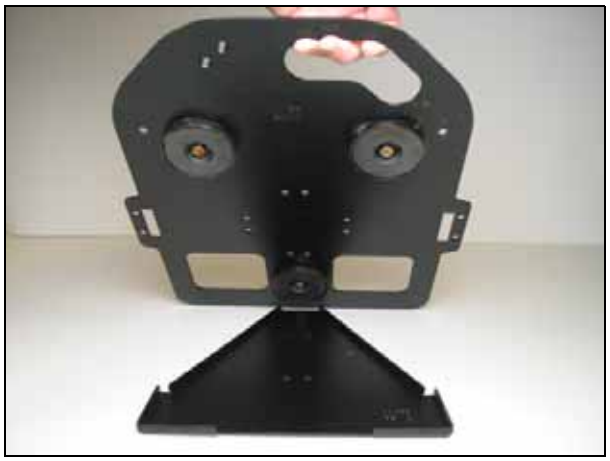
- A single magnet antenna mount
- An *Ag*GPS 252 receiver with magnetic option for quick removal

Attach a V plate with four ¼" flathead screws.

The narrow end points to the front of the vehicle.



V plate on the spar



Magnetic mount on the V plate

Step 6

If you use a standard AgGPS 252 plate for permanent mounting, install the radio antenna first. Use four ¼" flathead screws to attach the plate, with the handle toward the back of the vehicle.

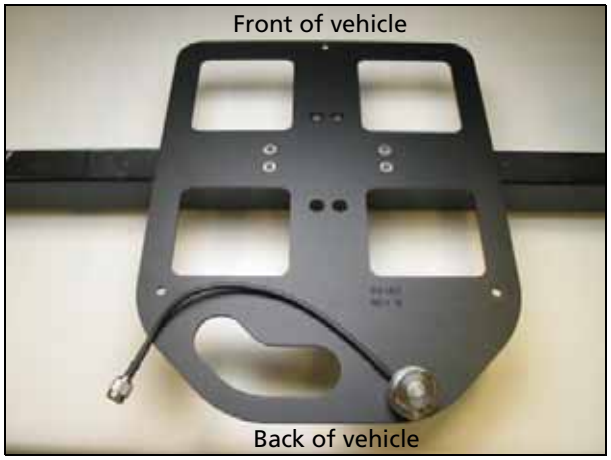


Plate on the spar

Attaching the plate with VHB adhesive

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

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.

- **L1/L2 dual band antenna (RTK, OmniSTAR, DGPS)** – 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.
- **L1 single band antenna (WAAS, EGNOS, OmniSTAR VBS, Beacon)** – 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.

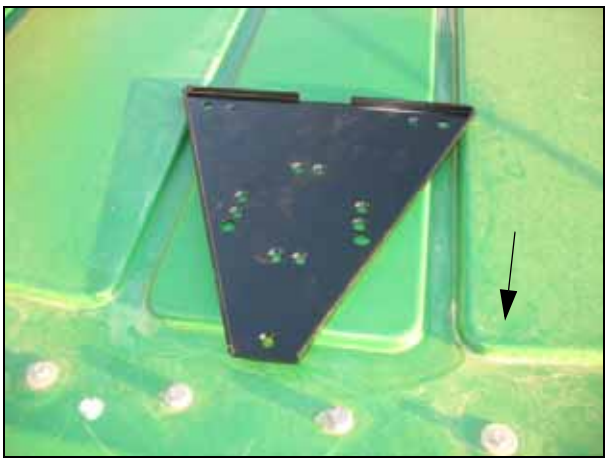
Note – *The VHB strips are pre-applied to the 4" x 6" plate.*



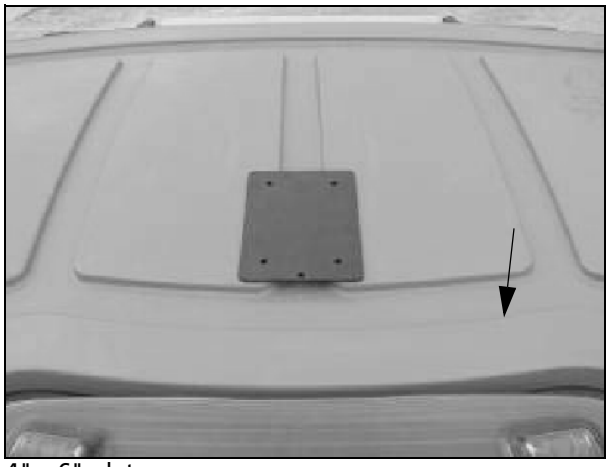
Step 3

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.*

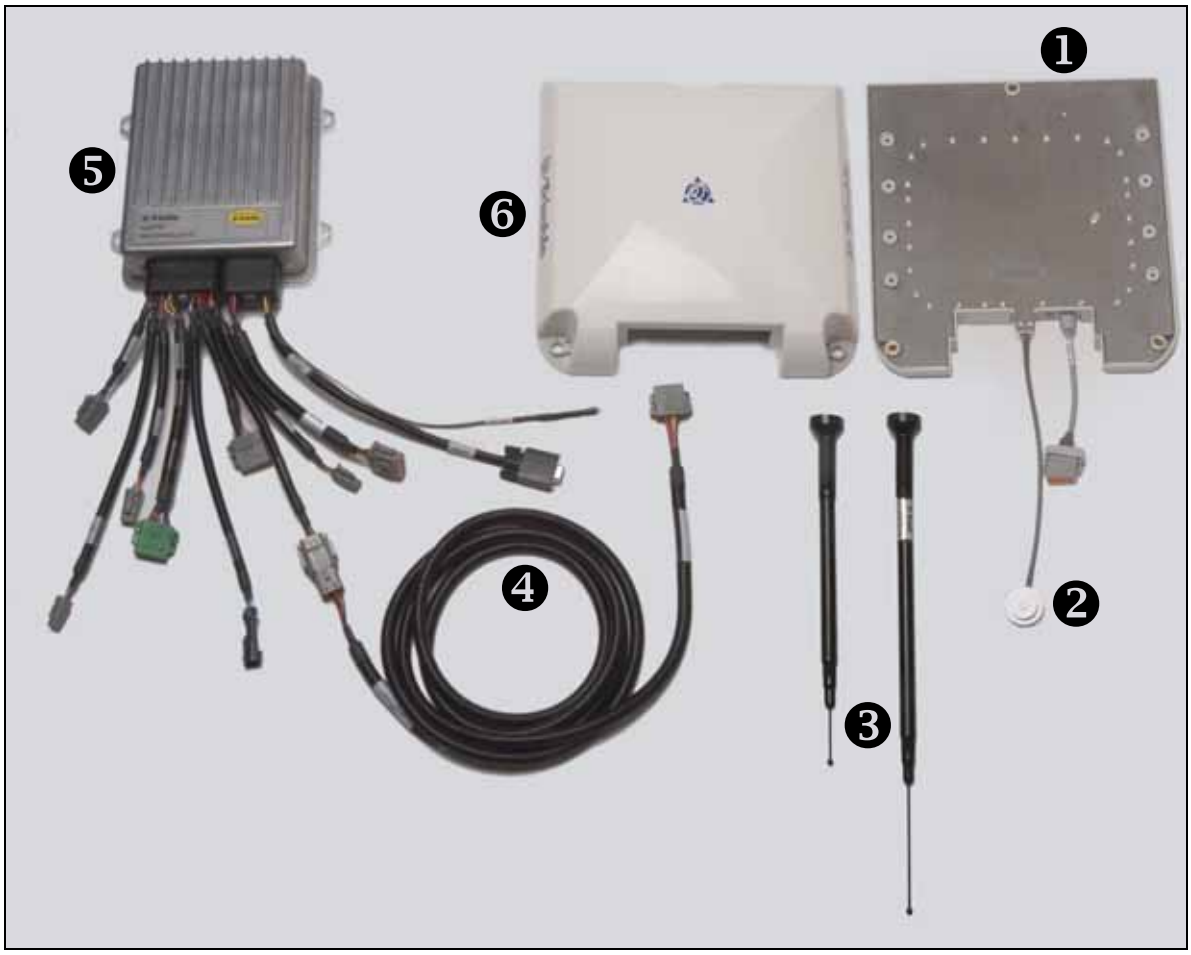


V plate



4" x 6" plate

*Ag*GPS 252 GPS receiver with *Ag*GPS 450/900 radio module (if equipped) components



Item	Description
❶	*Ag*GPS 450 or 900 radio (if equipped)
❷	Radio antenna cable and magnetic mount
❸	*Ag*GPS 450 or 900 radio antenna
❹	Antenna/receiver cable (P/N 54608)
❺	*Ag*GPS Autopilot controller
❻	*Ag*GPS 252 antenna/receiver

Installing the *Ag*GPS 252 GPS receiver with *Ag*GPS 450/900 radio module (if equipped)

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

To attach the *Ag*GPS 252 receiver plate to the cab roof, do one of the following:

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

Removable installation

Step 1

V plate

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

For spar mounting instructions, see page 47.



Mounting plate

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



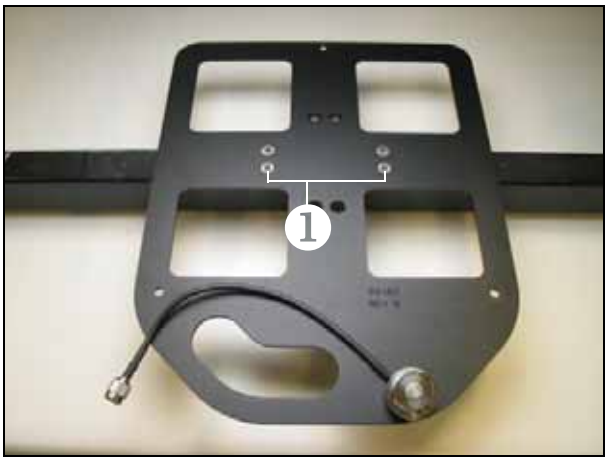
Underside of plate

Permanent installation

Step 1

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

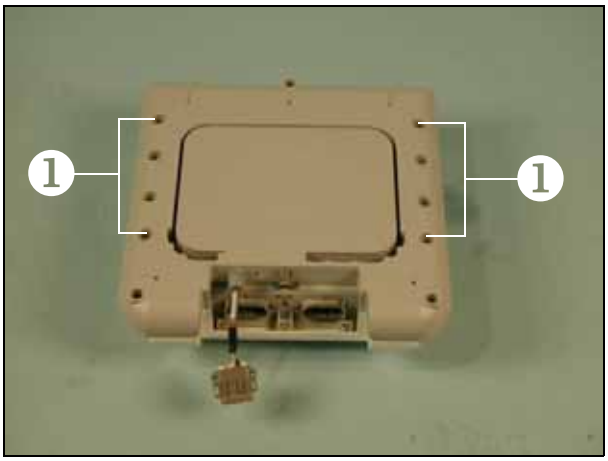
For spar mounting instructions, see page 47.



Step 2

Both installation methods

Place the radio module on the *Ag*GPS 252 receiver. Secure it with the eight screws in the positions shown ❶.



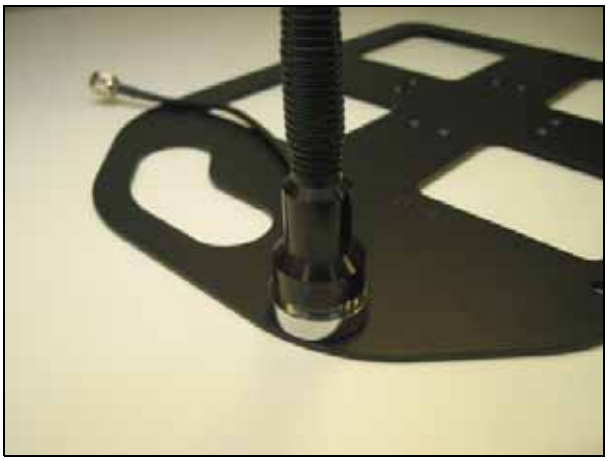
Step 3

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



Step 4

Attach the radio antenna to the antenna base.



Step 5

Position the *Ag*GPS 252 receiver and radio on the mounting plate with the connector ports facing the radio antenna. Align the three bolt holes with the receiver, radio, and mounting plate.



Step 6

Insert the nylon bushings provided.



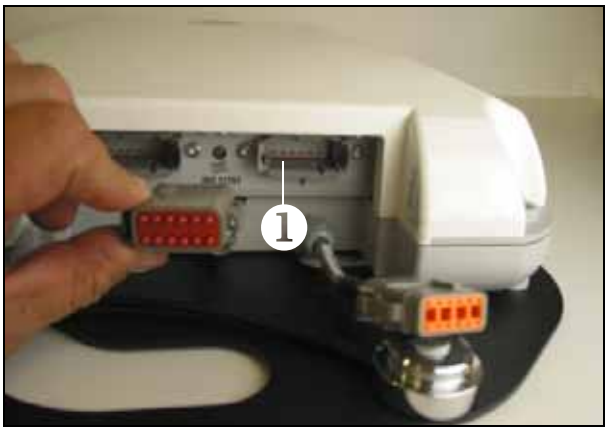
Step 7

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



Step 8

Remove the connector plug from port B ❶.



Step 9

Place the radio module connector into port B of the receiver.



Step 10

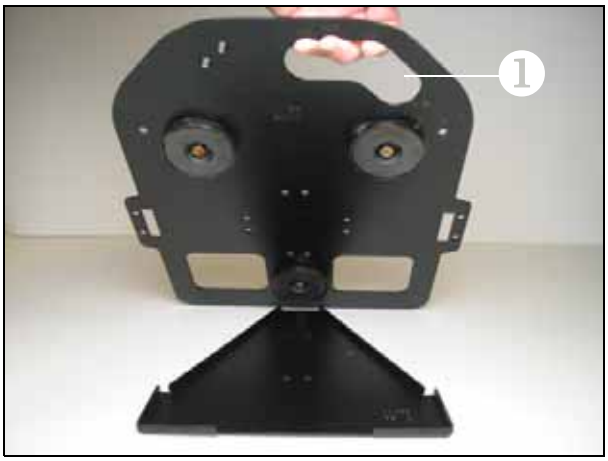
Connect the radio antenna to the antenna port.



Step 11

Magnet method

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

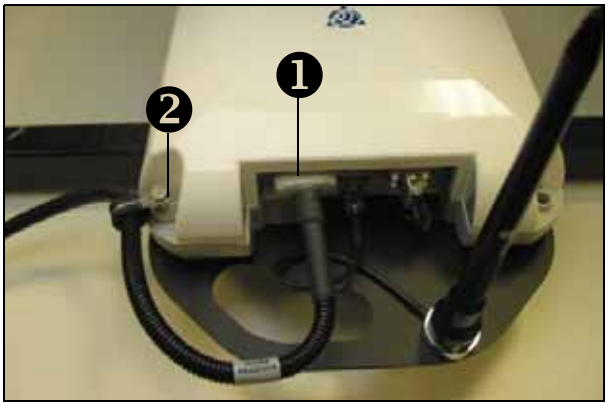


Step 12

Both methods

Connect the cable from the cab controller into port A ❶ of the *Ag*GPS 252 receiver. Bolt the cable clamp ❷ to the left side of the receiver.

Route the cable into the cab and into the controller.



Installing an *Ag*GPS 252 receiver with magnetic feet

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

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

Step 1

Attach the magnets to the receiver mounting plate. Mount the *Ag*GPS 252 GPS receiver using the three ¼" bolts.

Place the nuts on the receiver side.



Step 2

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

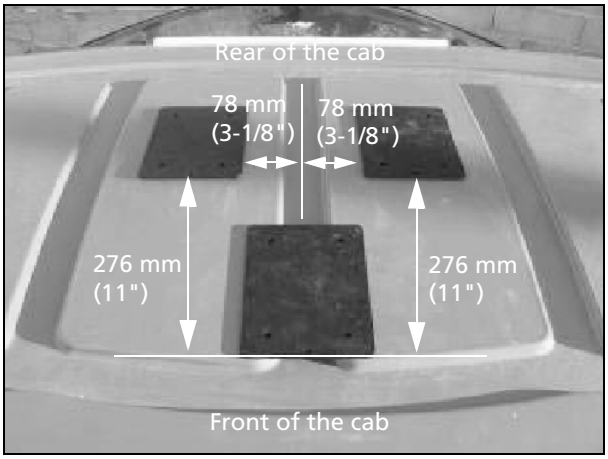


Step 3

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

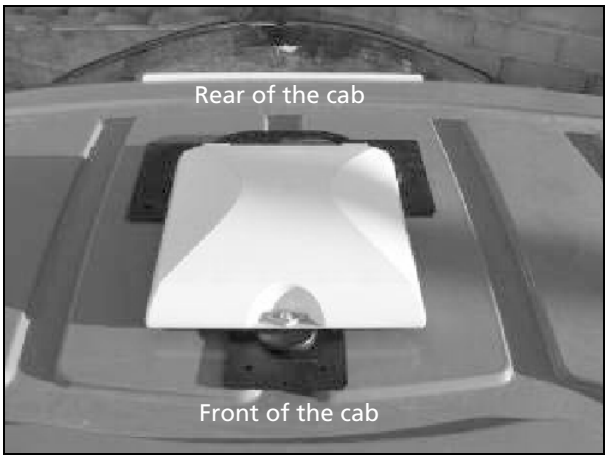
Remove the backing from the VHB strips and then apply the plates to the cab roof.

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



Step 4

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



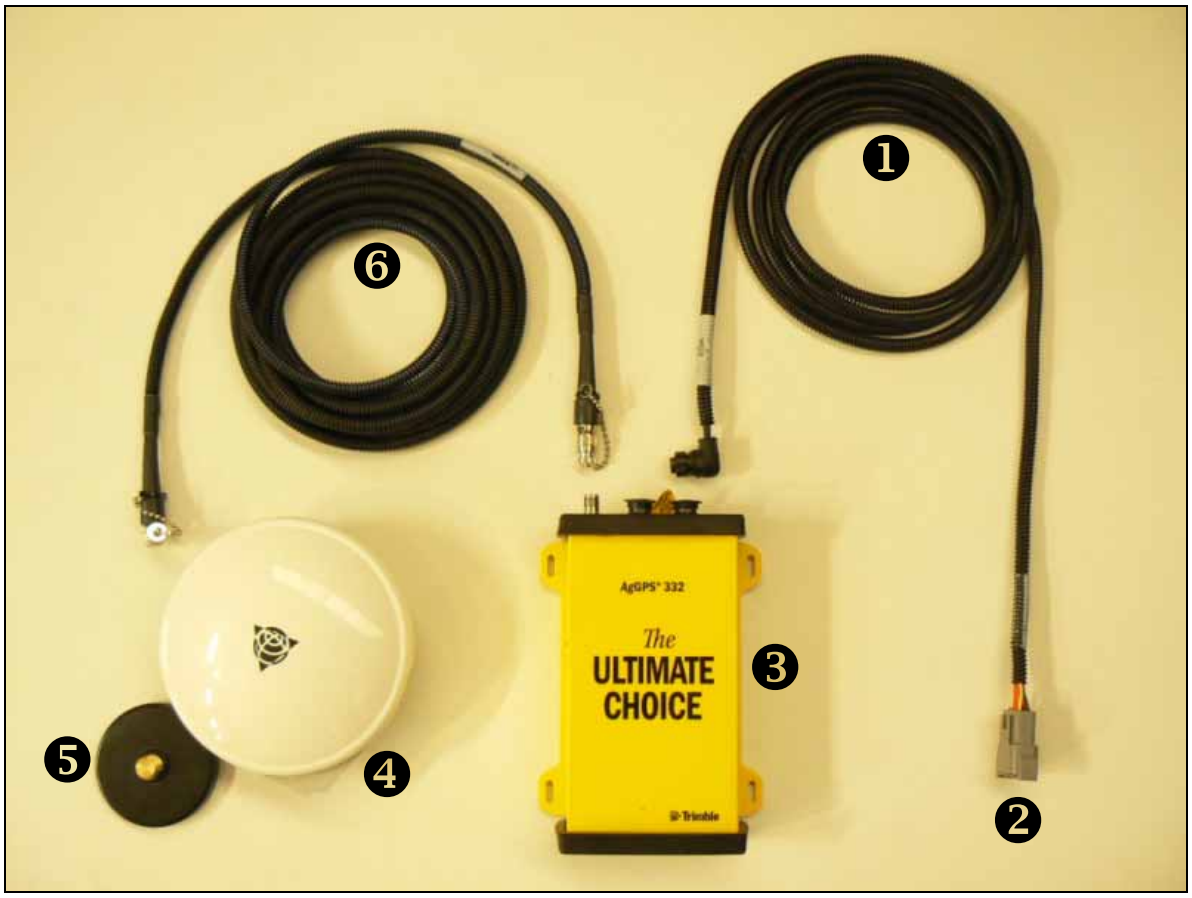
Step 5

Connect the antenna cable to port A of the *Ag*GPS 252 GPS receiver and then route the cable toward the NavController II harness.



*Ag*GPS 332 receiver components

Note – *To receive RTK corrections with a radio, Trimble recommends the use of the AgGPS 432 GPS receiver with integrated radio modem.*



Item	Description
❶	Receiver-to-Autopilot controller cable (P/N 54610)
❷	To controller "P3 GPS" connection
❸	*Ag*GPS 332 GPS receiver
❹	GPS antenna
❺	Magnetic mount
❻	GPS antenna cable

Installing the *Ag*GPS 332 receiver

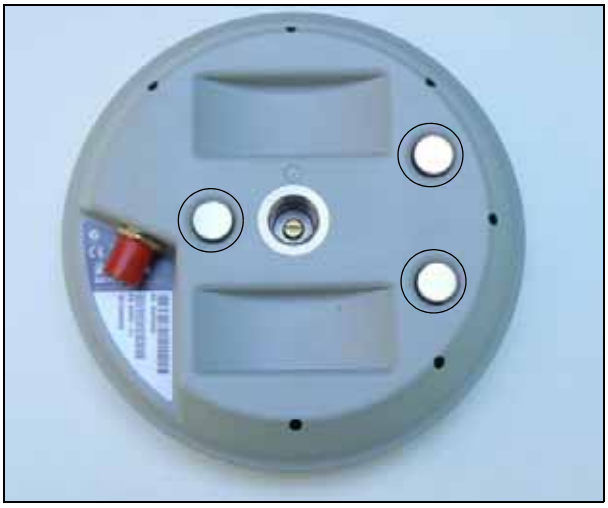
WARNING – To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information section.

Step 1

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



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



Step 2

L1/L2 dual band antenna (RTK, OmniSTAR, DGPS)

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



L1 single band antenna (WAAS, EGNOS, VBS, Beacon)

Attach the antenna to the center of the 4" x 6" plate.



Step 3

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

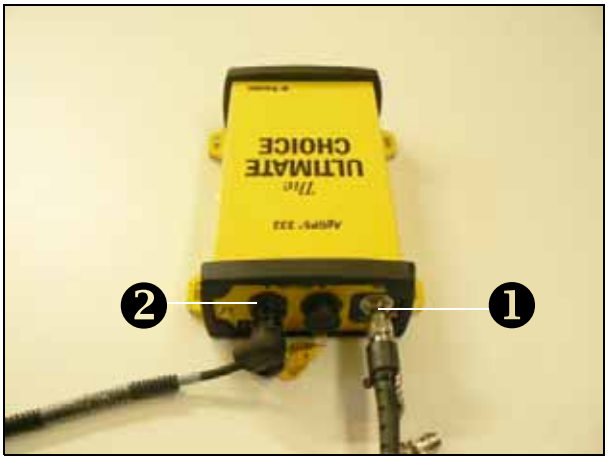


Step 4

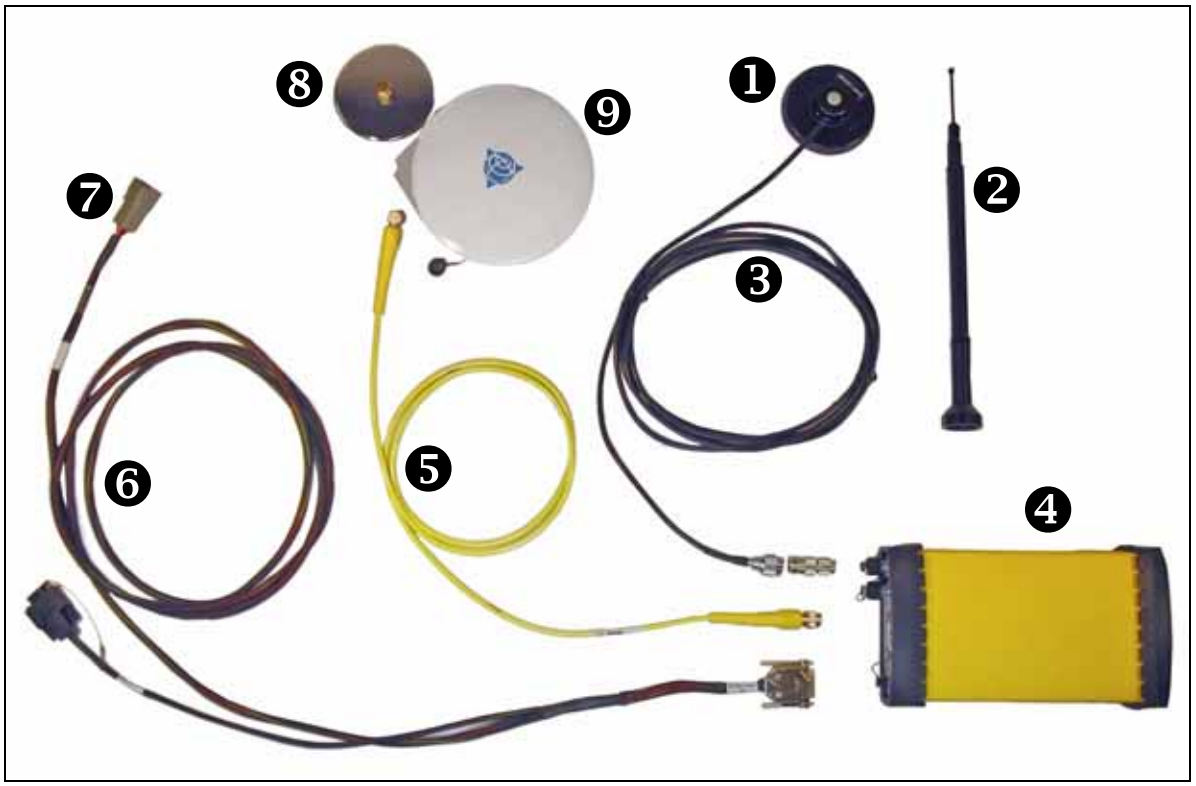
Mount the receiver in a convenient location in the cab.

Route the antenna cable ❶ to the receiver and then connect it. Connect the controller cable to cavity "A" ❷ of the receiver.

Controller cable connections will be completed later in the Controller Connections section.



*Ag*GPS 442/432 receiver components



Item	Description
❶	Radio antenna magnetic base
❷	Radio antenna
❸	Radio antenna cable
❹	*Ag*GPS 442/432 GPS receiver
❺	Antenna cable
❻	Receiver cable (P/N 62037)
❼	To controller “P3 GPS”
❽	Antenna magnetic mount
❾	*Ag*GPS 442/432 antenna

Installing the *Ag*GPS 442/432 receiver

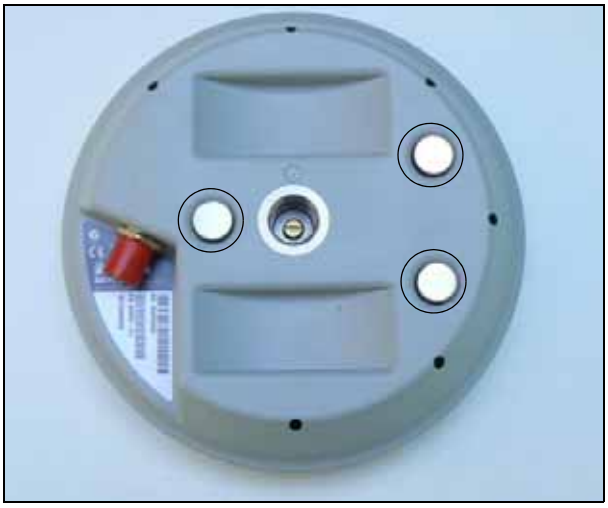
WARNING – To avoid potentially serious personal injury or illness, and to prevent damage to equipment, make sure that you read and understand the Safety Information section.

Step 1

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



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



Step 2

L1/L2 dual band antenna (RTK, OmniSTAR, DGPS)

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



Step 3

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



Step 4

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



Step 5

Identify the correct adaptor for the radio connection:

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

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



Step 6

Attach the adaptor to the radio port.



Step 7

Connect the radio antenna cable to the radio port adaptor.



Step 8

Connect the controller cable to the 26-pin connector of the receiver. Controller cable connections will be completed later in the Controller Connections section.



Step 9

Connect the radio antenna to the magnetic antenna base.



Step 10

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



Installing a SiteNet radio and 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 section.

Step 1

Install the SiteNet™ radio in the cab where it is out of sight and secured from rolling. Connect the antenna adaptor to the SiteNet radio.



Step 2

Connect the radio antenna to the magnetic antenna base.



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



Step 4

Feed the radio antenna cable down from the roof and into the cab to the radio. Connect the cable to the radio.



Installing a PDL radio modem

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 section.

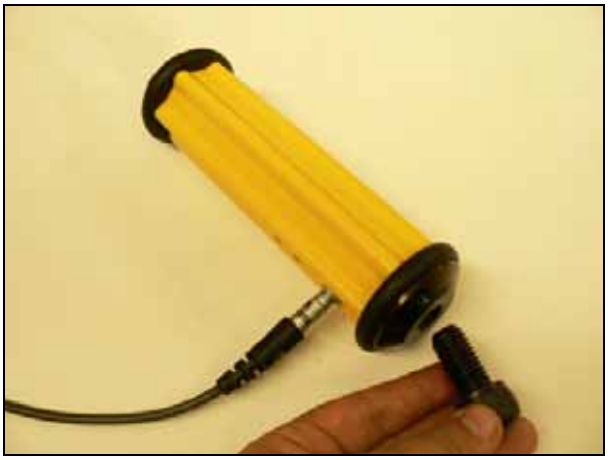
Step 1

Position the radio where it is accessible for the operator to select a new radio channel ID.



There are several mounting options:

- For a permanent mount, bolt the radio onto a bracket with a $^{5}/_{8}$" UNC screw.

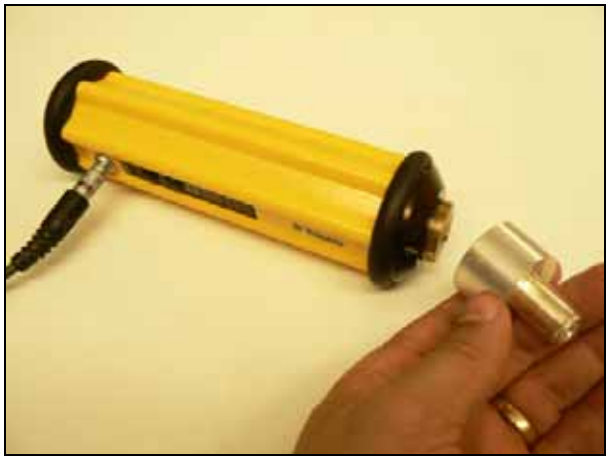


- For a temporary mount (so it can be moved between vehicles), mount the radio on a magnet with a $^{5}/_{8}$" UNC stud.



Step 2

Connect the radio antenna cable adaptor to the radio.



Step 3

Connect the radio cable to the adaptor.



CHAPTER

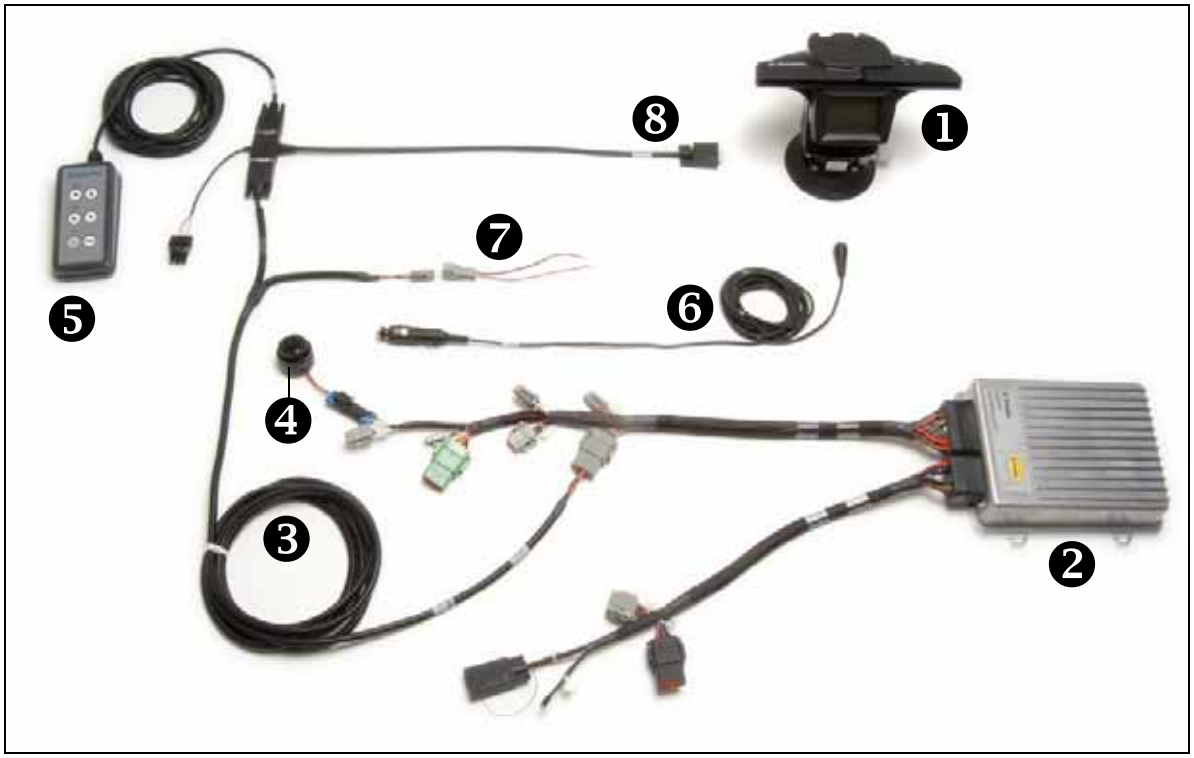
5

Display Installation

- EZ-Guide Plus lightbar components
- Installing the EZ-Guide Plus lightbar
- Mounting the EZ-Guide Plus lightbar
- Preparing the existing EZ-Guide Plus power cable
- AgGPS FieldManager display components
- Preparing the AgGPS FieldManager display
- Installing the AgGPS FieldManager display
- Preparing the AgGPS FieldManager display wiring harness
- EZ-Guide 500 lightbar components
- EZ-Guide 500 lightbar: Installing the antenna plate and GPS antenna
- EZ-Guide 500 lightbar: Installing the SiteNet radio and antenna
- Connecting the EZ-Guide 500 lightbar cables
- Installing the EZ-Guide 500 lightbar

This chapter describes and how to install and connect the EZ-Guide Plus lightbar, the *Ag*GPS FieldManager™ display, or the EZ-Guide 500 lightbar in the vehicle.

EZ-Guide Plus lightbar components

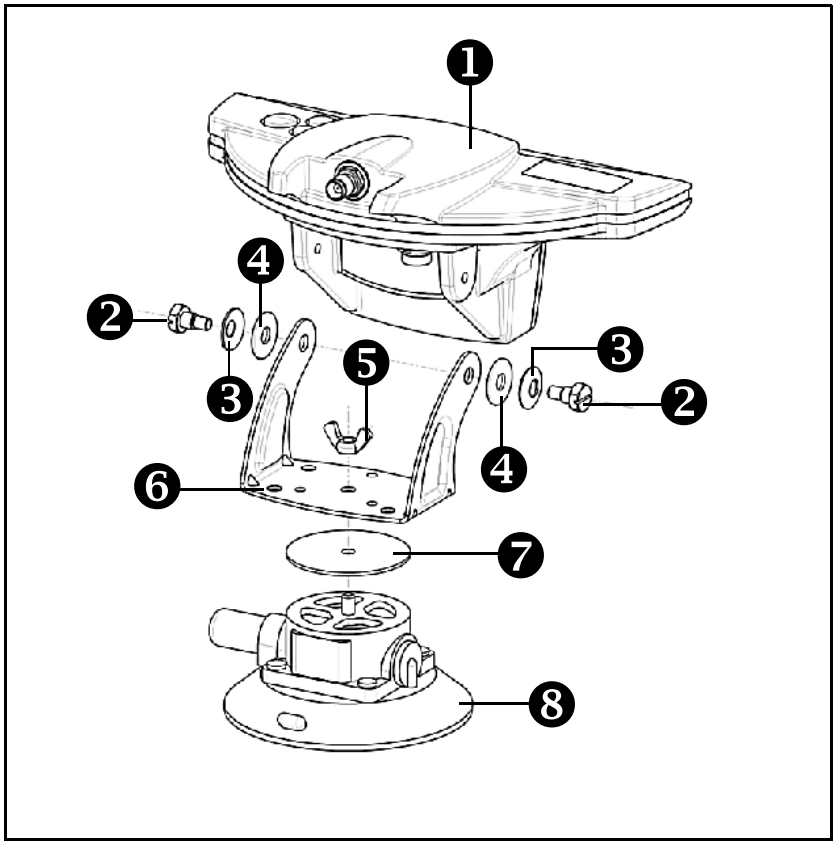


Item	Description
❶	EZ-Guide Plus lightbar
❷	Controller
❸	Display cable (P/N 54612)
❹	Sonalert alarm (if connected)
❺	Optional remote keypad
❻	Power harness
❼	Alternative EZ-Guide Plus lightbar power supply
❽	External interface cable

Installing the EZ-Guide Plus lightbar

Step 1

Assemble the lightbar as shown below.



Item	Description
❶	EZ-Guide Plus lightbar
❷	Bracket screw
❸	Bracket lock-washer
❹	Bracket flat-washer

Item	Description
❺	Bracket wing-nut
❻	Mount bracket
❼	Bracket pad
❽	Suction cup mount

Step 2

Check that the bracket is correctly oriented and then insert the screws. Tighten them ❷ to a torque of 170 cNm (15 in/lbs). Screws require liquid thread-locking compound for optimum performance; reapply thread-lock after every ten insertions.

Mounting the EZ-Guide Plus lightbar

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 section.

Use one of the following methods to mount the EZ-Guide Plus lightbar:

- On a vertical, or near vertical surface, such as a window, use a suction cup vacuum mount.

Note – *This is a temporary mounting device. Before you use it, read the manufacturer's instructions provided with the mounting kit.*

- On a horizontal, or near horizontal surface, such as a vehicle dash, use a screw-on mount bracket.

Installing the vacuum mount

Step 1

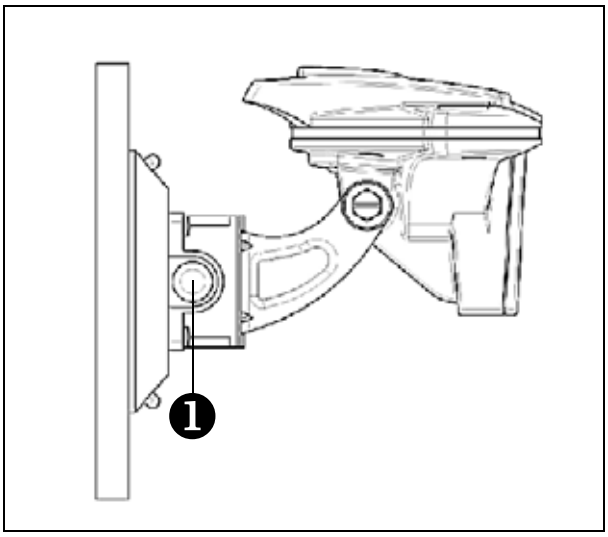
Secure the vacuum mount to the mounting bracket using the hardware provided.

Step 2

Dampen the rubber seal on the suction cup.

Step 3

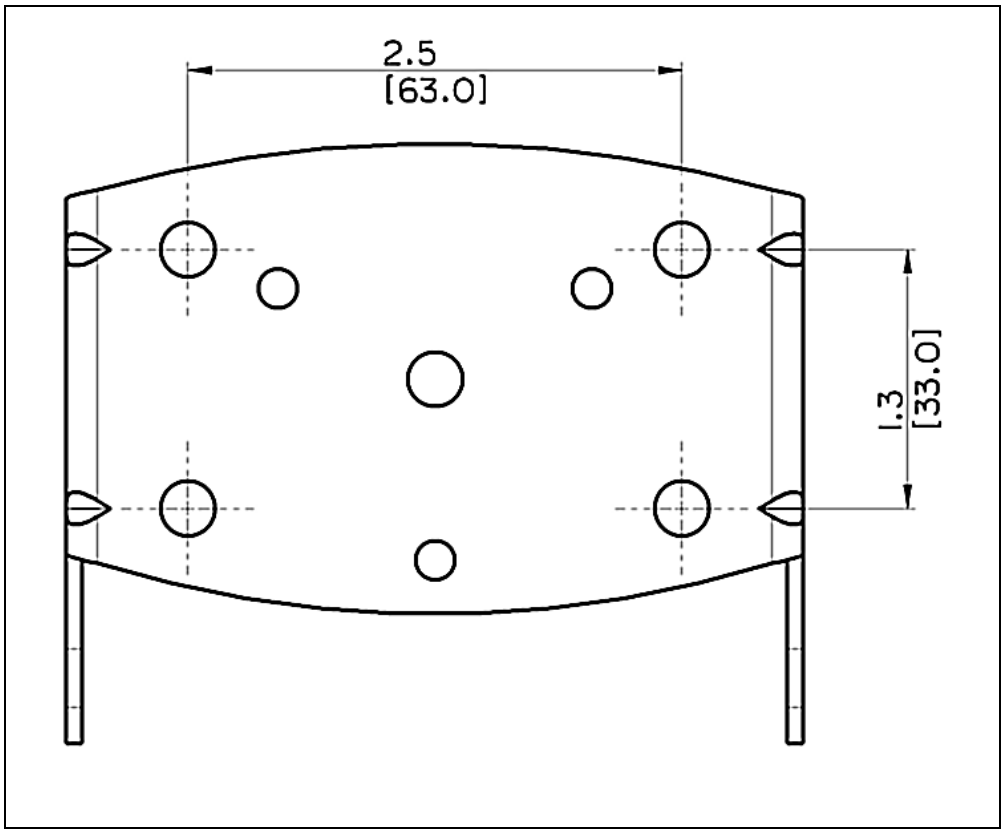
To secure the lightbar in position, press the suction cup against a flat surface and then pump the gray button ❶ until the red line is no longer visible.



Installing the mount bracket

Step 1

Use a pen or awl with the bracket drilling template below to mark where the four holes are to be drilled on the mount plate.



Step 2

Drill the holes in the bracket at the marked points.

Step 3

Screw the mount bracket to the horizontal surface.

Step 4

Attach the EZ-Guide Plus lightbar to the mount bracket.

Step 5

Connect the cable to the EZ-Guide Plus lightbar.

Step 6

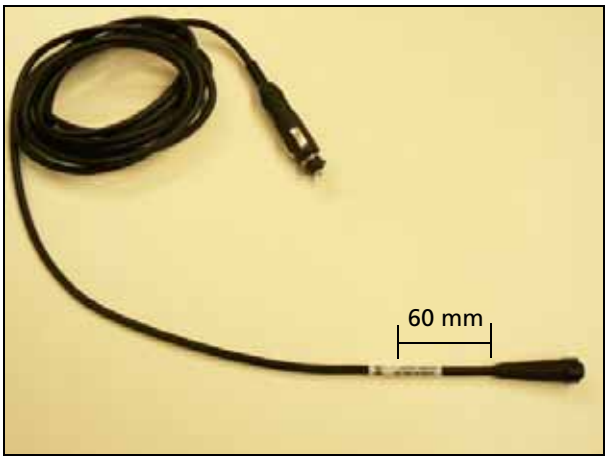
Attach the EZ-Guide Plus display cable to the main harness connection labeled “Display”.

Note – *If the cable is connected to the auxiliary harness connection labeled “Spare”, the display will act as a lightbar only.*

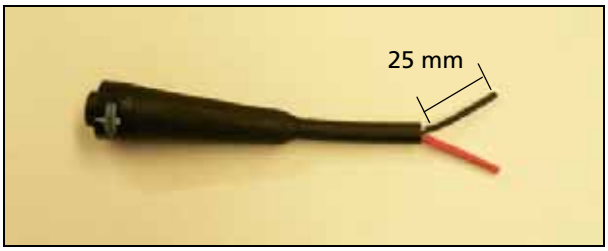
Preparing the existing EZ-Guide Plus power cable

Step 1

a. Locate the EZ-Guide Plus power cable and then cut it as shown.

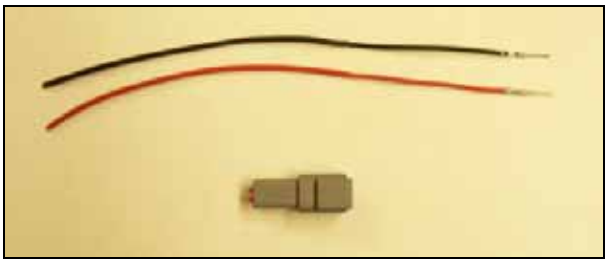


b. Strip 25 mm of insulation off the EZ-Guide Plus power cable.



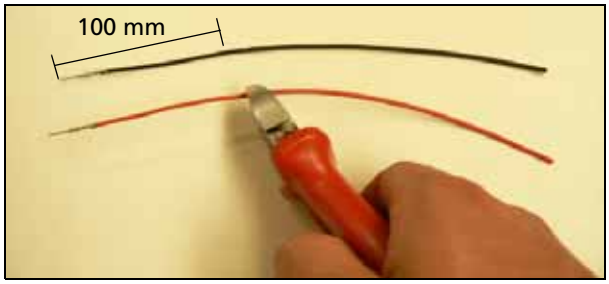
Step 2

Locate the power leads (with one open end) and the two-cavity Deutsch connector that come with the Autopilot display cable (P/N 54612).



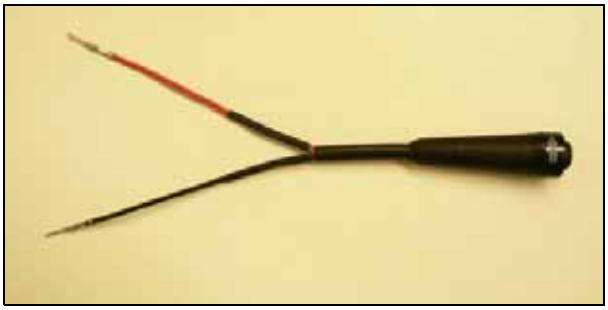
Step 3

Cut the two power lead wires as shown.



Step 4 .

Crimp new TM pins on the ends of the wires or strip approximately 10 mm of insulation off the four wires and then add solder to the ends.



Step 5

Insert the wires into the Deutsch connector as follows:

Wire	Cavity
Red	Deutsch connector position A
Black	Deutsch connector position B

Step 6

Connect the two Deutsch connectors together, coil the power cable, and then attach it to the cable end with a DB9 connector so that both ends are at the same length.

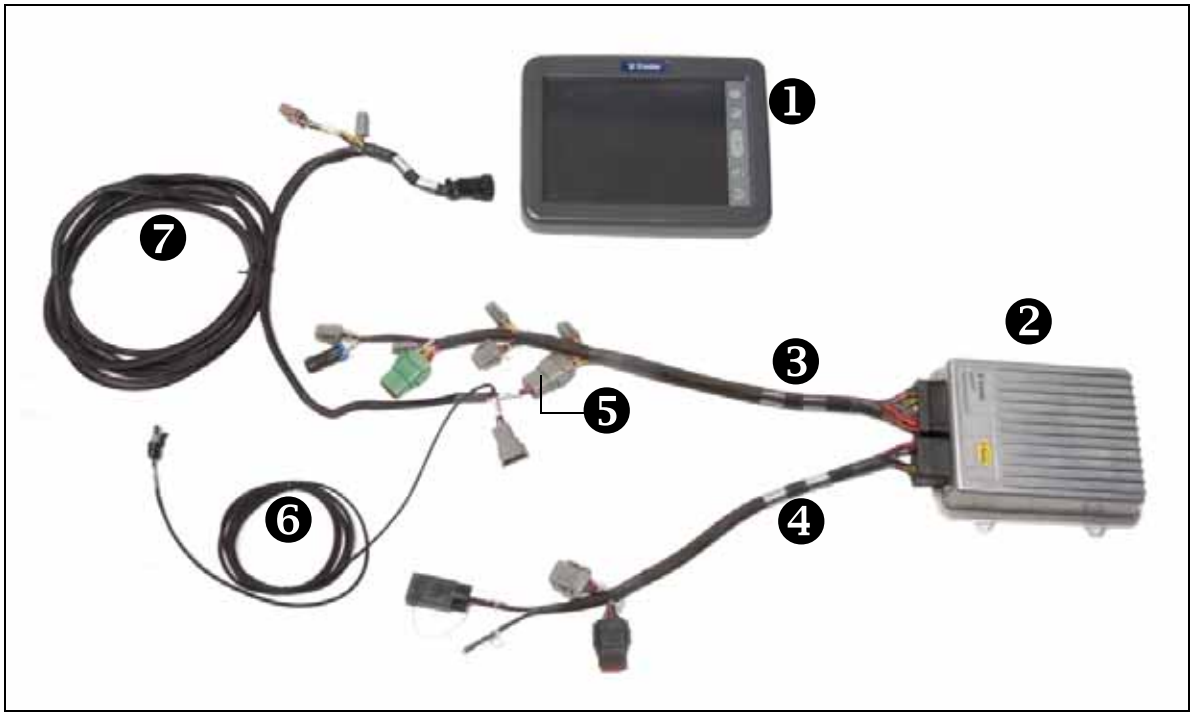


Step 7

Attach the DB9 connector and the power connector from the Autopilot display cable to the lightbar as shown.



*Ag*GPS FieldManager display components



Item	Description
❶	AgGPS FieldManager display
❷	Autopilot NavController II navigation controller
❸	Autopilot main harness
❹	Autopilot auxiliary harness
❺	P4 connector – “Display”
❻	Power lead
❼	FieldManager display harness (P/N 59872)

Preparing the *Ag*GPS FieldManager display

The *Ag*GPS FieldManager display is mounted in the cab with a bar-style RAM mount.

Step 1

Locate the FieldManager display, the RAM mount bracket, and the RAM mount clamp.



Step 2

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



Step 3

Attach the RAM mount to the rear of the display.



Installing the *Ag*GPS FieldManager 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 section.

Step 1

Decide where you will mount the display in the cab. Use the provided bolts to attach the bar mount to the rail.

Feed the Autopilot harness through to the display position.





Step 2

Attach the free end of the RAM mount to the bar mount. Tighten the clamp on the RAM mount so that the display is held securely in place.



Step 3

Attach the Autopilot cable to the back of the FieldManager display. Route the cable to the Autopilot controller and then connect it to the connection labeled “Display” on the main harness.

Do not connect the FieldManager display connection to the auxiliary harness connection labeled “Spare”.

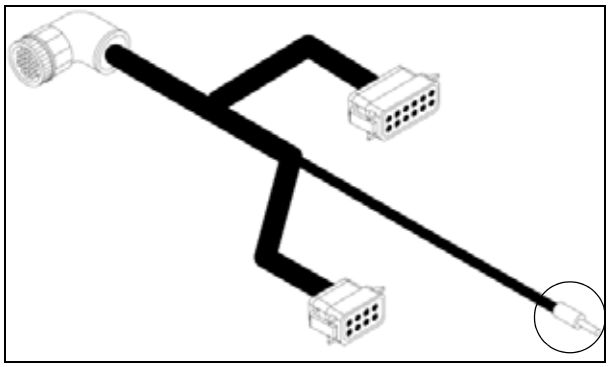


Preparing the *Ag*GPS FieldManager display wiring harness

The FieldManager display requires a constant unswitched B+ power lead.

Step 1

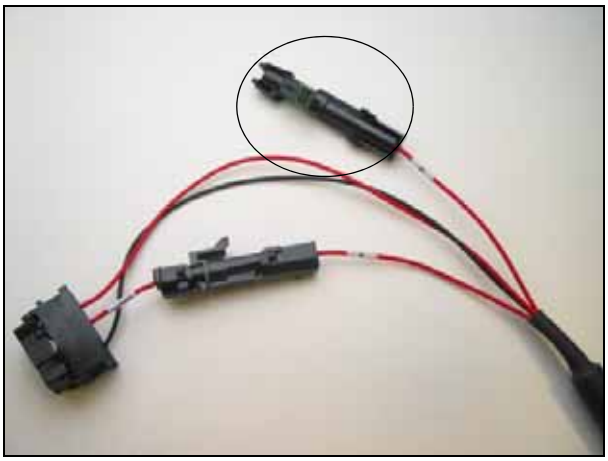
Locate the P9 "Continuous Power" connector on the FieldManager display harness.



Step 2

Locate the unused connector labeled "B" on the power harness at the power switch and then verify that it is the unswitched power lead. If it is not, swap the "A" and "B" leads so that unswitched power is available in the extra lead.

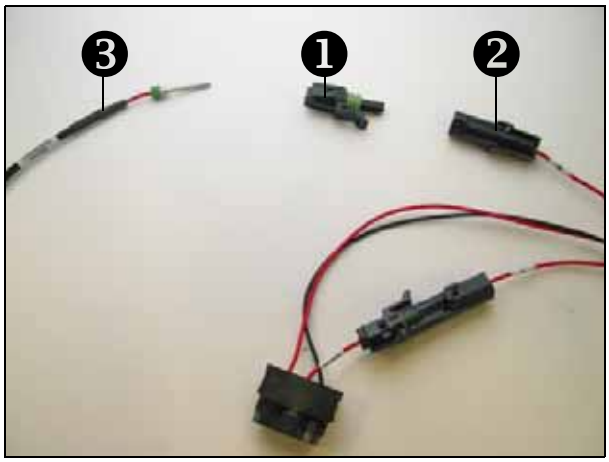
To determine which lead is constant battery power, turn off the vehicle key and then use a volt meter on each lead.



Step 3

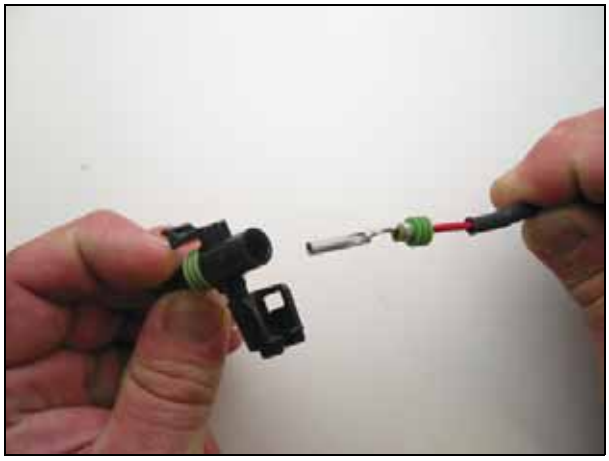
Remove the plug ❶ in the unswitched power lead ❷ and then insert the FieldManager display P9 ❸ pin into the female 1-pin Weatherpack plug. Connect to the mating connector.

To verify that the lead is battery power, turn off the vehicle key and then turn on the display.



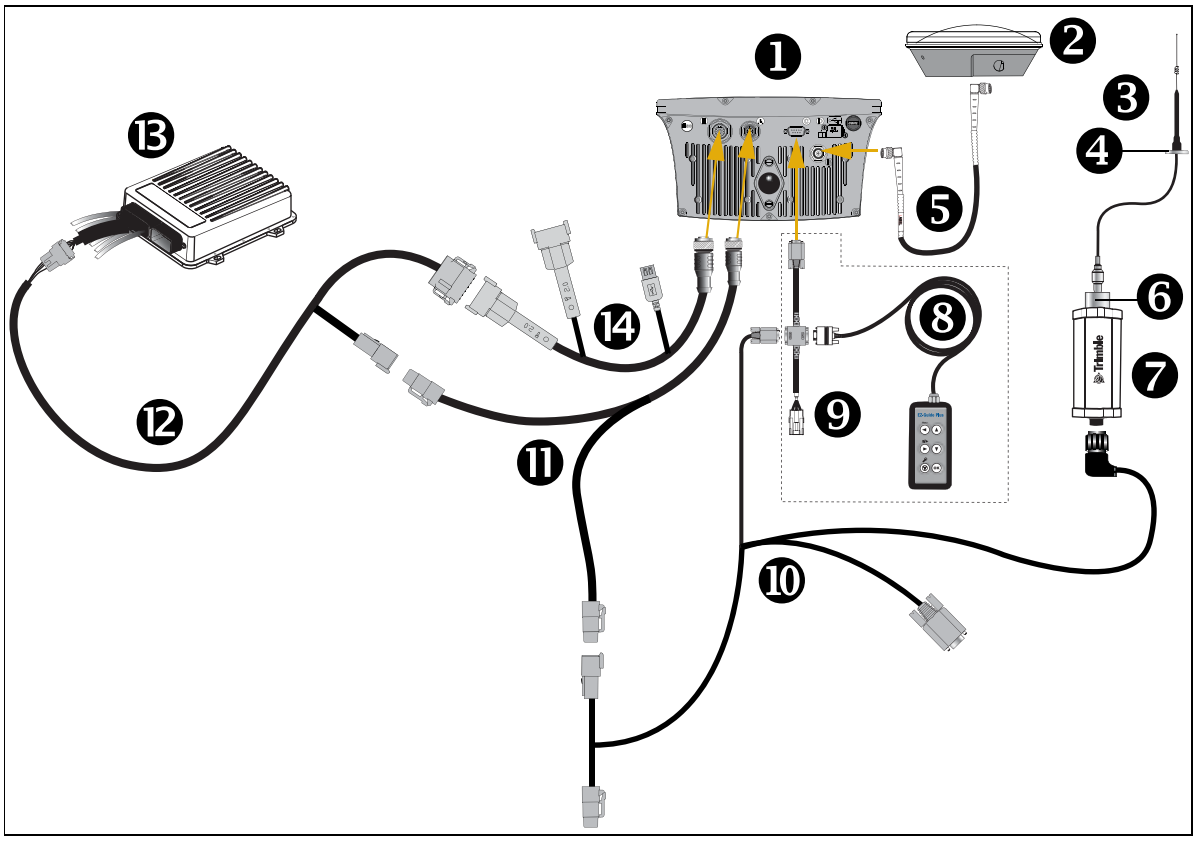
Step 4

To insert the wire end into the connector, release the clips and then remove the cavity plug. Insert the pin.



EZ-Guide 500 lightbar components

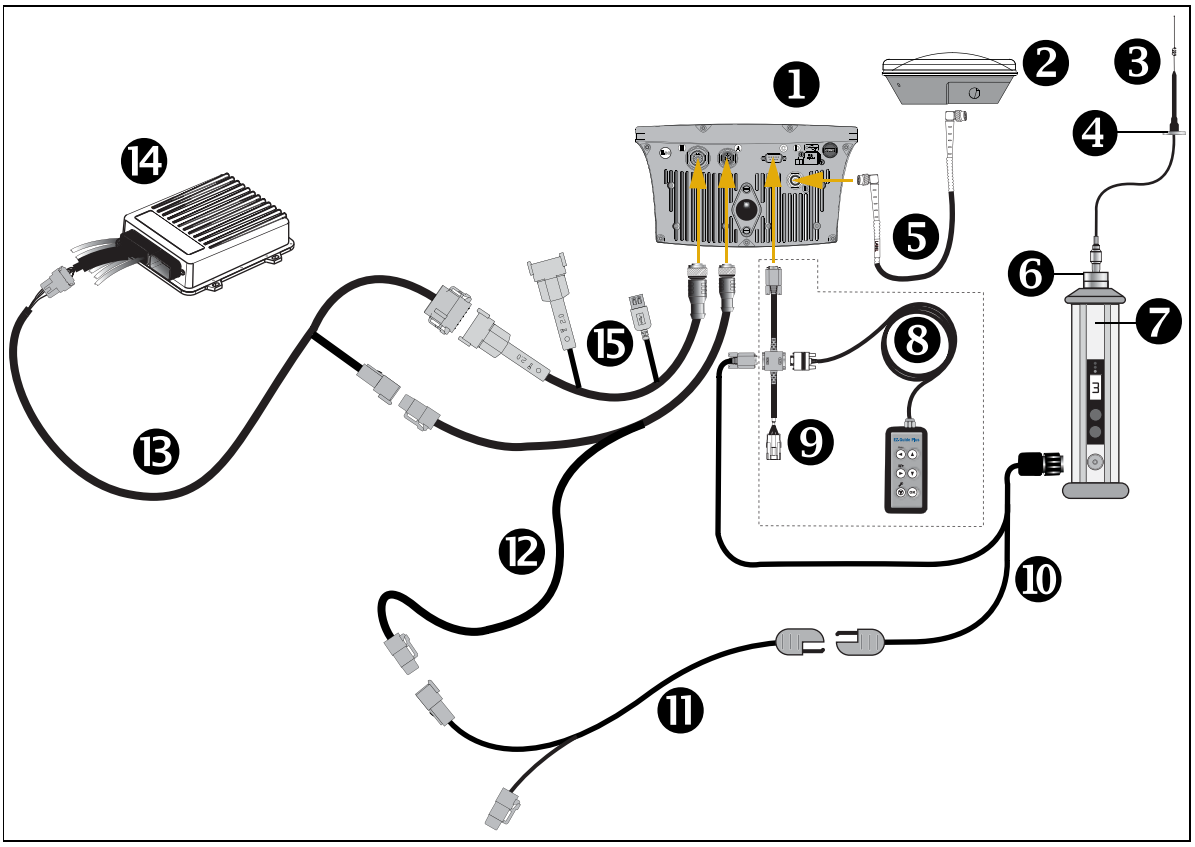
With a SiteNet radio for 900 MHz RTK corrections (if equipped)



Item	Description
❶	EZ-Guide 500 lightbar
❷	GPS antenna (P/N 57200-00)
❸	SiteNet radio antenna (P/N 22882-00)
❹	SiteNet radio antenna magnetic mount (P/N 62109)
❺	GPS antenna cable (P/N 50449)
❻	Radio antenna connector (P/N 46740)
❼	SiteNet radio

Item	Description
❽	Remote keypad (optional - P/N 66030-00)
❾	External interface cable (P/N 62749)
❿	EZ-Guide 500-to-radio cable (P/N 62082)
⓫	EZ-Guide 500 power cable (P/N 62817)
⓬	EZ-Guide 500-to-Autopilot cable (P/N 62754)
⓭	*Ag*GPS Autopilot controller
⓮	Port expansion cable (P/N 62609)

With a PDL 450 radio for 450 MHz RTK corrections (if equipped)



Item	Description
❶	EZ-Guide 500 lightbar
❷	GPS antenna (P/N 57200-00)
❸	PDL 450 radio antenna (P/N 5187-x0-x0)
❹	Radio antenna magnetic mount (P/N 62109)
❺	GPS antenna cable (P/N 50449)
❻	Radio antenna connector (P/N 63278)
❼	PDL 450 radio (P/N 62550-4x-xx)
❽	Remote keypad (optional - P/N 66030-00)

Item	Description
❾	External interface cable (P/N 62749)
❿	PDL radio power/data cable (P/N 51861-00)
⓫	Power tap to PDL radio (P/N 63185)
⓬	EZ-Guide 500 power cable (P/N 62817)
⓭	EZ-Guide 500-to-Autopilot cable (P/N 62754)
⓮	*Ag*GPS Autopilot controller
⓯	Port expansion cable (P/N 62609)

EZ-Guide 500 lightbar: Installing the antenna plate and GPS 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 section

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 46.

Attach the V plate to the spar with the four ¼"-20 flathead screws provided. The narrow end points forward.



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.

- **L1/L2 dual band antenna (RTK, OmniSTAR, DGPS)** – 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.
- **L1 single band antenna (WAAS, EGNOS, OmniSTAR VBS, Beacon)** – 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.

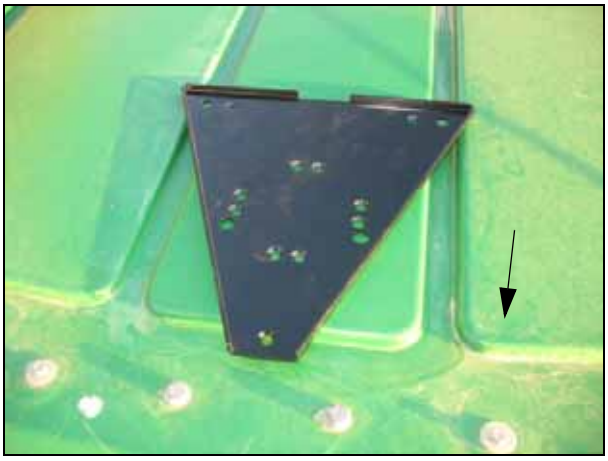
Note – *The VHB strips are pre-applied to the 4" x 6" plate.*



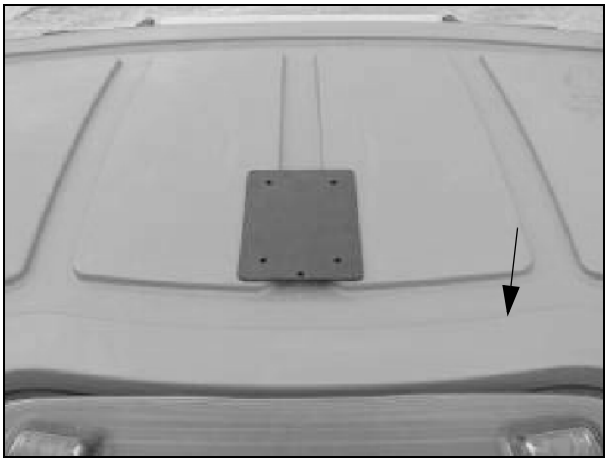
Step 3

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.*



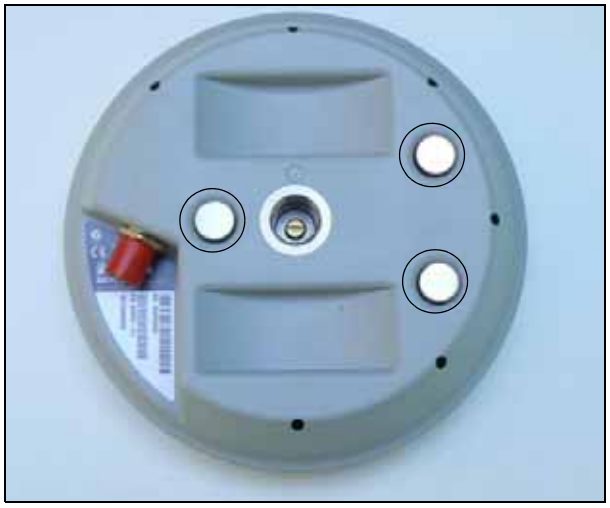
V plate



4" x 6" plate

Step 4

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



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



Step 5

L1/L2 dual band antenna (RTK, OmniSTAR, DGPS)

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



L1 single band antenna (WAAS, EGNOS, VBS, Beacon)

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.



EZ-Guide 500 lightbar: Installing the SiteNet radio and 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 section.

Step 1

Position the SiteNet radio in the cab where it is out of sight and secured from rolling. Connect the antenna adaptor to the SiteNet radio.



Step 2

Connect the radio antenna to the magnetic antenna base.



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



Step 4

Feed the radio antenna cable down from the roof and into the cab to the radio. Connect the cable to the radio.



Installing a PDL radio modem

Step 1

Position the radio where it is accessible for the operator to select a new radio channel ID.



There are several mounting options:

- For a permanent mount, bolt the radio onto a bracket with a $^{5}/_{8}$" UNC screw.

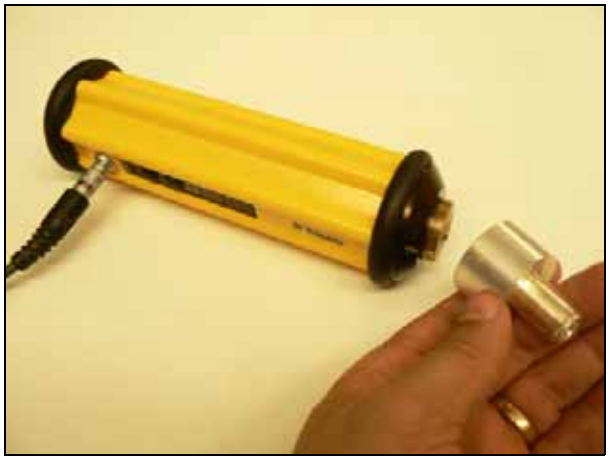


- For a temporary mount (so it can be moved between vehicles), mount the radio on a magnet with a 5/8" UNC stud.



Step 2

Connect the radio antenna cable adaptor to the radio.



Step 3

Connect the radio cable to the adaptor.



Preparing the EZ-Guide 500 lightbar

Note – *Before you attach the lightbar to the RAM mount, connect the EZ-Guide 500 cables to the back of the lightbar.*

Step 1

Locate the EZ-Guide 500 lightbar, the RAM mount and hardware, and the RAM mount clamp.



Step 2

Attach the RAM mount diamond base to the display using the hardware provided.



Connecting the EZ-Guide 500 lightbar cables

Note – *Before you attach the lightbar to the RAM mount, connect the EZ-Guide 500 cables to the back of the lightbar.*

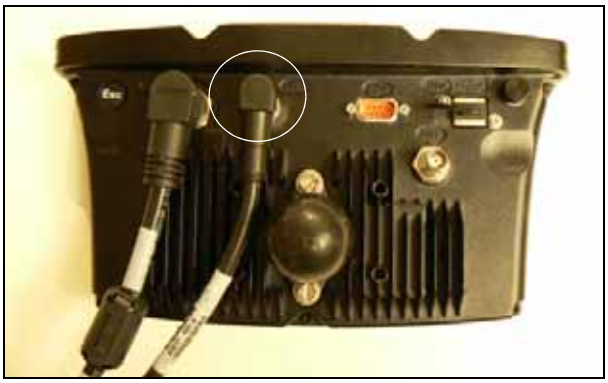
Step 1

Connect the port expansion cable (P/N 62609) to the AUX port on the back of the lightbar.



Step 2

Connect the EZ-Guide 500 power cable (P/N 62817) to the PWR port on the back of the lightbar.



Step 3

Connect the 2-pin connector on the port expansion cable and the 12-pin connector on the power cable to the matching connectors on the EZ-Guide 500-to-Autopilot cable (P/N 62754).

Step 4

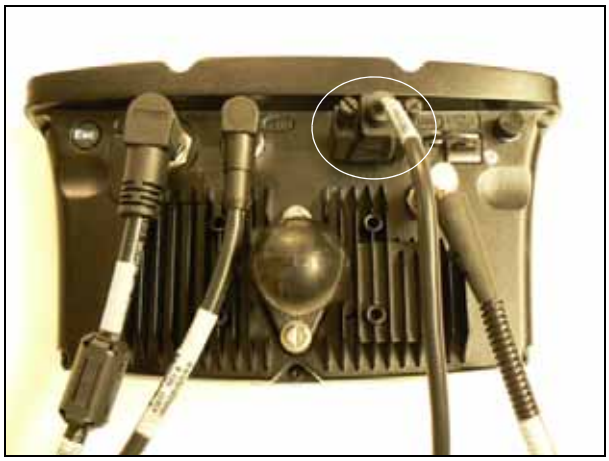
Feed the GPS antenna cable into the cab and then connect it to the antenna port on the back of the lightbar.



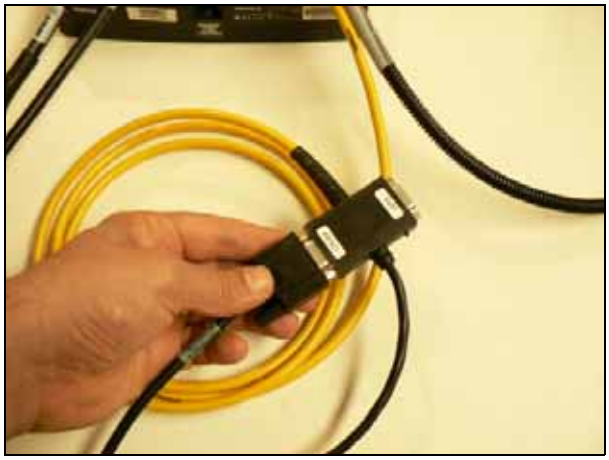
Step 5

With keypad

Connect the external interface cable (P/N 66030-00) to the serial port on the back of the lightbar.

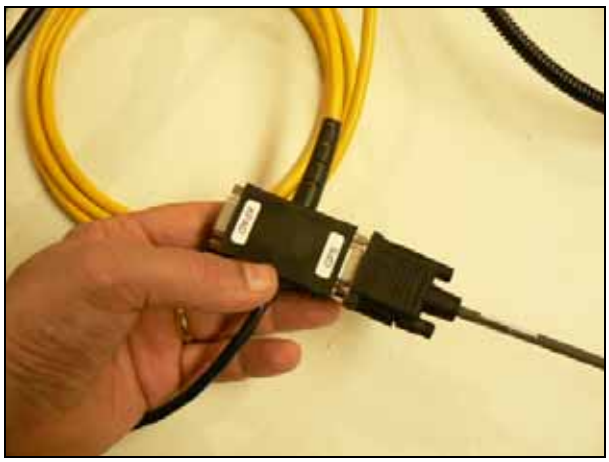


Connect the remote keypad to the KPAD serial port on the external interface cable.



Connect the appropriate cable to the GPS serial port on the interface cable:

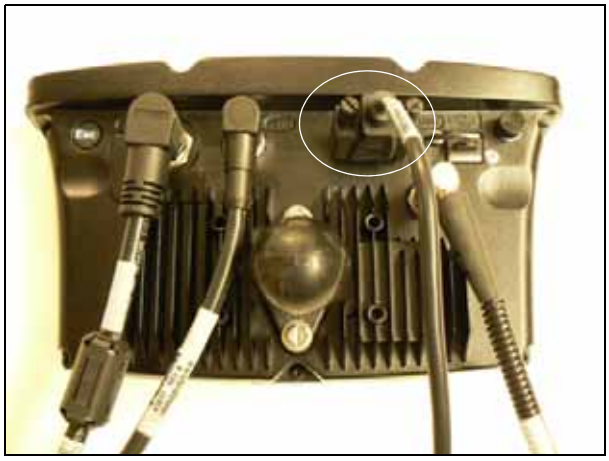
Radio type	Cable to connect
SiteNet radio	EZ-Guide 500-to-radio cable (P/N 62082)
PDL 450 radio	PDL radio power/data cable (P/N 51861-00)



Without keypad

Connect the appropriate cable to the serial port on the back of the lightbar:

Radio type	Cable to connect
SiteNet radio	EZ-Guide 500-to-radio cable (P/N 62082)
PDL 450 radio	PDL radio power/data cable (P/N 51861-00)





SiteNet radio

Step 6

Connect the other end of the radio cable to the radio.

Step 7

SiteNet radio only

Connect the S5 connector on the EZ-Guide 500-to-radio cable to the connector on the EZ-Guide 500 power cable.

Step 8

PDL radio only

Connect the remaining connector on the PDL radio power/data cable to the matching connector on the power tap cable (P/N 63185).

Connect the connector at the other end of the power tap cable to the EZ-Guide 500 power cable.

Installing the EZ-Guide 500 lightbar

Step 1

Select the location for the lightbar in the cab. There must be a bar that the RAM mount can be attached to.



Step 2

Sit in the driver's seat and hold the lightbar in place. Ensure that it allows comfortable access to the display buttons and does not obstruct instruments.



Step 3

Attach the RAM mount to the ball on the rear of the lightbar.



Step 4

Attach the free end of the RAM mount to the bar mount. Tighten the clamp on the RAM mount so that the lightbar is held securely in place.



Step 5

Adjust the angle of the RAM mount for ease of use.



CHAPTER

6

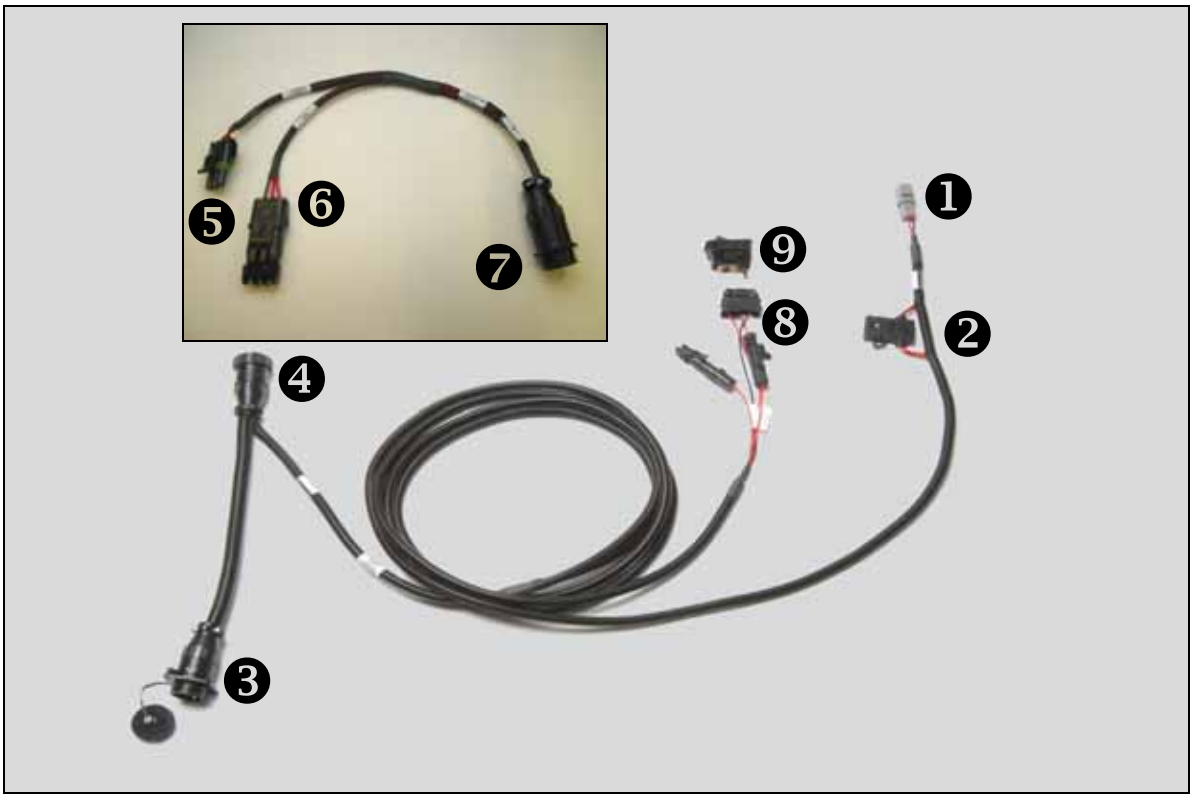
Power Harness Installation

In this chapter:

- Power harness components
- Installing the power harness

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

Power harness components



Item	Description
❶	Controller power connection
❷	Fuse holder - Littlefuse 257010, 10 amp
❸	Extra accessory outlet
❹	Accessory jumper cable (P/N 54630)
❺	Vehicle power
❻	Rate controller power
❼	Vehicle power jumper (P/N 63058)
❽	Switch receptacle
❾	Switch

Note – *Route all harnesses, wires, and cables along paths that are free of obstructions and pinch points. Use wire ties where necessary. For ease of installation, the connectors on all harnesses are identified by component. The following instructions will only give you the general direction to route the components. You are responsible for determining the best method of concealing all routings.*

Note – *Make note of where you remove any wire harness and hose tie straps during disassembly so they can be properly installed during assembly.*

Installing the power harness

Step 1

To gain access to the power lead, remove the rate controller, if present.



Step 2

Connect the vehicle power jumper to the existing 3-pin weatherpak connector.



Step 3

If the connection is used by the rate controller, insert the jumper cable in-line as shown.



Step 4

Connect the main accessory power cable to the vehicle jumper and route to the controller.



Step 5

Identify and mark a location to mount the power switch.



Step 6

Remove the transmission shifter cover. Use a thin blade screw driver to release the plastic clips.



Step 7

Remove the bolts and plastic shroud to gain access to the electrical bay.



Step 8

Create a switch location with a cutout tool or die grinder.

Note – *You may complete the following steps after you install the controller.* *See Installing the controller, page 118.*



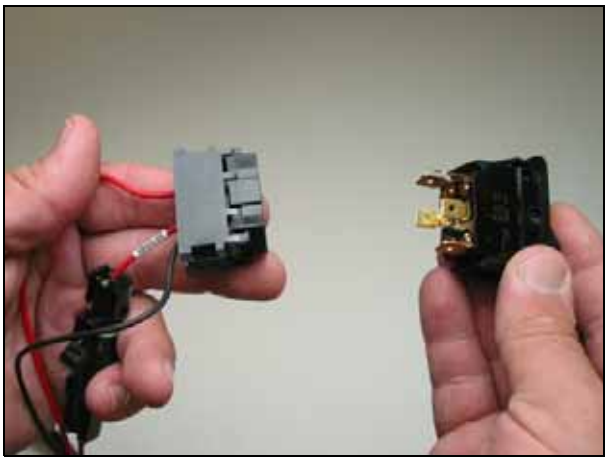
Step 9

Route the power switch leg to the switch location.



Step 10

Mate the black (ground) wire in the receptacle with pin 3 of the switch. The pins are marked on the sides of the switch.



Step 11

Install the power switch.



CHAPTER

7

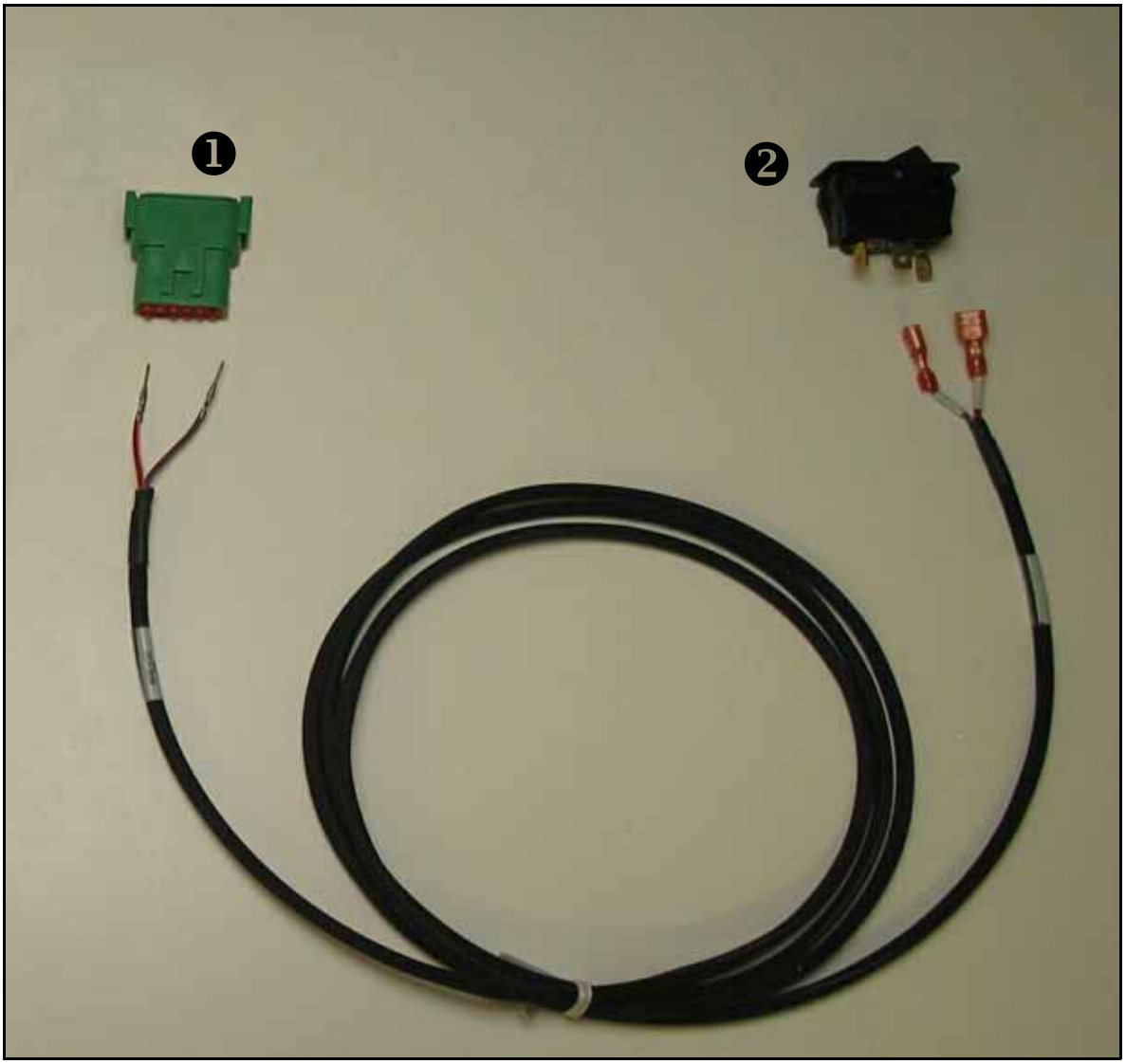
Remote Engage Switch Installation

In this chapter:

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

There are two types of remote engage switch. This chapter describes how to install them.

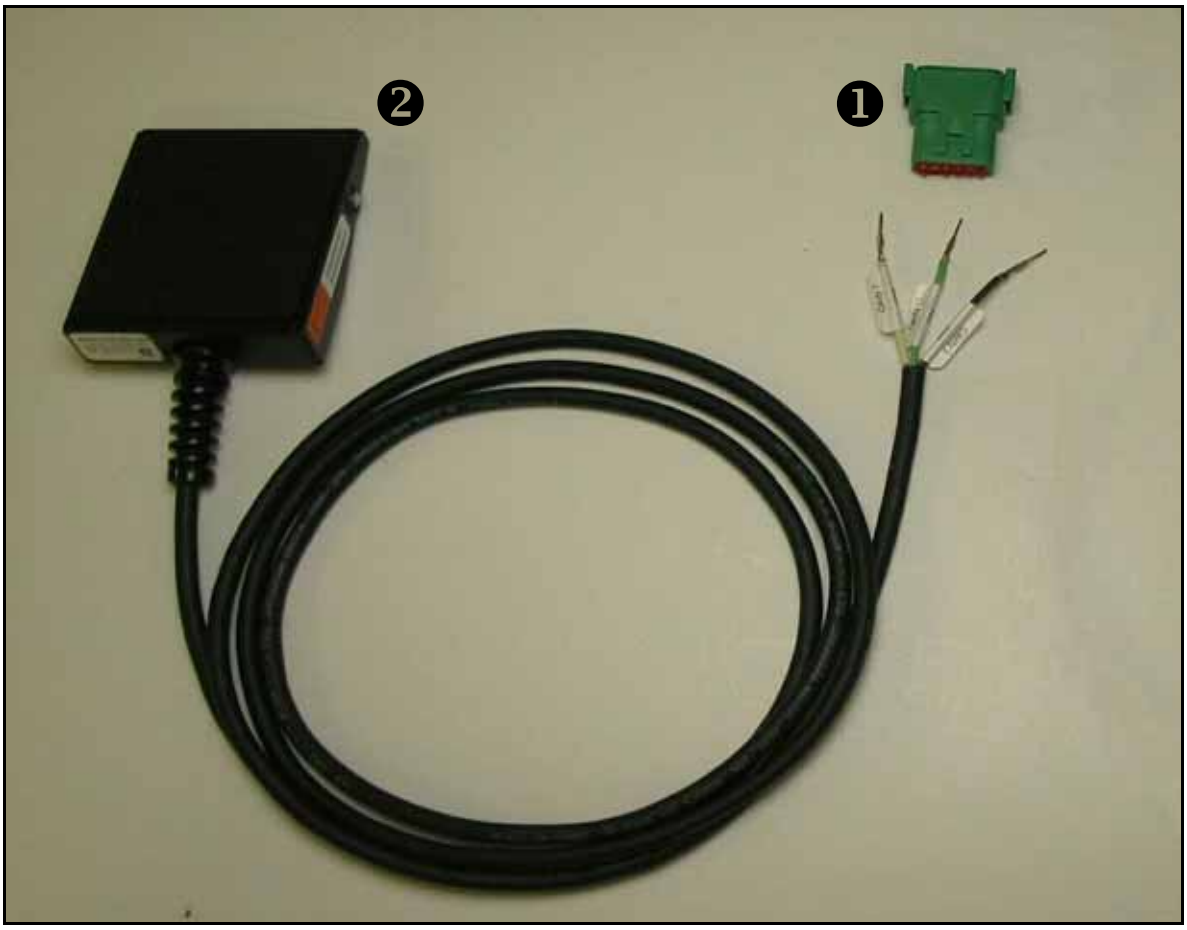
Remote engage switch components: Rocker switch



Item	Description
❶	DTM receptacle
❷	Remote engage rocker switch

Note – *Full or Standard Euro switch, depending on kit ordered.*

Remote engage switch components: Foot switch

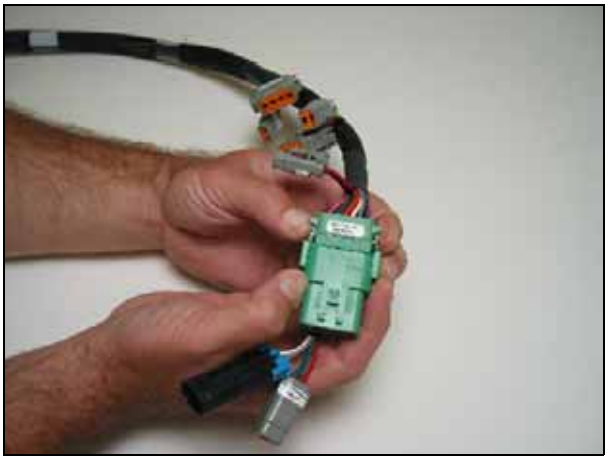


Item	Description
❶	DTM receptacle
❷	Remote engage foot switch

Preparing the remote engage cable

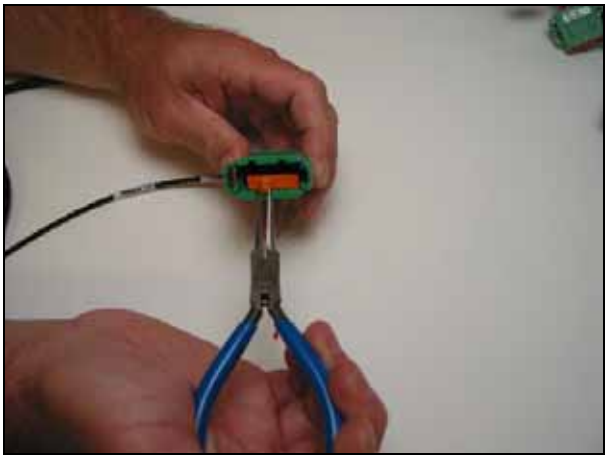
Step 1

Locate the green 12-pin Deutsch receptacle on the P-5 leg of the main controller harness. See Chapter 8, Controller Connections.



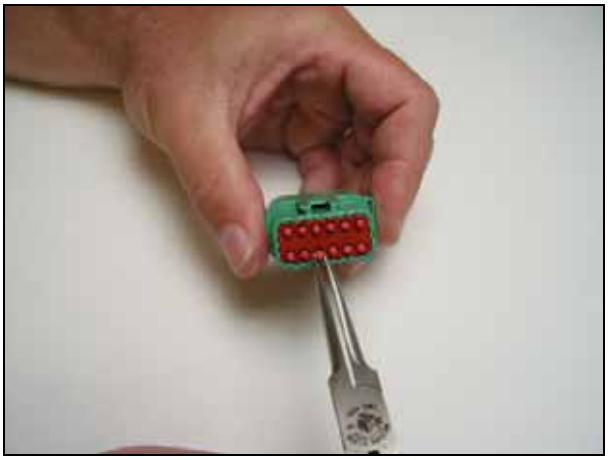
Step 2

Remove the wedge from the connector.



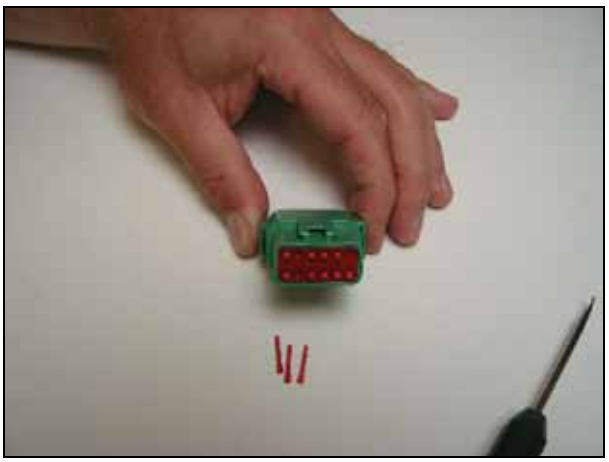
Step 3 Rocker switch only

Remove the plugs from cavity 2 and 7.



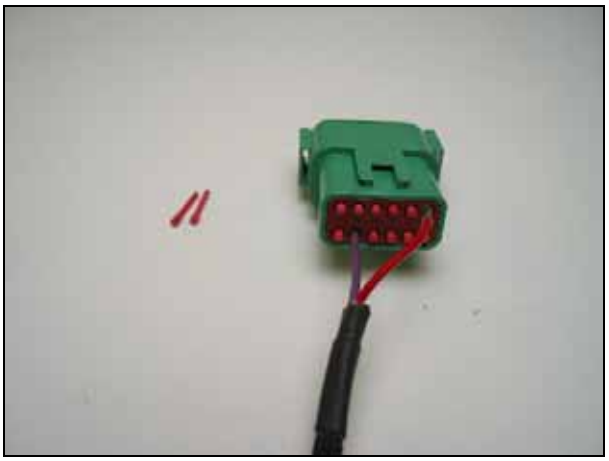
Foot Switch Only

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



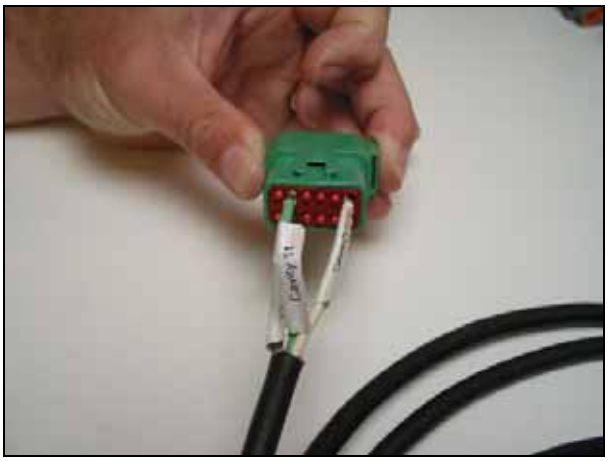
Step 4 Rocker Switch Only

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



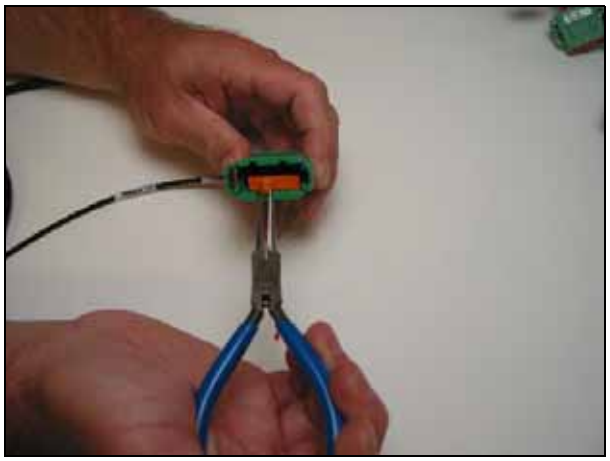
Foot Switch Only

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



Step 5

Pull on the wires to seat them in place. Replace the wedge in the connector.



Step 6

Rocker Switch Only

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



Foot Switch Only

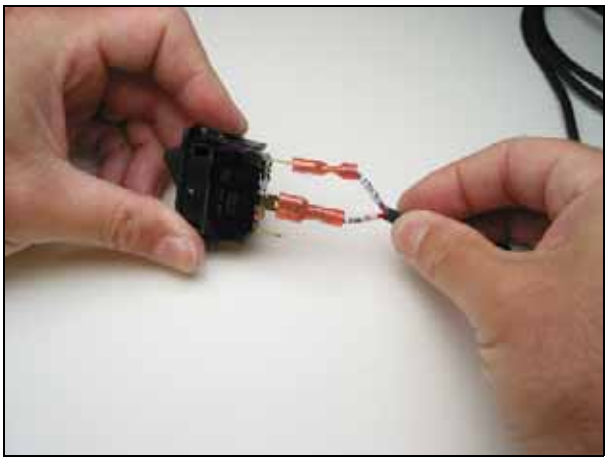
Run the cable to a clear location on the floor board. Use double-sided tape to secure the pedal. Route the cable under the floor mat.



Step 7

Rocker Switch Only

Connect the wires to the switch that matches the print on the switch body and labels on the wires.



Step 8

Rocker Switch Only

Place the switch in the console.



Using the remote engage switch

Step 1

Hold the switch down for at least 0.5 seconds.

Note – *Holding the switch shorter than 0.5 seconds will not engage the system.*

Step 2

Release the switch between 0.5 and 4.0 seconds. The vehicle will engage when the switch is released.

CHAPTER

8

Controller Installation

In this chapter:

- Installing the controller
- Controller Connections

This chapter describes the installation of the controller unit in the vehicle.

Installing the controller

Step 1

The controller is mounted in the electronics bay at the right of the seat. See Installing the power harness, page 105 for removal of the plastic shrouds.



Step 2

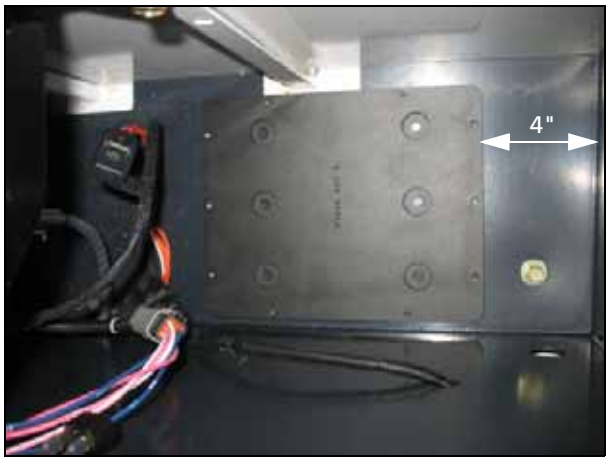
Remove the fuse and relay bracket shown to gain access to the floor.



Step 3

Place the controller mounting plate on the floor of the bay against the right support and approximately 4" from the rear wall.

Note – *The controller plate must be parallel to the axis of the vehicle.*



Step 4

Mark the two $^{3}/_{8}$" holes on the inside for drilling through the floor panel as shown.



Step 5

Before drilling the two holes, verify there are no obstructions under the cab.



Step 6

Bolt the plate to the floor using two $^{5}/_{16}$" x 1½" long bolts and hardware. Do not use washers between the hex head of the bolt and the plate.

Note – *The hex head of the bolt must be even with, or below, the surface of the controller plate.*



Step 7

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



Step 8

Install the controller with the connectors to the back of the cab. Use the four #10-32 screws provided in the kit.

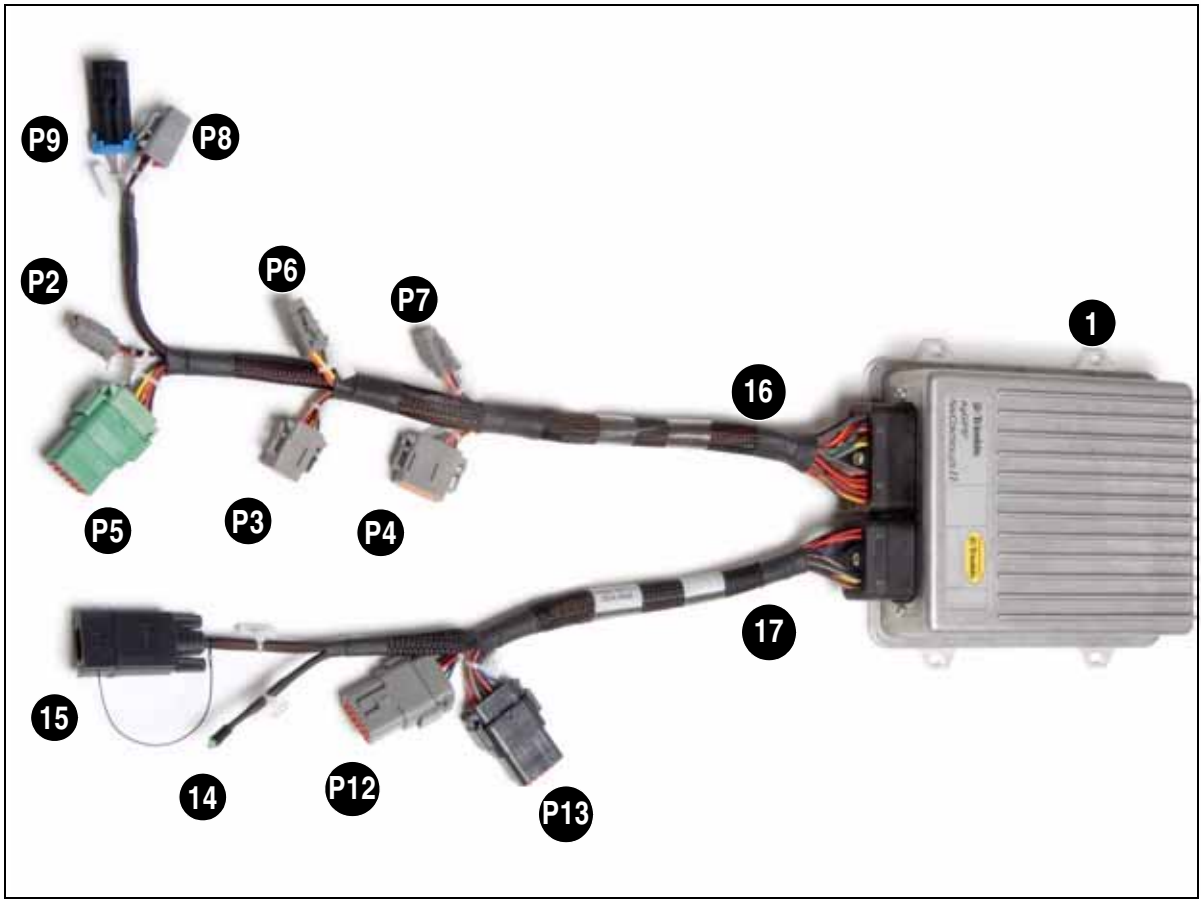


Step 9

Route the cables into the cab through the cable pass shown at the bottom of the cab.



Controller Connections



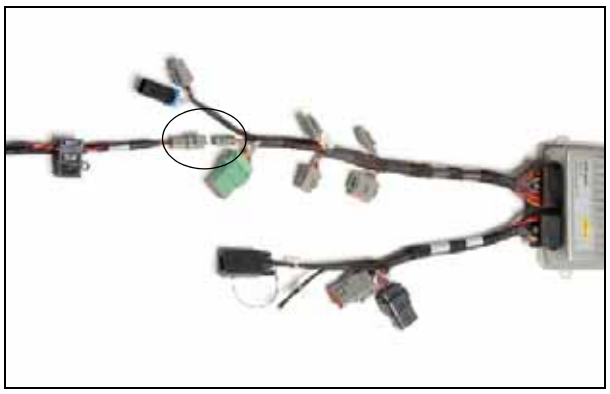
Item	Description
1	NavController II controller
P2	Power connector
P3	GPS connector
P4	Display connector
P5	Vehicle sensors connector
P6	Steering sensor connector
P7	Manual override connector
P8	Hydraulic valve connector

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

Step 1

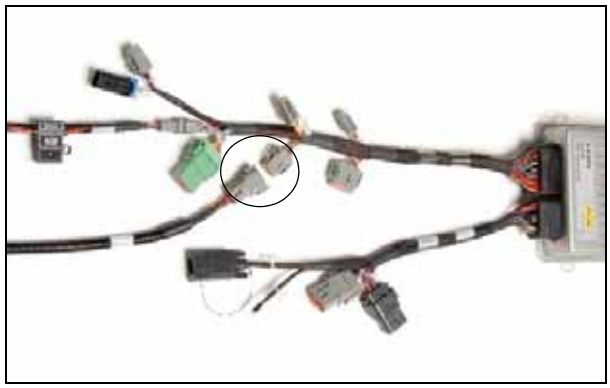
Connect the power cable connection to P-2, which is labeled “Power”. P-2 is located on the main wiring harness.

Note – *The power connection supplies power through the controller to all connected devices, including GPS and displays.*



Step 2

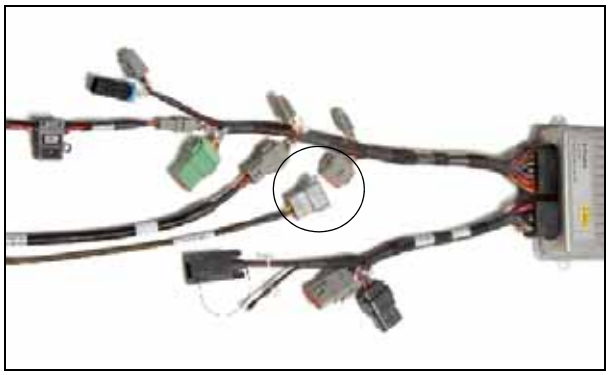
Connect the GPS cable connection to P-3, which is labeled “GPS”. P-3 is located on the main wiring harness.



Step 3

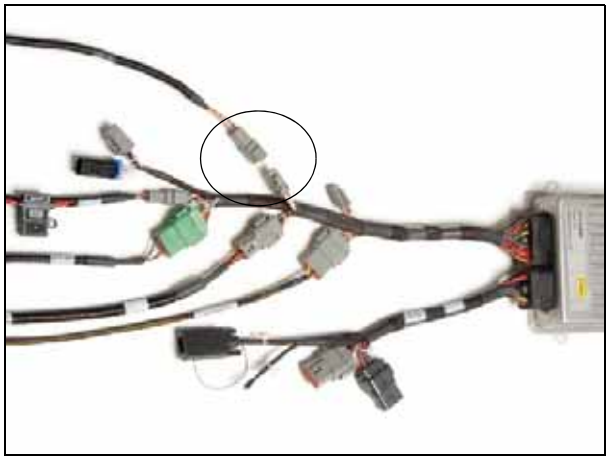
Connect the primary display cable connection to P-4, which is labeled “Display”. P-4 is located on the main wiring harness.

Note – *Do not connect the cable to the connector labeled “Spare” on the auxiliary harness.*



Step 4

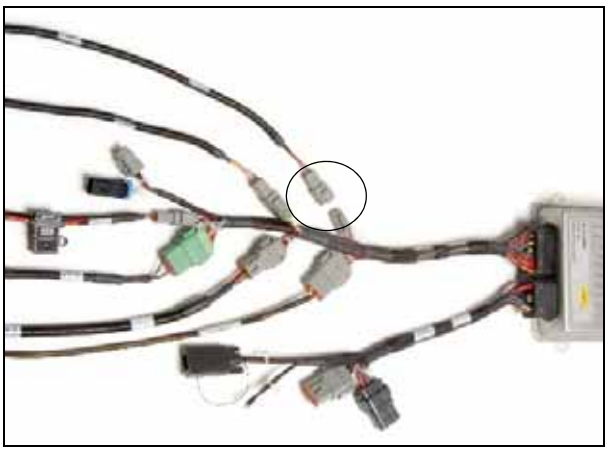
Connect the steering sensor cable connection to P-6, which is labeled “Steering Sensor”. P-6 is located on the main wiring harness.



Step 5

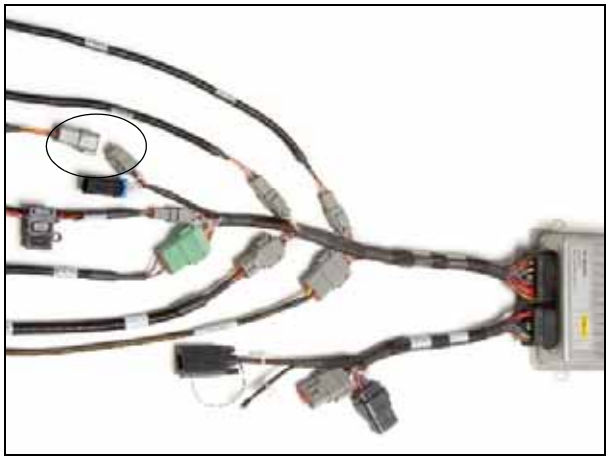
Connect the manual override cable connection to P-7, which is labeled "Manual Override". P-7 is located on the main wiring harness.

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



Step 6

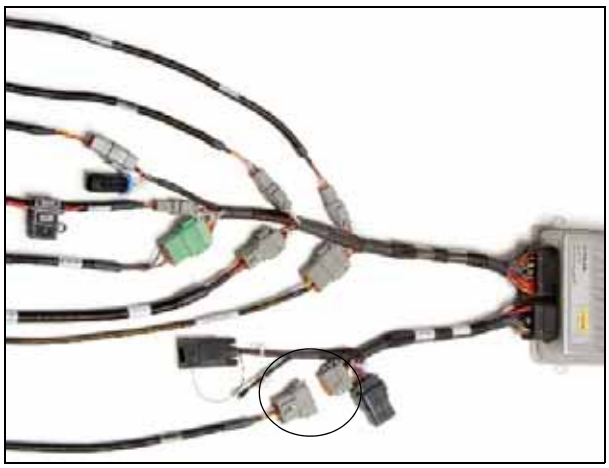
Connect the hydraulic steering valve cable connection to P-8, which is labeled "Hydraulic Valve". P-8 is located on the main wiring harness.



Step 7

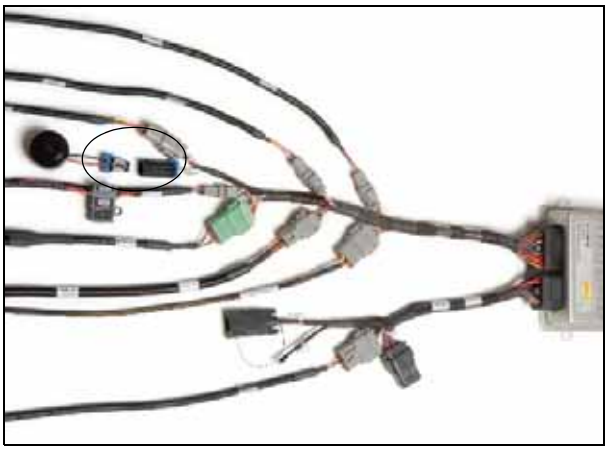
When you use a lightbar as a secondary display to an *Ag*GPS 170 Field Computer, connect the lightbar cable connection to P-12, which is labeled "Lightbar/Spare". P-12 is located on the auxiliary wiring harness.

Note – *If an AgGPS 50 or AgGPS 150 lightbar is connected to P-12, it will act as a lightbar only.*



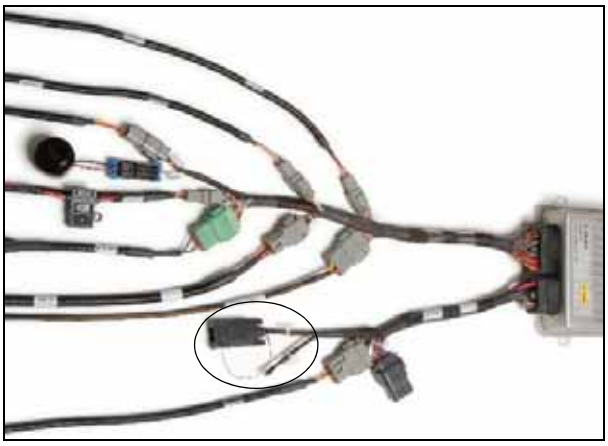
Step 8

Connect the Sonalert P-9 to the two pin Delphi connector on the main wiring harness. Route the cable so the Sonalert warning device is in a position that is audible to the operator.



Step 9

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 10

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

CHAPTER

9

Final Machine Check

In this chapter:

- Performing the final machine check

This chapter describes how to perform a final check of the vehicle.

Performing the final machine check

Step 1

Connect the battery.

Step 2

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

Step 3

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

Step 4

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