INSTALLATION INSTRUCTIONS

*Ag*GPS® TrueTracker™ Implement Steering System Tongue Steer Kit

- **Harriston Tongue Steered Planters**
- **Lockwood Tongue Steered Planters**

Version 1.00
Revision A
August 2009
Part Number 54066-12-E04

Trimble®

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Release Notice

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

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

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www.trimble.com/ev.shtml
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 – Before you begin work, ensure that the vehicle is parked on a clean, dry, and level surface. An uneven surface could cause the implement to shift or fall, resulting in serious injury or death, as well as implement damage.

WARNING – When you are working with a heavy, raised implement, there is a risk of the implement dropping. This can cause serious injury or death, or damage to the implement. Before you start to install the TrueTracker system on the implement, make sure that all people are clear of the vehicle. Lower the implement to the ground, place the tractor in park, turn off the engine, and remove the key.

WARNING – If you must raise the primary implement, be aware that the implement can fall, causing serious injury. Use bar stands to support it. Securely support all implement components that must be raised.

Cautions

CAUTION – When routing a cable, make sure that it is in a protected place and does not touch moving components.

CAUTION – Make sure that the steering pot is at the center of its travel when the tongue is straight. Otherwise, the steering pot may over-travel and fail. A correctly centered pot shows 2.5 Volts.

Contents

CHAPTER

1

Introduction

In this chapter:

This manual describes how to install the *Ag*GPS® TrueTracker™ implement steering system from Trimble.

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

Technical assistance

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

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

Your comments

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

Required components

Platform kit

Kits required	Trimble part number
Tongue Steer kit Platform kit, FmX™ integrated display / FM-1000™ integrated display	54067-12
Tongue Steer kit Platform kit, FieldManager™ display	54066-12

Accessory part numbers

Kits required	Trimble part number
Pole bracket, Orthman Tracker IV	54065-17
40’ extension cable for 10-pin data cable	AG 0793-1290-450
Weather-proof enclosure for NavController II or 432/442 receiver	54065-14 (included in the platform kit)
Enclosure mounting plate bracket	54065-16 (included in the platform kit)

FmX / FM-1000 accessories

Kits required	Trimble part number
Extension cable for 65’ LMR400 antenna cable	67473
FmX implement steering cable kit	54065-07

FieldManager display accessories

Kits required	Trimble part number
TrueTracker upgrade kit for the *Ag*GPS 432/442 Receiver	54065-05
FieldManager implement steering cable kit	54065-06

The hydraulic hoses

Any hose lengths described in this manual are estimates; the actual hose lengths required may vary depending upon the implement.

Trimble recommends that hose lengths are measured on site, based on the following instructions, and the hoses should then be manufactured by your local hydraulic specialist.

CHAPTER

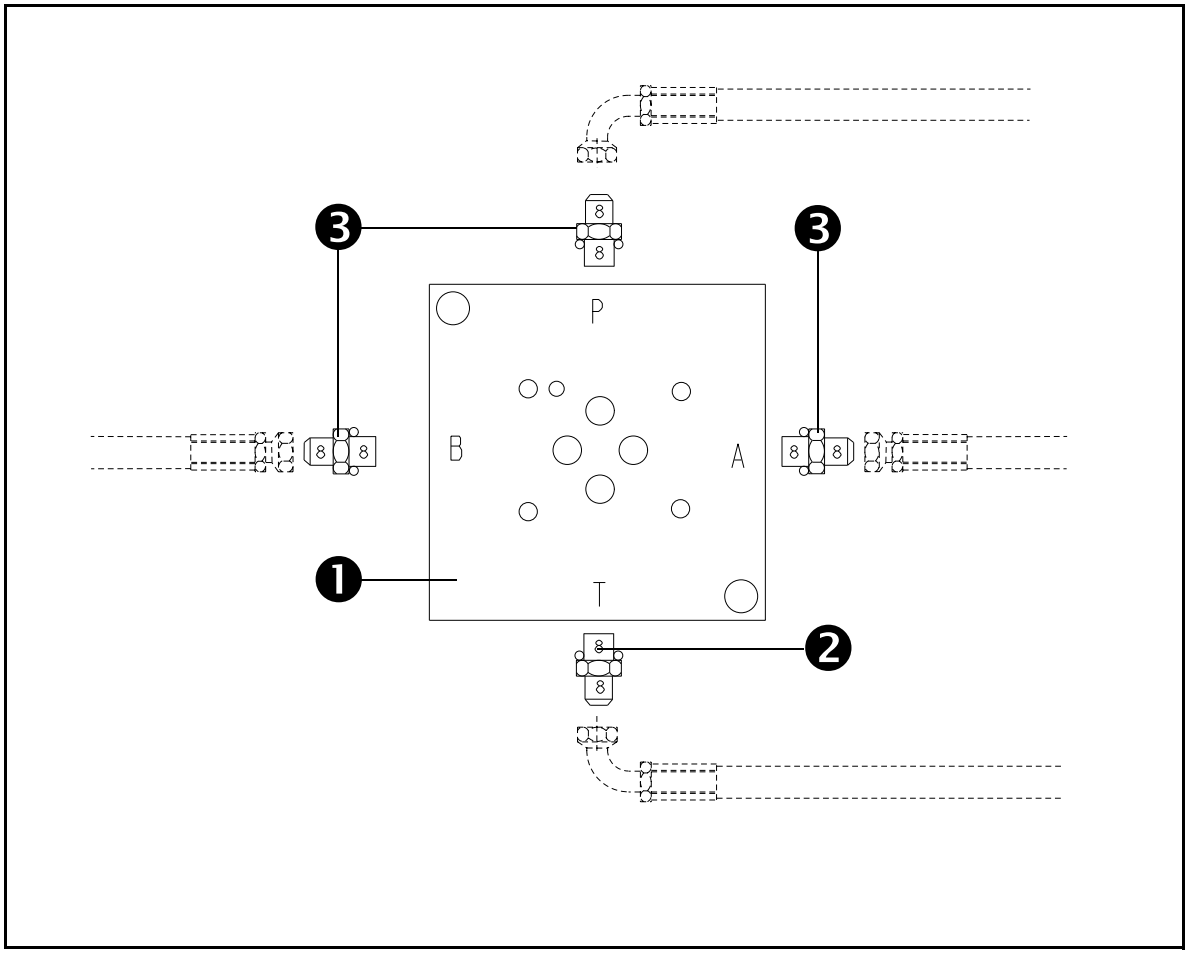
2

Manifold Installation

In this chapter:

This chapter describes how to install the manifold on the implement.

Manifold components



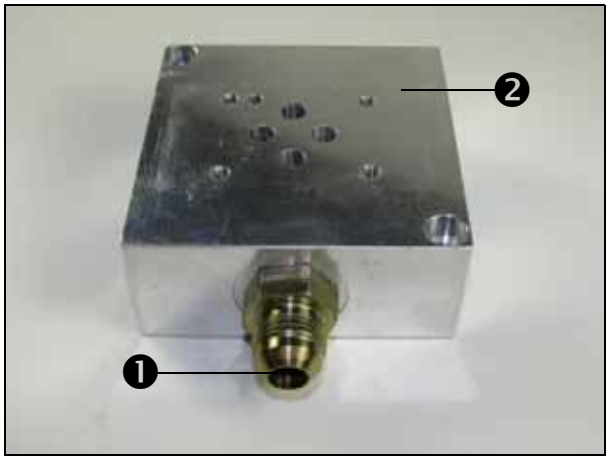
Item	Description
❶	Valve subplate (P/N 57257)
❷	Check valve (P/N 62839)

Item	Description
❸	Various fittings as required (x3)

Preparing the manifold

Step 1

Attach the supplied check valve (❶) fitting to the “T” port of the manifold (❷).



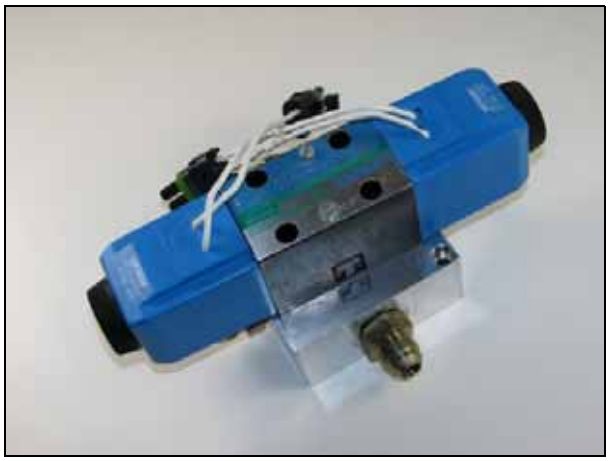
Step 2

Attach the following:

- 90° JIC fitting to the pressure port of the manifold.
- 90° JIC fitting to the check valve fitting.
- # 8 JIC straight fittings to the "A" and "B" ports of the manifold.

Step 3

Attach the hydraulic control valve to the sub-plate manifold using the supplied hardware.



Installing the manifold

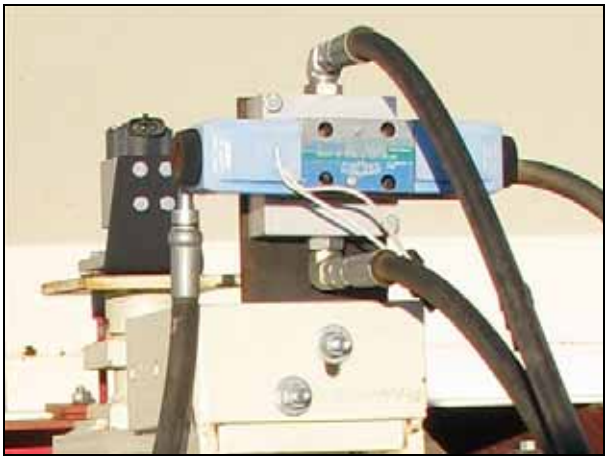
Step 1

Identify a flat area on the implement to attach the manifold to and then do one of the following:

- Using the manifold as a template, mark locations for the mounting hardware and then drill and tap two ¼" -20 holes.

  Attach the manifold using the supplied hardware.

- Drill two clearance holes for ¼" bolts and then attach the manifold with bolts and nuts.



Connecting the hydraulic hoses

Step 1

Attach the pressure and tank hose from the manifold to a pressure and tank source such as the rear auxiliary remotes on the tractor, or an existing manifold on the implement.

Step 2

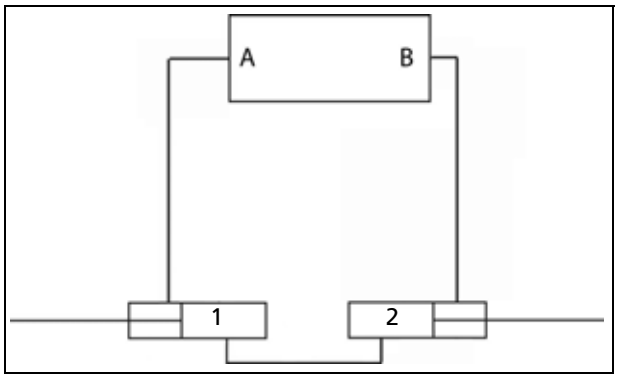
There are two options for installing the hydraulic lines from the A and B ports of the manifold to the steering cylinders.

The cylinders are often configured so that the outlet of one cylinder goes to the inlet of the other.

Option 1: Serial

Install the hydraulic lines so that the A line goes into the inlet of the first cylinder. There is a hose from the *cylinder 1* outlet to the outlet of *cylinder 2*.

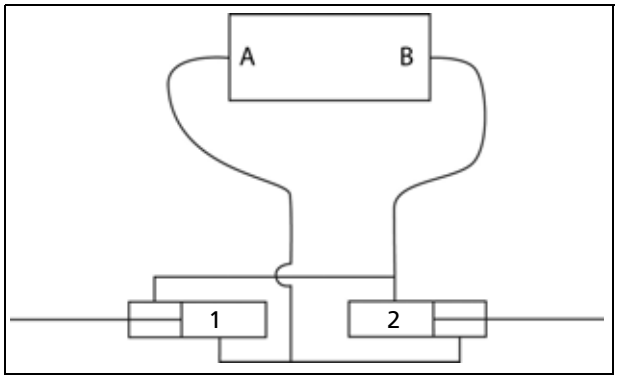
Connect a hydraulic line from the inlet of *cylinder 2* to the B port of the manifold.



Option 2: Parallel

Connect the line from the A port to the outlet of *cylinder 1* and the inlet of *cylinder 2*.

Connect the line from the B port to the inlet of *cylinder 1* and the outlet of *cylinder 2*.



Installing the steering sensor

Install the steering sensor so that it measures the angle of the tongue steer-mounted cylinder as it steers the implement.

Step 1

Locate the main pivot of the steering tongue; install the steering sensor so that the sensor axis is aligned with the pivot axis.

Attach the supplied sensor bracket and sensor mount and then attach the steering pot sensor to the sensor mount.

Step 2

Attach the arm onto the steering pot holder so that the steering pot is in the center of travel.

Using the supplied threaded rod and some unions, attach the threaded rod to the arm and then weld it to the implement.

CAUTION – Make sure that the steering pot is at the center of its travel when the tongue is straight. Otherwise, the steering pot may over-travel and fail. A correctly centered pot shows 2.5 Volts.

CHAPTER

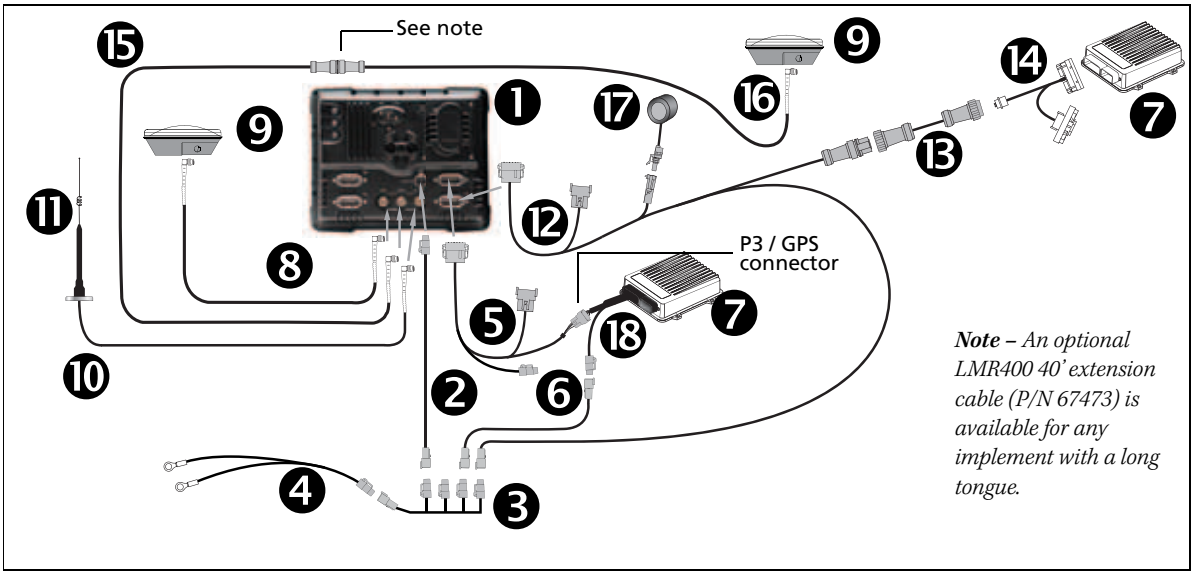
3

Trimble Component Installation

In this chapter:

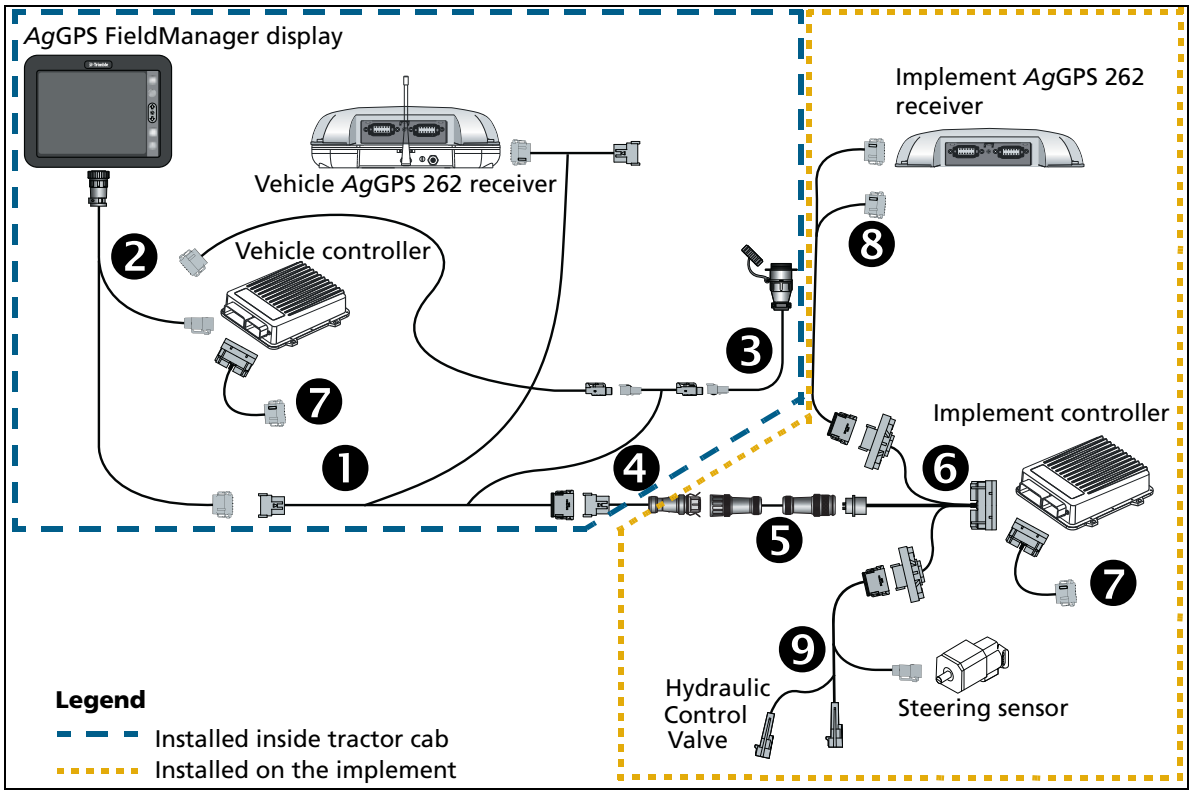
This chapter describes how to install the Trimble components of the TrueTracker system.

Cable components for the FmX integrated display with the Autopilot and TrueTracker systems



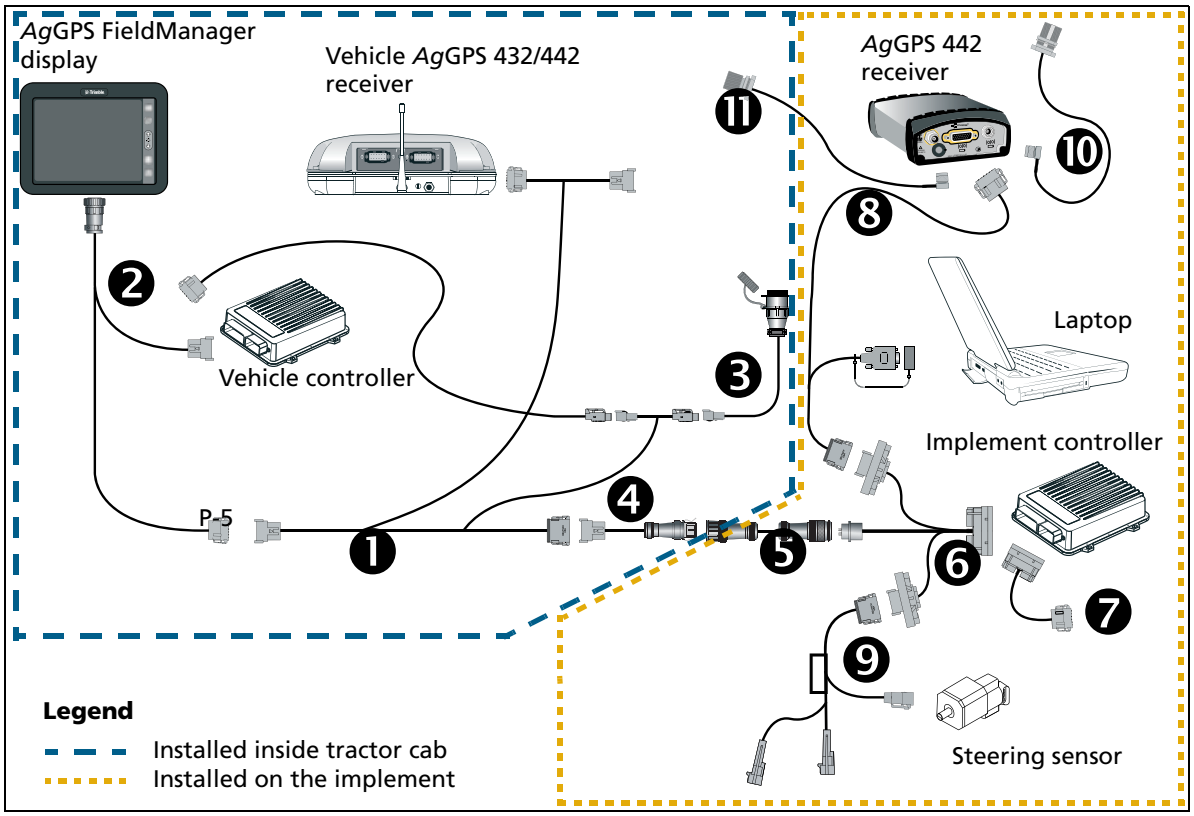
Item	Description	Trimble part number
❶	FmX integrated display	93100-02
❷	FmX power cable	66694
❸	FmX power cable with relay and switch (power bus)	67259
❹	Basic power cable	67258
❺	FmX to NavController II cable with port replicator	75741
❻	2-pin DTM to 2-pin DT power adaptor	67095
❼	NavController II (x2)	55563-00
❽	8m GPS TNC/TNC RT angle cable	50449
❾	Z-Plus GPS antenna (x2)	57200-00
❿	NMO to TNC 20ft antenna cable and base	62120
⓫	900 MHz radio antenna kit	22882-10
⓬	FmX to TrueTracker cable	67092
⓭	Implement extension cable	0793-8740-450
⓮	FmX to NavController II and TrueTracker main harness	67612
⓯	Coaxial 160" N/f + TNC/m-ra cable	68295
⓰	Coaxial 480" N/m + TNC/m-ra cable	67472
⓱	Sonalert	43104
⓲	Main NavController II cable	54601

Cable components for the FieldManager display and the *Ag*GPS 262 GPS receiver



Item	Description	
❶	Cab interconnect harness	60630
❷	*Ag*GPS FieldManager display full harness	59872
❸	Auxiliary power cable	54630
❹	Quick disconnect jumper	0395-9150-030
❺	Implement extension cable	0793-8740-450
❻	Implement main harness	60724
❼	Auxiliary harness	54602
❽	*Ag*GPS 262 Implement receiver cable	60725
❾	Implement valve and steering sensor cable	60632

Cable components for the FieldManager display and the *Ag*GPS 432 GPS receiver or *Ag*GPS 442 GNSS receiver



Item	Description	Trimble part number
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❸	Auxiliary power cable	54630
❹	Quick disconnect jumper	0395-9150-030
❺	Implement extension cable	0793-8740-450
❻	Implement main harness	60724
❼	Auxiliary harness	54602
❽	*Ag*GPS 432/442 implement receiver cable	67046
❾	Implement valve and steering sensor cable	60632
❿	Radio jumper	67214
⓫	Antenna jumper	66993

Installing the *Ag*GPS FieldManager cab harness

Note – *Step 1 through Step 7 applies to a FieldManager display installation only. Step 8 through Step 10 applies to a FieldManager display and to an FmX integrated display installations.*

Step 1

Install a full *Ag*GPS FieldManager™ display harness with P-5 drop.

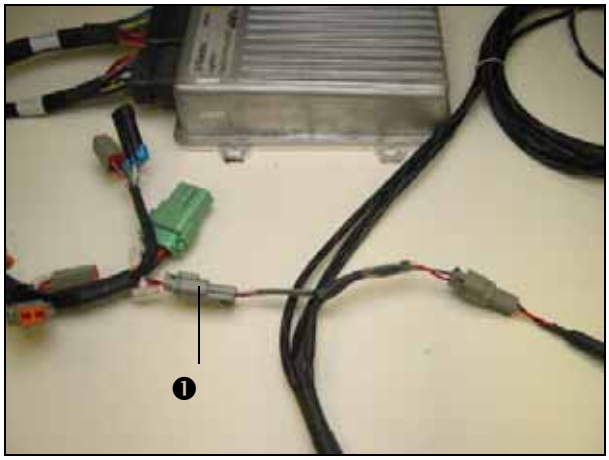
Note – *See the cabling diagram for part numbers.*

Step 2

Connect the pink DTM connector on the cab interconnect harness to the P-5 leg of the FieldManager display harness.

Step 3

Insert the power jumper leg ❶ of the interconnect cable at the tractor controller power connection P-2.



Step 4

Disconnect the radio jumper from port B on the receiver.

Step 5

Route the radio jumper leg of the interconnect cable to the *Ag*GPS 900 radio on the tractor.

Step 6

On the radio jumper section of the interconnect harness:

- Join one connector to the radio jumper that is attached to the radio.
- Join the other connector to Port B on the receiver.

Step 7

Connect the gray DT implement leg connector to the quick-connect jumper.

Step 8

Attach the Sonalert to the extension on the cab interconnect cable.

Note – *The second Sonalert provides implement feedback separate from the vehicle.*

Step 9

Route the jumper out of the cab to the bulkhead at the rear of the tractor.

Step 10

Attach the provided bulkhead clamp and quick-disconnect end of the cable to the tractor.

To attach the aluminum bulkhead, do one of the following:

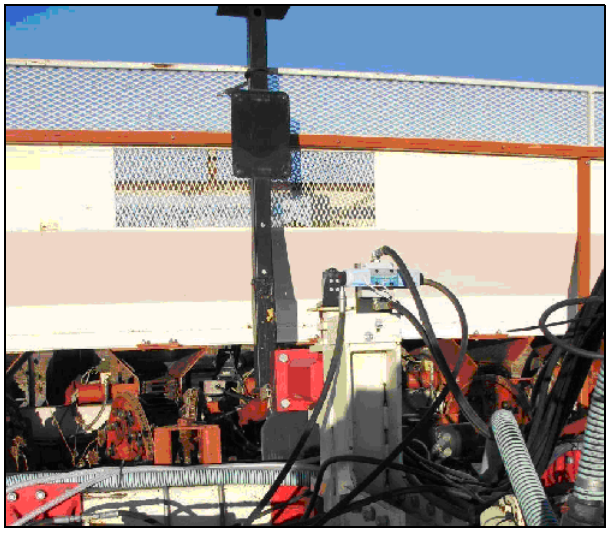
- Tap $^{5}/_{16}$" holes into existing brackets and attach the bulkhead to the tractor.

- Weld the provided bar stock to the tractor and attach the bulkhead to the bar stock.

Attaching the antenna mast

Step 1

Attach the controller/antenna mast to the center of the main member on the steering unit.



When you secure the mast, use a level.

Installing the *Ag*GPS 262 receiver

Step 1

Attach the round AMP bulkhead connector on the main harness using #40 screws.

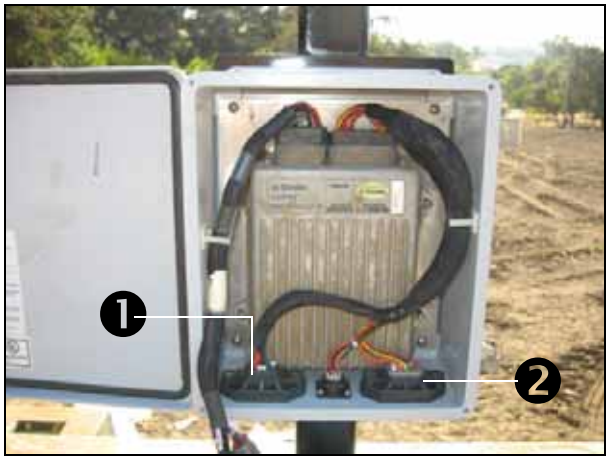
Attach the provided gasket between the bulkhead and electrical box.

Step 2

Attach the bulkheads on the main harness using the provided hardware:

❶ Black DT: two 6 mm Phillips head screws

❷ Gray DT: two 6 mm Phillips head screws



Step 3

Attach the main harness and auxiliary harness to the controller.

Step 4

Attach the controller on the aluminum mounting plate with the connectors pointing up. Use 10-32 screws.

Step 5

Attach the *Ag*GPS 262 GPS receiver to the controller/antenna mast. The antenna must be clear of obstructions that can block satellite signals.

Note – *If you need to reposition the mast, enter the measured distance in the calibration/setup page.*

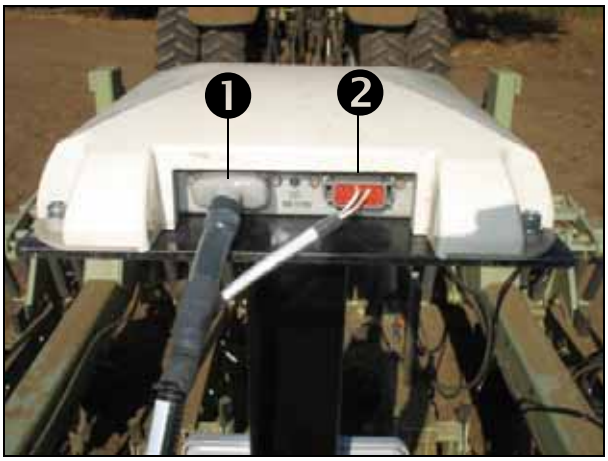
Installing the implement cabling for the *Ag*GPS 262 receiver

Step 1

Connect the implement receiver cable to the gray DT bulkhead at the controller box.

Step 2

Route the cable to the receiver and then connect the A ❶ and B ❷ legs.



Step 3

Attach the steering valve harness extension to the existing steering valve connectors, and then route the cable to the steering valve.

Connect the following:

- "Valve A" connector to the left valve coil.
- "Valve B" connector to the right valve coil.

Step 4

Route the steering sensor cable to the steering sensor, connect it to the steering sensor pot and then route the implement extension cable along the implement to the tractor.

CAUTION – Make sure that the cabling is in a protected place and does not touch moving components.

Step 5

Connect the implement extension cable to the round bulkhead connector at the controller.

Step 6

Route the implement extension cable along the implement to the tractor.

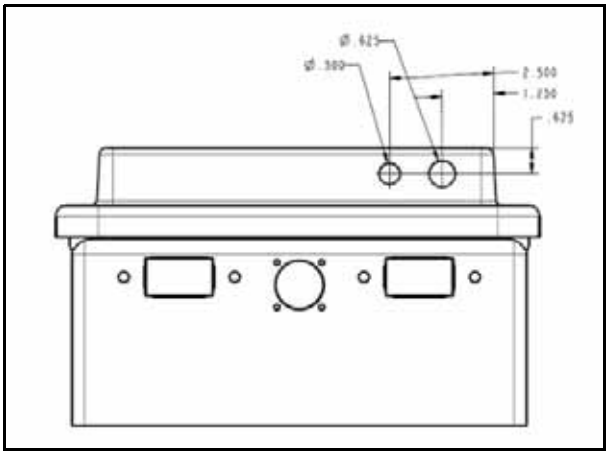
CAUTION – Make sure that the cabling is in a protected place and does not touch moving components.

Preparing the 432/442 receiver box

Step 1

Use a step drill to drill two holes in the cover of the TrueTracker box:

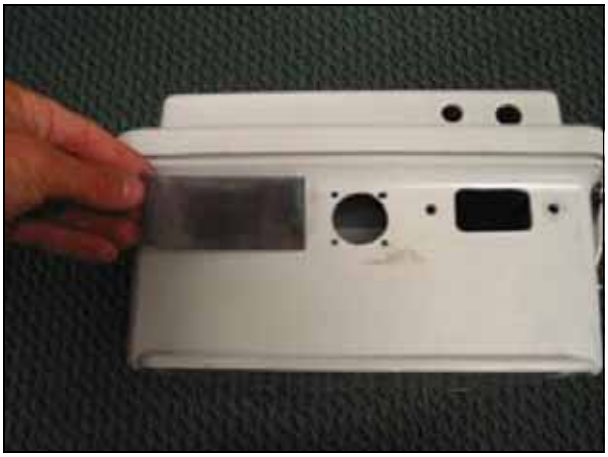
- One ½ inch hole.
- One $^{5}/_{8}$ inch hole.



Step 2

Place the provided decal over the left opening on the TrueTracker box,

Place a decal on the inside of the box covering the same opening.



Step 3

Thread the provided cables through the drilled holes.

Tighten the jam nut to hold the bulk head connector in place.

Step 4

Remove the rubber guards from the receiver.

Step 5

Use a Phillips screwdriver to remove the screws that hold the metal clip to the receiver.

Step 6

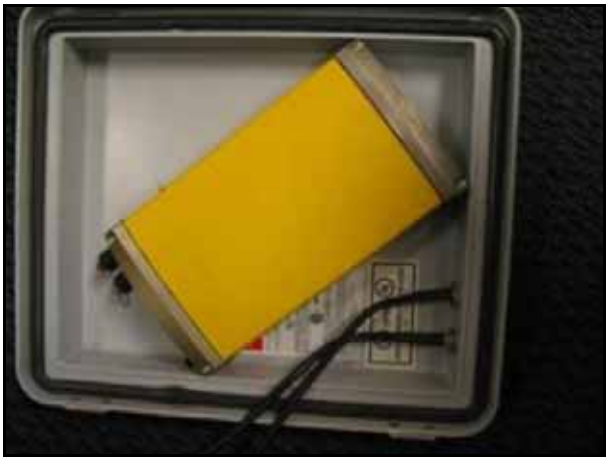
Stick the provided high-strength Velcro to the receiver in the position shown.

Press firmly on the Velcro so that the adhesive bonds to the surface of the receiver.

Step 7

To correctly position the Velcro in the lid of the TrueTracker box, partially attach the two provided mating pieces of Velcro to the receiver, remove the protective film and place the receiver in the box as shown. The adhesive on the Velcro sticks to the cover of the TrueTracker box.

Remove the receiver and then press firmly on the Velcro so that the adhesive bonds to the cover of the TrueTracker box.



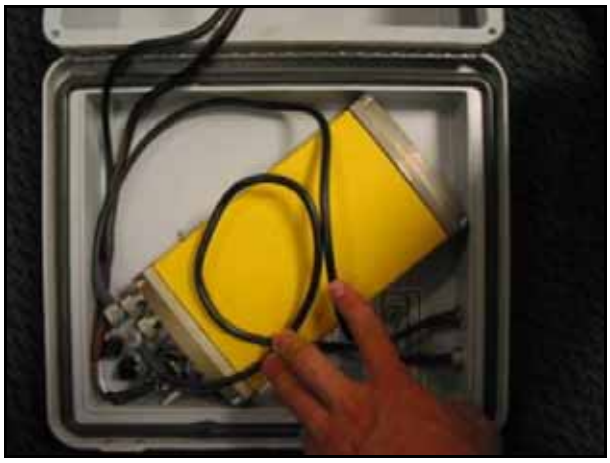
Step 8

Remove the protective covers from the GPS and antenna ports and then attach the connectors to the receiver.

Plug the provided cable in to the serial port on the receiver.

Step 9

Place the receiver in the cover of the TrueTracker box and then press firmly to fix the receiver to the Velcro.



Step 10

Attach the other end of the provided cable to the connector labeled ***GPS***.

Step 11

Connect the implement valve and steering cables, and the radio and GPS cables, to the TrueTracker box.

Step 12

Route the cables to their respective components and then attach them. Make sure that the cables do not touch any moving implement components.