INSTALLATION INSTRUCTIONS

Autopilot

automated steering system

Case IH Tractors AccuGuide Ready

- Maxxum Tier 4B: 115, 125, 135, 145 with PVED-CLS
- Puma Tier 4B: 150, 165, 180, 200, 220, 240 with PVED-CLS
- Optum: 270, 300 with PVED-CLS
- Steiger Tier 4B: 370, 420, 470, 500, 540, 580, 620 with PVED-CLS

New Holland Tractors IntelliSteer Ready

- T6 Tier 4B: T6.145, T6.155, T6.165, T6.175, T6.180 with PVED-CLS
- Puma Tier 4B: 150, 165, 180, 200, 220, 240 with PVED-CLS
- T7 Tier 4B: T7.165, T7.175, T7.190, T7.210, T7.220, T7.225 with PVED-CLS
- T7 HD T4B: T7.270, T7.300
- T9 Tier 4B: T9.435, T9.480, T9.530, T9.565, T9.600, T9.645, T9.700 with PVED-CLS

Steyr Tractors S-Guide Ready

- CVT: 6150, 6145, 6150, 6160, 6165, 6180 with PVED-CLS
- Profi: 4115, 4125, 4135, 4145 with PVED-CLS
- Terrus CVT: 6270, 6300 with PVED-CLS

PTx Trimble

Version 10.00
Revision A
February 2025
P/N 54035-6028-E10

Legal Notices

Agriculture Business Area

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Release Notice

This is the February 2025 release (Revision A) of the *Autopilot Automated Steering System Installation Instructions*, part number 54035-6028-E10. It applies to Version 10.00 and later of the Autopilot automated steering system.

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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:

DANGER! ALERTS YOU TO A SITUATION THAT IS LIKELY TO RESULT IN DEATH OR SERIOUS INJURY.

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

DANGER! 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 THE BOOM TO THE LOWEST POSITION BEFORE YOU BEGIN WORK.

DANGER! 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.

DANGER! VEHICLE CABS CAN BE QUITE HIGH IN THE AIR. TO AVOID POTENTIALLY SERIOUS INJURY THROUGH FALLING FROM THIS HEIGHT, ALWAYS USE THE STEPS AND HANDRAILS, AND FACE THE VEHICLE, WHEN YOU ENTER OR EXIT IT.

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

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

Cautions

CAUTION – Damage will result to the cable if it is not routed correctly. When routing cables be sure to route them free from areas that may result in damage to the cables including pinching, stretching and rubbing.

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



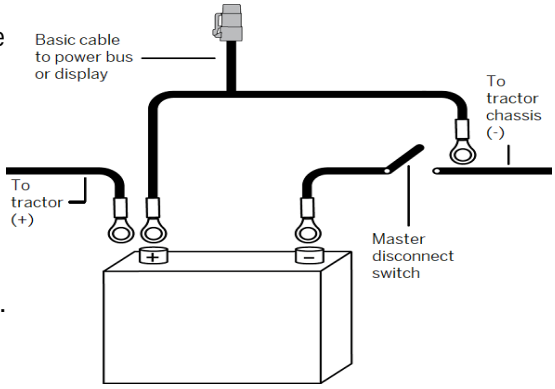
Set the hose pressure as low as practicable, and spray at a 45° to 90° angle. Keep the nozzle of the power washer away from the machine at the distance recommended by the manufacturer.

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

CAUTION – Before you drill any holes, check behind the drilling surface to ensure that you will not damage any hoses, wires, or other equipment. Failure to do so could result in damage to the vehicle.

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

Attach this terminal side just past the main disconnect so that it is as close as possible to the battery but still gets disconnected when the master disconnect is turned off. Failure to do so can result in damage to the display.



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Introduction

- Technical assistance
- Manual system upgrade to the Autopilot system
- Preparing the vehicle for installation

This manual describes how to install the platform specific components of the Trimble® Autopilot™ automated steering system.

For installation of the GFX display and NAV-9xx guidance controller please review the separate display and NAV controller installation guide.

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

Technical assistance

Go to the Ag Resource Center for the latest support information, including:

- support notes detailing support issues
- documentation
- the latest files available for download

If you still cannot find the information that you need, contact your Trimble reseller.

Manual system upgrade to the Autopilot system

Displays

Retain
GFX display: P/N 13x000-01
NAV-960™ guidance controller: P/N 131800-04
Power cable GFX display: P/N 110551 Base power cable: P/N 67258 GFX display to NAV-xxx comms cable: P/N 110540

Required components

Kits required	Special tools
Platform kit: P/N 54035-6028	Standard hand tools

Antenna mounting kits

Kits required
P/N 132088: Mounting plate, NAV-960, CNHi adapter Spar mounts (must measure application for proper part number): • P/N 64898: Bracket, GPS Spar 16.5"– 28.5" • P/N 55349: Bracket, GPS Spar 27.5"– 37.5" • P/N 53676: Bracket, GPS Spar 36.5"– 46.5" • P/N 55348: Bracket, GPS Spar 45"– 55" • P/N 66774: Bracket, GPS Spar 54"– 64"

Preparing the vehicle for installation

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

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

TIP – Read through the steps and make certain you have all the hand tools needed before starting installation.

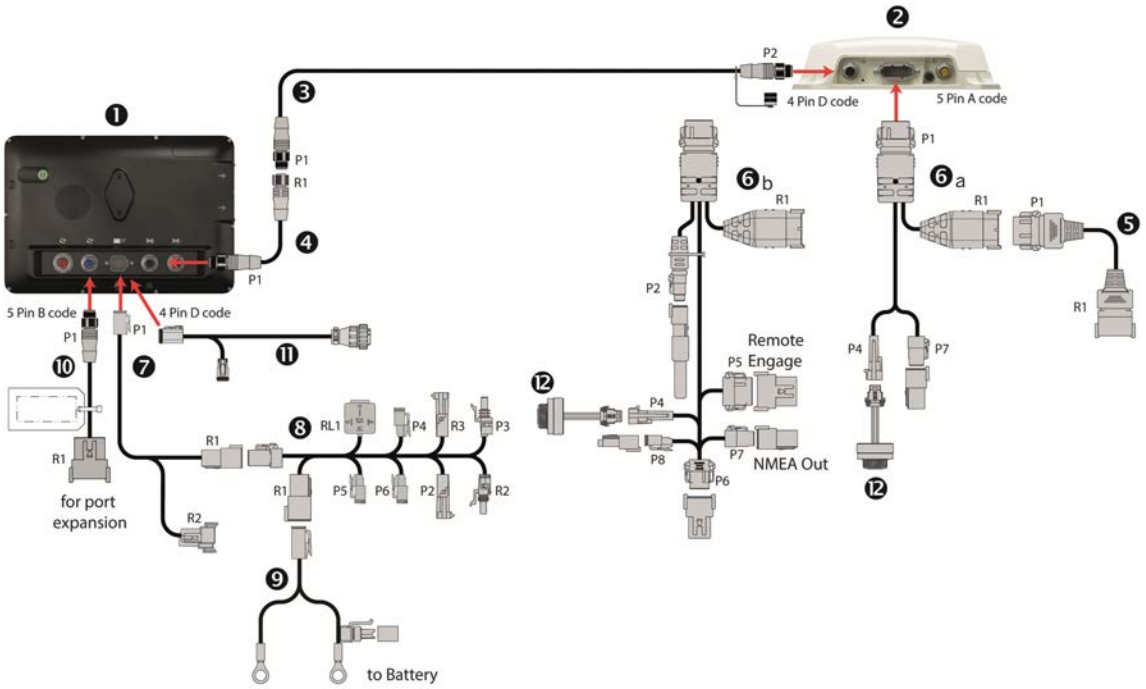
2

Connecting the NAV-960 controller

- System components
- Connecting the cables

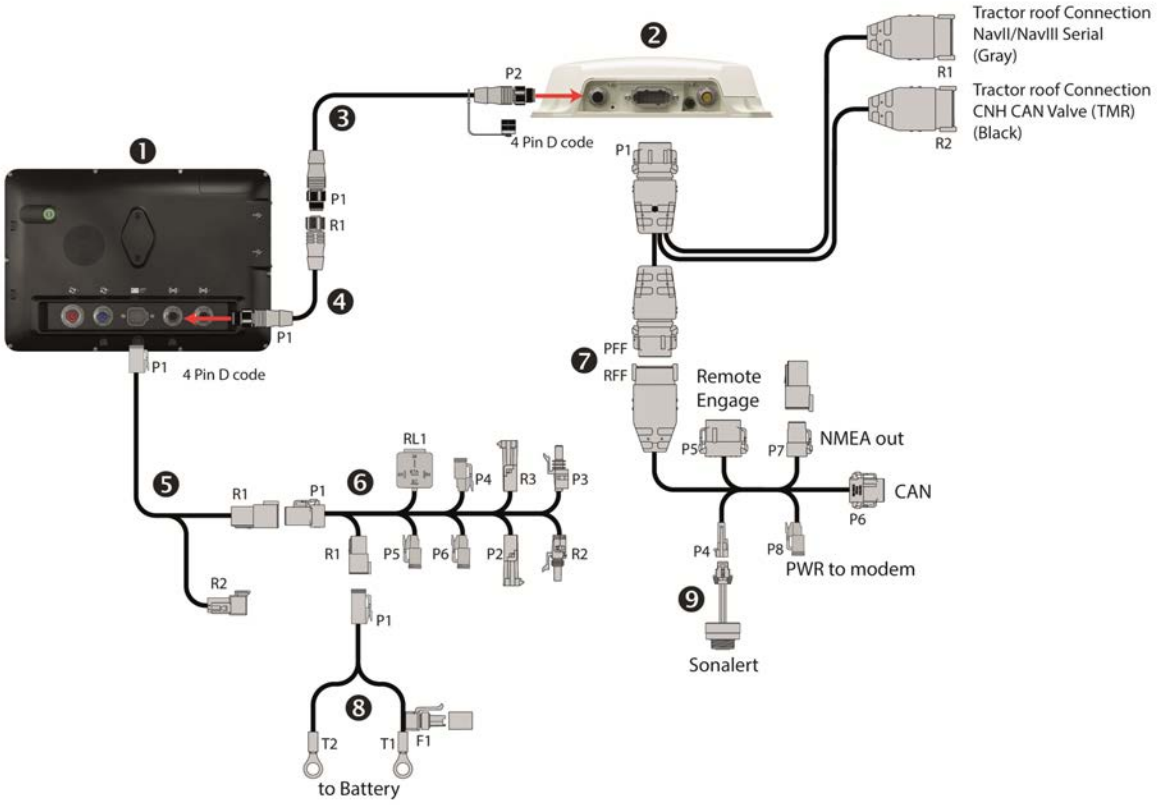
System components

Machines using P/N 130738 or 124616 cable



Item	Description	P/N
1	GFX display, with PIQ App	13x000-01
2	NAV-960 guidance controller	131800-04
3	Cable Assy, GFX to NAV, Power/Ethernet (BRR), 5 m	110540
4	Cable Assy, GFX to NAV, Power/Ethernet (BRR) Extension, 2.5 m (optional extension for large vehicles	112082
5	Cable Assy, NAV, CAN - to CNH AGR	124616
6a	Cable Assy, NAV, Roof CAN, Sonalert, NMEA	130738
6b	Cable Assy, NAV, Roof CAN, Sonalert, NMEA, R.E., IMU Extension (optional)	122387
7	Cable Assy, GFX, Power to display, CAN, 2.5 m	110551
8	Cable Assy, GFX, Power with Relay and Switch (Acc)	67259
9	Cable Assy, GFX, Basic Power, 4 m	67258
10	Cable Assy, Display, Expansion Port, RS232, Dig I/O, 2.5 m	110545
11	Cable Assy, Display Power, 16 Pin, 2nd Display Connector, CNH	122452
	NOTE – This cable can be used instead of items 7, 8, and 9.	
11	Sonalert	43104

Machines using P/N 114728 CNH cable



Item	Description	P/N
1	GFX display, with PIQ App	13x000-01
2	NAV-960 guidance controller	131800-04
3	Cable Assy, GFX to NAV, Power/Ethernet (BRR), 5 m	110540
4	Cable Assy, GFX to NAV, Power/Ethernet (BRR) Extension, 2.5 m (optional extension for large vehicles	112082
5	Cable Assy, GFX, Power to display, CAN, 2.5 m	110551
6	Cable Assy, GFX, Power with Relay and Switch (Acc)	67259
7	Cable Assy, NAV-900, CNH, CAN/AGR Hybrid (Part 1 and 2)	114728
8	Cable Assy, GFX, Basic Power, 4 m	67258
9	Sonalert	43104

Connecting the cables

Using the P/N 124616 adapter cable and optional P/N 122387 or 130738

Step 1

Locate the CNH CAN adapter P/N 124616 and connect P1 to the NAV-960 controller 12-pin connector.

Connect R1 to the tractor harness located on the roof.





Step 2

Optional step if using optional cable P/N 122387 or 130738

Connect the P1 connector on cable P/N 122387 or P/N 130738 to the 12-pin connector on the NAV-960 controller.



Step 3

Optional step if using optional cable P/N 122387 or 130738

Connect the P1 connector on cable P/N 124616 to the R1 connector on cable P/N 122387 or P/N 130738.



Step 4

Connect the R1 connector on cable P/N 124616 to the tractor harness located on the roof.



Step 5

Route the remainder of cable P/N 122387 or 130738 into the cab.

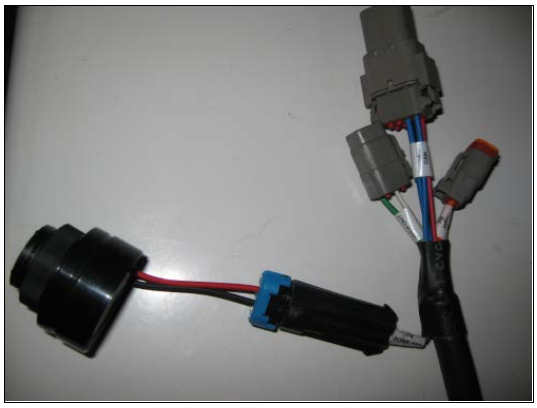
Step 6

Locate a pass-through at the bottom of the cab and feed both the interface cable and the power/communication cable (P/N 110540) into the cab. For long runs, you may need the extension cable P/N 112082 (sold separately).

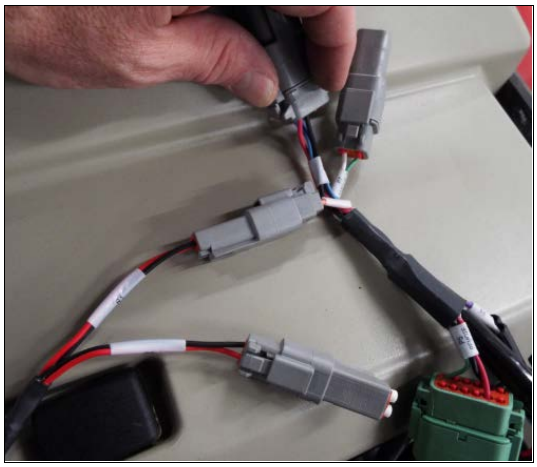


Step 7

Connect the Sonalert to the cable once it is inside the cab.



Connect the NMEA output, if needed.



Using the P/N 114728 adapter cable

Step 1

Locate the P/N 114728 adapter cable (2 pieces).



Step 2

Plug the P1 connector into the back of the NAV-960 controller.



Step 3

Locate the R2 connector.



Ensure the vehicle is equipped with the correct interface cable for the model as required (see your CNH dealer for specifics).



Plug the OEM adapter cable (if required) into the R2 connector.



Step 4

Connect P2 of the P/N 110540 cable to the 4-pin M12 connector on the left side of the NAV-960 controller.



Step 5

Connect the PFF and RFF connectors together. Route the interface cable across the cab and down the side.



Step 6

Locate a pass-through at the bottom of the cab and feed both the interface cable and the power/communication cable (P/N 110540) into the cab. For long runs, you may need the extension cable P/N 112082 (sold separately).

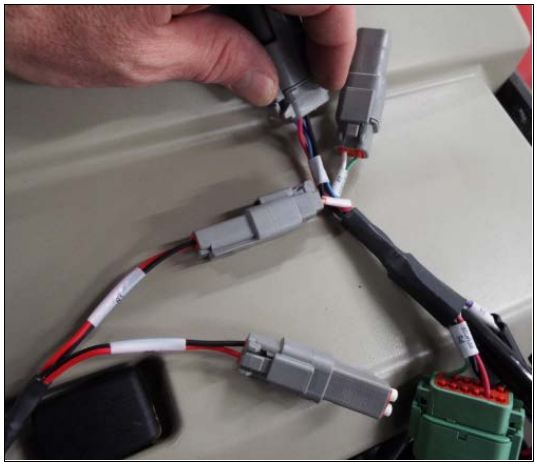


Step 7

Connect the Sonalert to the cable once it is inside the cab.



Connect the NMEA output, if needed.



3

Final Machine Check

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

To perform the final machine check:

1. Connect the battery.
2. Update the Trimble display and the NAV-9xx controller to the latest firmware from Ag Resource Center.
3. Load the correct configuration file into the Autopilot NAV-9xx controller for the vehicle model being used. Download the latest set of configuration files from Ag Resource Center.
4. Calibrate the Autopilot system using the Trimble display. Depending on your machine type, the following items must be calibrated before you can use the Autopilot system:
   - NAV-9xx mounting orientation
   - Antenna height/Antenna axle offset, and Roll offset


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