INSTALLATION INSTRUCTIONS

Autopilot

automated steering system

Massey Ferguson Tractors

- 5S.xxx, 6S.xxx, and 7S.xxx Series

Version 10.00
Revision A
March 2025
P/N 54035-6262-E10

PTx Trimble

Legal Notices

Agriculture Business Area

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This is the March 2025 release (Revision A) of the *Autopilot Automated Steering System Installation Instructions*, part number 54035-6262-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



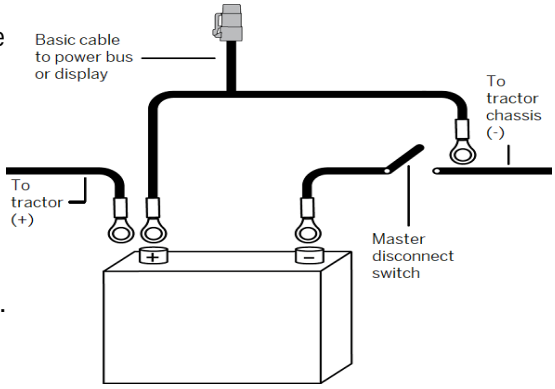
Set the hose pressure as low as practicable, and spray at a 45° to 90° angle. Keep the nozzle of the power washer away from the machine at the distance recommended by the manufacturer.

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 54035-6262	Standard hand tools

Antenna mounting kits

Kits required
P/N 132089: AGCO Quick release plate

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.

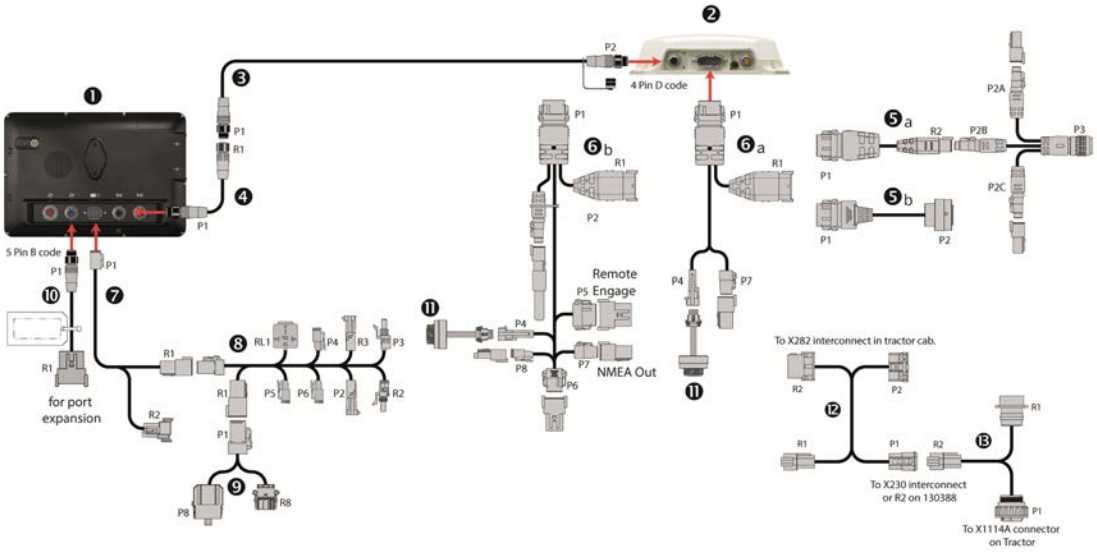
TIP – Read through the steps and make certain you have all the hand tools needed before starting installation.

2

Cable Installation

- System Components
- GFX series display: Installing the wiring harness
- Connecting the TopDock harness – P/N 124473
- Connecting the TopDock harness (Deutsch HDP Connector) – P/N 132839
- NAV-9xx accessory extension cable – P/N 130738 or 122387
- Connecting accessories
- Installing cables P/N 122212 and 130388

System Components



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
5a	Cable Assy, Nav Roof CAN to AGCO TopDock	124473
5b	Cable Assy, Autopilot, , 5S, Massey Ferguson, NAV-900	132839
6a	Cable Assy, NAV, Roof CAN, Sonalert, NMEA	130738
6b	Cable Assy, NAV, Roof CAN, Sonalert, NMEA, R.E., IMU extension	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, AGCO, FMX, CFX, GFX, TMX Power jumper	118053
10	Cable Assy, Display, Expansion Port, RS232, Dig I/O, 2.5 m	110545
11	Sonalert	43104
12	Cable Assy, Autopilot, Massey Ferguson, NAV-900 to the table	122212
13	Cable Assy, CPC Jumper, Autopilot, Massey Ferguson, NAV-900	130388

GFX series display: Installing the wiring harness

The GFX series display requires a nominal 12 volt power source.

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

Step 1

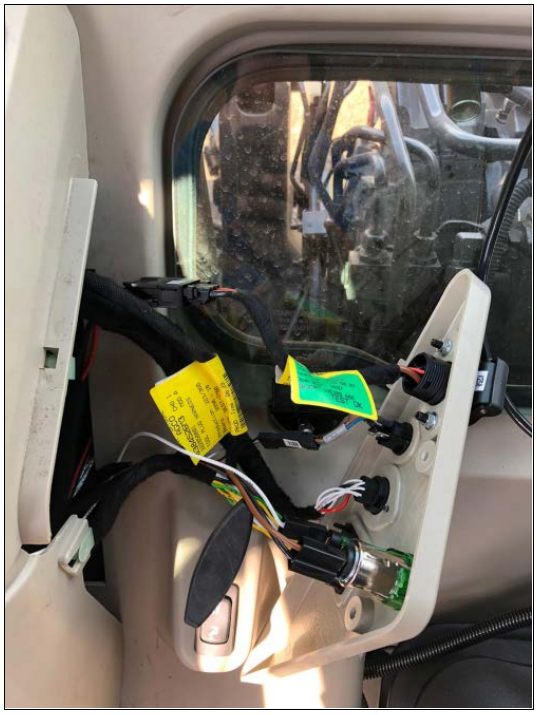
Locate the AGCO power adapter P/N 118053.



Step 2

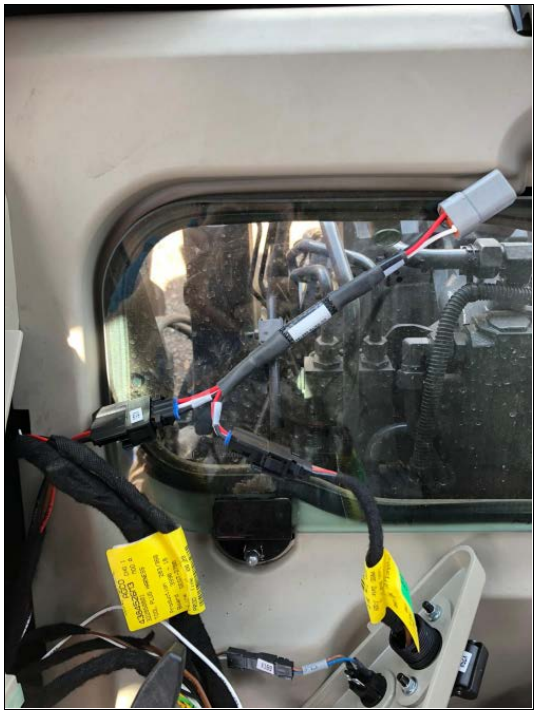
Remove the power panel near the lower right side of the console to access the Tyco connectors and attach the power cable P/N 118053.





Step 3

Disconnect the 3-position Tyco power connector on the vehicle and then tee in the R8 and P8 connectors on cable P/N 118053.



Step 4

Connect P1 on cable P/N 118053 to the R1 connector on the display cable P/N 110551.



Step 5

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

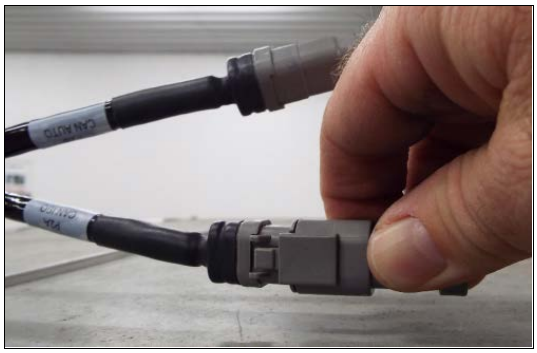


Connecting the TopDock harness – P/N 124473

Step 1

You need to set the CAN jumper to obtain proper communication with the tractor.

Locate the jumper connector P2B on cable P/N 124473.



Step 2

Plug the jumper connector P2B into R2.







Step 3

After attaching the jumper, cable P/N 124473 should look as shown. Make sure that the dust caps are in place on the remaining CAN jumpers.



Step 4

Connect P3 on cable P/N 124473 to the vehicle TopDock connector.



Connecting the TopDock harness (Deutsch HDP Connector) – P/N 132839

Model year 2024+ tractors may be equipped with the Deutsch HDP TopDock connector:





If this type of connector is available, then use cable P/N 132839 to connect the NAV-9xx to the TopDock connector.

Step 1

Locate the cable P/N 132839.



Step 2

Plug the P2 connector on cable P/N 132839 into the TopDock connector and twist the collar on the P2 connector to lock the connector in place.





NAV-9xx accessory extension cable – P/N 130738 or 122387

Step 1

Locate the accessory extension cable P/N 130738 or 122387.



Step 2

Connect P1 on cable P/N 130738 or 122387 to the 12-pin DTM connector on the NAV-9xx guidance controller.



Step 3

Connect P1 on cable P/N 124473 or 132839 to the R1 connector on cable P/N 130738 or 122387.



Connecting accessories

Step 1

Locate a pass through on the back of the cab and feed the interface cable P/N 130738, 122387 or 118856 and the power/communication cable P/N 110540 into the cab. For long runs, extension cable P/N 112082 (sold separately) may be required.



MF 8680 model



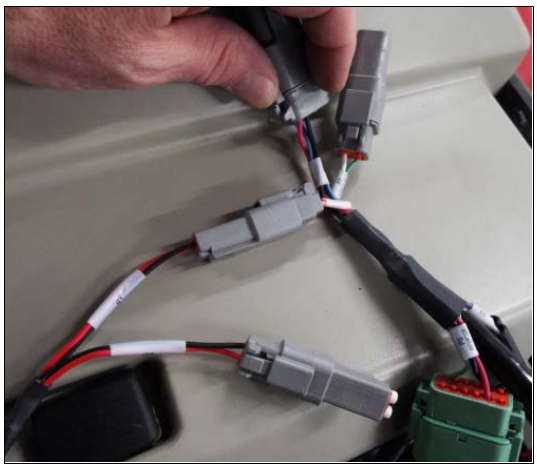
MF 8680 model

Step 2

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



Connect the NMEA output, remote engage, and modem power as needed.

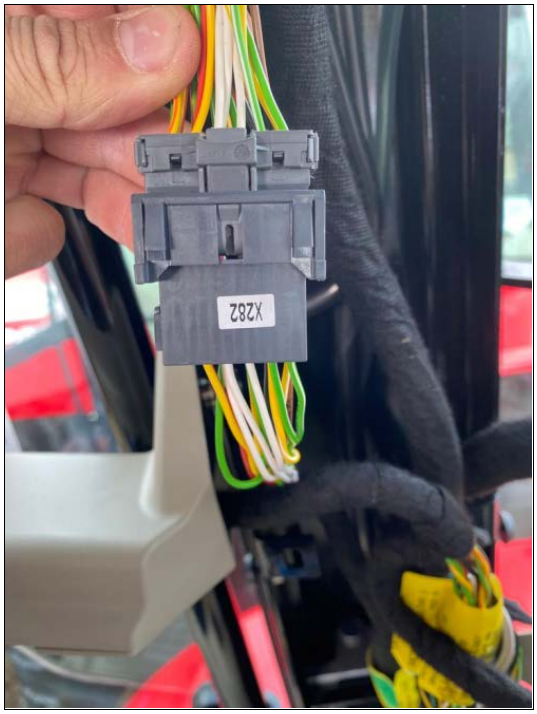


Installing cables P/N 122212 and 130388

Step 1

Access the X282 connector on the tractor by removing the paneling on or below the right rear cab pillar. The location may vary slightly on different models.





Step 2

Tee into the X282 connection with P2 and R2 on cable P/N 122212.



Step 3

Locate and remove the panel on the floor to the right of the driver's seat.



Step 4

Connect R2 on cable P/N 130388 to P1 on cable P/N 122212.



Step 5

Locate connector X1114A in the vehicle's diagnostic connector panel.



Step 6

Connect P1 from cable P/N 130388 to connector X1114A on the vehicle, as shown.



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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