Hydraulic Kit Installation Guide

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Note: The colored cable ties included in the kit are used to identify the hydraulic hoses. Place identical colored cable ties at the ends of each hydraulic hose to positively identify the hose.

The suggested hose color assignments are as follows:

- Pressure - Red
- Tank – Green
- LS – Grey
- Steer Out Right- Yellow
- Steer Out Left- Orange
- Steer In Right – Yellow and Blue
- Steer In Left - Orange and Blue
Overview

This guide contains the following sections:

- Supported Vehicles
- Set Up the Steering Valve
- Mount the Steering Valve
- Hose Connection Diagram
- Hydraulic Hose Connection Procedures
- Post System Installation Procedures
  - Adjust the Relief Valve
  - Create New Vehicle
  - Calibration and Tuning Guidelines

Supported Vehicles

The following models have been confirmed to be compatible with this Hydraulic Installation Kit:

Supported Models: Non-AccuGuide Ready and Non-InetelliSteer Ready

- Case STX Wheeled or Quadtrac: 380, 430, 480, 530
- Case STEIGER Wheeled or Quadtrac: 380, 385, 430, 435, 480, 485, 530, 535
- New Holland TJ: 380, 430, 480, 530
- New Holland T: 9030, 9040, 9050, 9060

This kit is for installation on these models only. If your vehicle is a different model, contact your dealer for the correct installation kit.

*Note:* Only technicians trained for hydraulic valve installations should perform the installation procedures in this guide. If the vehicle requires a hydraulic steering valve to be installed, ensure a trained technician is available for the installation.

Vehicle Inspection

Before you install this AutoSteer system, confirm the vehicle steering system is in good working order. Drive the vehicle and verify the vehicle’s correct working order. Also, ensure the following system operations and components:

- Verify you can turn the vehicle.
- Ensure the vehicle steers straight.
- Check for loose or worn steering components.
- Check for hydraulic fluid leaks throughout the system.
- Ensure the hydraulic fluid level is correct.
- Service the vehicle if the steering is not in good working order.
Steering Valve Installation

This information is provided in the following sections:

- Steering Valve Installation Procedure Overview
- Hose Kit
- Check Valve Configuration
- Install the Steering Valve Bracket
- Hydraulic Hose Connection Procedures
  - Connect the Pressure Hose
  - Connect the Tank Hose
  - Connect the Load Sense Hose
  - Connect the Right and Left Steering Hoses
- Install the Pressure Transducer
- Steering Valve Installation Procedure Overview

Steering Valve Installation Procedure Overview

**Note:** You can use a fiberglass cable puller to make it easier to pull the hydraulic hoses and electrical cables through and around the vehicle.

1. Check Valve Configuration
2. Install the Steering Valve on the tractor.
3. Connect seven hoses between the valve and the tractor.
4. Check for oil leaks.
5. Perform a functional test to confirm correct valve operation.

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**WARNING**

**High-Pressure Fluid Hazard**

Read this manual before installation. Wear hand and eye protection while performing hydraulic system maintenance. Relieve hydraulic system pressure before servicing the hydraulic system.

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**WARNING**

Always shut down the vehicle when working around the steering axle or pivot point when installing or adjusting the Wheel Angle Sensor components. The steering mechanism could move suddenly and unexpectedly and cause severe injury or death.
Check Valve Configuration

1. Before installing the Steering Valve on the vehicle, you must first install a Check Valve on the Load Sense port (LS). The Check Valve looks like a normal hose adapter, but has an internal spring.

2. Remove the hose adapter on the LS port and replace it with the Check Valve provided in the hose kit.
Install the Steering Valve Bracket

1. Locate the mounting position for the Steering Valve on the right side of the tractor under the battery and behind a swinging door panel.

   **Note:** You will have to drill three holes to mount the Steering Valve directly to the steel panel, as in next illustration.

2. Mark the position for drilling three holes using the Steering Valve as a template. The Steering Valve must be orientated with the P, T, and LS ports facing down towards the ground. Allow clearance around the Steering Valve for routing hoses.

3. Drill three 7/16” (11mm) holes using a portable drill.

   **Note:** Before drilling, check for hoses, cables, or other parts on the back side of the panel you will be drilling.

   **Note:** STX Quadtrac tractors do not provide the same size mounting surface for the valve. When installing the valve on an STX Quadtrac tractor, mount the valve on the right mud guard inclined surface. Drill three holes as required to secure the valve to the mudguard.

4. Mount the Steering Valve against the steel panel and secure using the three 3/8” Allen screws and locknuts provided with the Steering Valve.
Hydraulic Hose Connection Procedures

The illustration shows the hydraulic connections. You can refer to these diagrams as you are connecting the hydraulic components. The hydraulic hose connection procedures are contained in the following sub-sections:

- Connect the Pressure Hose
- Connect the Tank Hose
- Connect the Load Sense Hose
- Connect the Steering Valve Right and Left Steering Hose
Connect the Pressure Hose

1. Identify the Pressure port in the Power Beyond system on the back of the tractor. Use a 12mm hex key to remove the plug on the Pressure port (identified as P).

2. Install the metric hose adapter provided in the hose kit and tighten using a 32mm wrench.
3. Connect the end of the long 1/2” hose to the adapter on the P port. Install an elbow adapter on the port as shown in for better hose routing, then connect the Pressure hose.

4. Route the Pressure hose towards the Steering Valve on the front of the vehicle.

5. Connect the other end of the hose to the Pressure port (P) under the Steering Valve.

6. Check every hose individually and confirm that both ends are connected to the correct ports.

7. Refer to the hose diagram to ensure proper connection.

8. Tighten all hose fittings and adapters.

9. Check and secure all hoses using nylon cable ties.

**Note:** To avoid hose damage, hoses must not drop below the vehicle frame and must not contact moving parts or hot parts such as exhaust manifolds.
Connect the Tank Hose

1. Identify the Tank/Return line on the tractor. It is located under the cab on the left side just next to the oil reservoir.

   **Note:** This is where the Tank hose will be connected.

2. Open the hose connection and install the large Run Tee adapter provided in your hose kit. Re-connect the vehicle hose to the end of the Run Tee, and then connect the AutoSteer Tank hose to the side of the Run Tee as shown.

3. Route the Tank hose towards the Steering Valve and connect the other end to the Tank (T) port under the Steering Valve.

4. Check every hose individually and confirm that both ends are connected to the correct ports.

5. Refer to the hose diagram to ensure proper connection.

6. Tighten all hose fittings and adapters.

7. Check and secure all hoses using nylon cable ties.

   **Note:** To avoid hose damage, hoses must not drop below the vehicle frame and must not contact moving parts or hot parts such as exhaust manifolds.
Connect the Load Sense Hose

The AutoSteer Load Sense hose is connected to the vehicle Power Beyond system Load Sense port.

1. Identify the tractor Power Beyond system Load Sense port. The port is identified as LS.

   **Note:** If the tractor is using the power beyond system for powering other hydraulic implements, you may have to install a shuttle valve to share the single LS port. Contact your AutoSteer dealer for details.

2. Remove the existing plug or quick coupler on the LS port

3. Install an M18 hose adapter on the LS port. The adapter is provided in the hose kit.
Connect the Load Sense Hose

4. Install an elbow adapter on the LS hose adapter as shown.

5. Connect the 90 degree fitting on the end of the long 3/8” LS hose to the elbow adapter.

6. Route the LS hose towards the front of the tractor along the side of the pressure hose installed previously.

7. Route the Load Sense hose towards the Steering Valve and connect it to the Check Valve that was previously installed on the Load Sense (LS) port under the AutoSteer valve.

8. Check every hose individually and confirm that both ends are connected to the correct ports.

9. Refer to the hose diagram to ensure proper connection.

10. Tighten all hose fittings and adapters.

11. Check and secure all hoses using nylon cable ties.

Note: To avoid hose damage, hoses must not drop below the vehicle frame and must not contact moving parts or hot parts such as exhaust manifolds.

Connect the Steering Valve Left and Right Steering Hoses

1. Identify the Right and Left Steering hose connections on the right side of the tractor just above the steering cylinder.
2. Identify the two Steering hoses coming from the front of the vehicle and connecting to the two tee adapters that branch off to the two steering cylinders. These two hoses are the main Right and Left Steering hoses that will be disconnected from the tee adapters to complete the Steering Valve installation.

**Note:** Refer to the hose diagram to understand the required hose connections before proceeding.

3. Disconnect the tractor hose on your right, which is the Left Steering hose. Connect this hose to a short AutoSteer extender hose and connect the extender hose to the port labeled **SL** on the Steering Valve.

4. Connect an AutoSteer Steering Valve hose from the tee adapter that was just opened to the port labeled **L** on the Steering Valve. This completes the installation of the two Left Steering hoses.
5. Disconnect the tractor hose on your left, which is the Right Steering hose. Connect this hose to a short AutoSteer extender hose and connect the extender hose to the port labeled SR on the Steering Valve.

6. Connect an AutoSteer Steering Valve hose from the tee adapter that was just opened to the port labeled R on the Steering Valve. This completes the installation of the two Right Steering hoses.

7. Check every hose individually and confirm that both ends are connected to the correct ports.

8. Refer to the hose diagram to ensure proper connection.

9. Tighten all hose fittings and adapters.

10. Check and secure all hoses using nylon cable ties.

**Note:** To avoid hose damage, hoses must not drop below the vehicle frame and must not contact moving parts or hot parts such as exhaust manifolds.
Install the Pressure Transducer

1. Apply 2-3 turns of Teflon tape on the NPT/ORB thread adapter.
2. Install the NPT/ORB thread adapter on the Steering Valve.
3. Then install the Pressure Transducer on the adapter.
4. Connect the 3-pin connector from the Steering Valve harness to the Pressure Transducer. The connector has a latch and must be correctly orientated.
Steering Valve Installation Checklist

1. Mounting screws that secure the Steering Valve are tight.
2. Pressure hose is connected to correct port on Steering Valve and Power Beyond.
3. Tank hose connected to correct port on Steering Valve and Tank/Return line.
4. Check Valve was installed on Steering Valve LS port.
5. LS hose connected to Check Valve and vehicle.
6. Right Steer hoses connected correctly at both ends.
7. Left Steer hoses connected correctly at both ends.
8. Pressure Transducer installed and tight.
9. Checked that all hose fittings are tight.
10. Checked hose routing and cable ties on all hoses.

Post-Installation Procedures and Information

The Post-Installation Procedures and Information chapter provides information in the following sections:

- Hydraulic Leak Check
- Create New Vehicle
- Calibration and Tuning Guidelines

Once the entire AutoSteer system, including the Display and Display harnesses, have been installed on the vehicle, the procedures and notes provided in this chapter must be followed to complete the installation and prepare the vehicle for full AutoSteer capabilities.

Hydraulic Leak Check

On completion of installing the entire AutoSteer system including the Roof Module and Display, the system needs to be checked for leaks. Follow the procedure below to check for leaks.

1. Clear any bystanders away from the vehicle. If there is a hydraulic leak, they could be injured.
2. Put the vehicle into Park and/or set the parking brake to prevent the vehicle from moving.
3. Turn the vehicle over for a few seconds and if the vehicle starts, immediately shut it down.
4. Walk around the vehicle and check all the hydraulic fittings that were opened. Look for any oil leaks.
5. Once all leaks have been repaired, or if none are found, start the vehicle again and let it run at a low idle.

Note: If an oil leak is noticed during any part of this test, immediately shut down the vehicle and repair the leak.

Note: The front wheels will move when the steering wheel is turned. Make sure the vehicle will not strike anything or anyone before continuing. If necessary, move the vehicle to an open area.
6. Take the vehicle out of Park and/or remove the parking brake. Turn the steering wheel manually to the right and left stops two or three times to get any air out of the hoses.

7. Confirm the front wheels turn in the correct direction and the vehicle steers the same as it did before the system was installed.

8. Put the vehicle back into Park and/or reset the parking brake. Shut down the vehicle, walk around it again, and check for any hydraulic leaks.

9. Once the leaks have been repaired, or if none are found, start the vehicle again and let it run at a low idle.

10. Take the vehicle out of Park and/or remove the parking brake. Move the vehicle to an open, flat area and leave the vehicle in Park.

11. Power up the Display and navigate to the **Hydraulic Valve** window from the **Steering Components** window.

12. Command the vehicle to turn Right and then Left a few times. The vehicle should steer in the direction it is commanded. If the vehicle rotates in the wrong direction, the hoses were attached to the wrong ports on the AutoSteer valve and need to be switched.

13. Power down the Display, put the vehicle back into Park and/or reset the parking brake, and shutdown the vehicle.

14. Once again check the vehicle for hydraulic leaks and repair any that are found.