## 500-0420-01 Kit

### Hydraulic Kit Installation

<table>
<thead>
<tr>
<th>Item</th>
<th>Qty</th>
<th>Part Number</th>
<th>Component</th>
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<tr>
<td>1.</td>
<td>1</td>
<td>F451TC-JCCA081206-30</td>
<td>HOSE ASSY. 3/8&quot; X 30&quot; -8F ORFS X 12L SWIVEL</td>
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<td>HOSE ASSY. 1/2&quot; X 30&quot; -6F ORFS X 15L FEMALE</td>
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<td>HOSE ASSY. 1/2&quot; X 60&quot; -6F ORFS X -15L MALE</td>
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</table>
Overview

<table>
<thead>
<tr>
<th>Item</th>
<th>Qty</th>
<th>Part Number</th>
<th>Component</th>
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<tr>
<td>8.</td>
<td>1</td>
<td>EL15ZLCF</td>
<td>ADAPTER RUN TEE 15L EO-2 M22 24 DEG.</td>
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<td>9.</td>
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<td>6_c6lo-s</td>
<td>ADAPTER ELBOW M#6 x F#6</td>
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<td>10.</td>
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<td>6_r5olo-s</td>
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<td>REDUCER 18L X 12L METRIC</td>
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<td>14.</td>
<td>3</td>
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<td>ADAPTER SWIVEL NUT ELBOW 15L</td>
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<td>15.</td>
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<td>ADAPTER SWIVEL UNION 15L</td>
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<tr>
<td>16.</td>
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<td>ADAPTER BULKHEAD UNION 18L</td>
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<td>17.</td>
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<td>18.</td>
<td>1</td>
<td>SV15ZLCF</td>
<td>ADAPTER BULKHEAD UNION 15L</td>
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<td>19.</td>
<td>1</td>
<td>EW08LA3C</td>
<td>ADAPTER SWIVEL NUT ELBOW 8L</td>
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<td>20.</td>
<td>1</td>
<td>SV08ZLCF</td>
<td>ADAPTER BULKHEAD 8L (M14)</td>
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<td>21.</td>
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<td>GZ18ZLCF</td>
<td>ADAPTER SWIVEL UNION 18L (M26)</td>
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<td>22.</td>
<td>2</td>
<td>RED15_12LA3C</td>
<td>ADAPTER REDUCER 15L X 12L</td>
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<tr>
<td>23.</td>
<td>1</td>
<td>200-0467-01</td>
<td>KIT CABLE TIE HOSE ID</td>
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<tr>
<td>24.</td>
<td>1</td>
<td>602-0367-01</td>
<td>INSTRUCTIONS VALVE FENDT 700 COM3B</td>
</tr>
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</table>

**Overview**

![Warning]

**WARNING**

**High-Pressure Fluid Hazard**
Read and understand the vehicle’s user manual before installation. Wear hand and eye protection while performing hydraulic system maintenance. Relieve hydraulic system pressure before servicing the hydraulic system.

These instructions provide the procedure for installing the Steering Valve, hydraulic hoses, and other fittings to enable the supported vehicles to be controlled by the AutoSteer system. The Steering Valve allows the AutoSteer system to take over the steering of the vehicle by directly controlling the hydraulics of the vehicle’s steering system.

**Note:** Only trained professionals should attempt to install a Steering Valve on the vehicle. Incorrect installations can cause damage to the vehicle and/or AutoSteer systems. The installer takes responsibility for all risks from damage and injury when installing a Steering Valve on a vehicle.
## Supported Vehicles

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

<table>
<thead>
<tr>
<th>Supported Make, Models, and Year Model was First Released</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td><em>Fendt COM3B 714, 716, 718, 720, 722, and 724 (2011 -)</em></td>
<td>4</td>
</tr>
</tbody>
</table>
Identify Steering Valve Access Ports

The Steering Valve has three access ports that may need to be opened and modified depending on the type of hydraulic installation. Two of these ports are accessed from the front of the valve and the third is accessed from the right side of the valve. They are labeled 13A, 13B, and 13C. Depending on the hydraulic system on the vehicle and the installation type, a plug, a 0.022” orifice, and/or a 0.031” orifice may need to be installed or removed from the various ports to restrict or allow oil movement inside the valve. Follow the instructions provided to determine how these ports are to be configured.

A spare 0.022” orifice, 0.031” orifice, and plug are supplied with the Steering Valve and are stored in the valve body for safe keeping and easy access. These parked orifices and plug can be removed from the front of the valve body and installed into the required access port when directed. Prior to inserting them, verify that they are clean and the orifice holes are not plugged.

*Figure 1* shows the location of the 13B and 13C access ports and spare orifices and plug parked on the front of the Steering Valve. The Steering Valve cover must be removed to gain access to these ports. *Figure 2* shows the location of the 13A port.
Table 1 shows the factory default positions of all the access ports and the positions they should be in for this installation. Prior to installing the Steering Valve, refer to this table and verify that all the access ports are configured properly. For this installation, the default configuration should be correct and no changes will need to be made.

<table>
<thead>
<tr>
<th>Configuration</th>
<th>13A</th>
<th>13B</th>
<th>13C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Factory Default Configuration</td>
<td>Plug</td>
<td>Open</td>
<td>Plug</td>
</tr>
<tr>
<td>Configuration for this Installation</td>
<td>Plug</td>
<td>Open</td>
<td>Plug</td>
</tr>
</tbody>
</table>

Configure Steering Valve Ports

Prior to installing the Steering Valve onto the vehicle, it is necessary to configure the various ports identified above on the Steering Valve to match the conditions shown in Table 1. This procedure is much easier to perform before the Steering Valve is installed.

**Note:** Although the Steering Valve should come from the factory as shown, it is always a good practice to verify that each of the ports is configured properly.
Configure Steering Valve Ports

1. Place the Steering Valve on a flat surface. Remove the four cover screws with a 3/16” Allen wrench.

2. Remove the front cover and screws. The Steering Valve cover will not be used for this installation.

3. Flip the Steering Valve over and remove the six bolts holding the back cover on to the Steering Valve with a 1/2” socket and ratchet. The Steering Valve cover will not be used for this installation.
Identify Steering Valve Ports

The Steering Valve is attached to the various hydraulic ports to integrate the AutoSteer system with the steering system on the vehicle. The Steering Valve has eight ports that are referenced in these instructions. A diagram of the port locations are provided in Figure 3. The description, function, hose adapter type and size for each port is provided in Table 2.

Figure 3  Steering Valve Ports

![Steering Valve Ports Diagram]

Table 2  Steering Valve Port Functions and Fitting Sizes

<table>
<thead>
<tr>
<th>Valve Label</th>
<th>Function</th>
<th>Fitting Type/Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESS</td>
<td>Provides pressurized oil to the Steering Valve</td>
<td>-8 ORFS</td>
</tr>
<tr>
<td>TANK</td>
<td>Releases oil back to the tank</td>
<td>-6 ORFS</td>
</tr>
<tr>
<td>LS ORBITROL</td>
<td>Load Sense line from Orbitrol for kick out detection</td>
<td>-4 ORFS</td>
</tr>
<tr>
<td>LS OUT</td>
<td>Load Sense line out to signal the pump to spool up</td>
<td>-4 ORFS</td>
</tr>
<tr>
<td>LEFT</td>
<td>Steering Line to turn vehicle Left</td>
<td>-6 ORFS</td>
</tr>
<tr>
<td>RIGHT</td>
<td>Steering Line to turn vehicle Right</td>
<td>-6 ORFS</td>
</tr>
<tr>
<td>GP</td>
<td>Diagnostics Port showing pressure at the Pressure Port</td>
<td>1/8” Coupler Nipple (SAE J1502)</td>
</tr>
<tr>
<td>TRANS</td>
<td>Pressure Transducer for kick out</td>
<td>-4 SAE ORB</td>
</tr>
</tbody>
</table>
Hose Connection Overview

Figure 4 shows all the hydraulic connections prior to attaching to the Steering Valve. Use this diagram to identify the hoses prior to removing them.

**Figure 4  Hydraulic Connections before the Install**

**HOSE DIAGRAM  FENDT 700 COM3B**

**BEFORE**

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Table 3 shows an overview of how the hoses and fittings included with this kit are to be installed on the vehicle.

- The PRESS port is teed into the steel line between the Orbitrol and Priority Valve.
- The TANK port is teed into the steel line between the Orbitrol and Priority Valve.
- The LEFT and RIGHT ports are connected to the Reactive Steering Valves.
- The Left and Right Steering Cylinders are connected to the Reactive Steering Valves.
- The LS OUT is attached to the line going to the Load Sense line going to the Priority Valve.
- The LS ORBITROL is attached to the line going to the Load Sense port at the Orbitrol.
The install kit provides colored cable ties that are used to identify the hoses in the install kit. Before attaching the hoses, use Table 3 to identify each of the hoses and then attach the proper colored cable tie to both ends of the hose. These cable ties can also be used to identify existing hoses on the machine.

Table 3  Recommended Cable Tie Color to Identify Hydraulic Hoses

<table>
<thead>
<tr>
<th>Valve Port Hose</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>PRESSURE</td>
<td>Red</td>
<td>HOSE ASSY. 3/8&quot; X 30&quot; -8F ORFS X 12L SWIVEL</td>
</tr>
<tr>
<td>TANK</td>
<td>Green</td>
<td>HOSE ASSY. 1/2&quot; X 30&quot; -6F ORFS X 15L FEMALE</td>
</tr>
<tr>
<td>LS ORIBITROL</td>
<td>Blue</td>
<td>HOSE ASSY. 1/4&quot; X 30&quot; -4F ORFS X 8L FEMALE 90 DEG.(O-RING)</td>
</tr>
<tr>
<td>LS OUT</td>
<td>Grey</td>
<td>HOSE ASSY. 1/4&quot; X 30&quot; -4F ORFS X 8L FEMALE (O-RING)</td>
</tr>
<tr>
<td>RIGHT</td>
<td>Yellow</td>
<td>HOSE ASSY. 3/8&quot; X 30&quot; -6F X -6F ORFS</td>
</tr>
<tr>
<td>LEFT</td>
<td>Orange</td>
<td>HOSE ASSY. 3/8&quot; X 30&quot; -6F X -6F ORFS</td>
</tr>
<tr>
<td>Right to Reactive Steer</td>
<td>Yellow</td>
<td>HOSE ASSY. 1/2&quot; X 60&quot; -6F ORFS X -15L MALE</td>
</tr>
</tbody>
</table>
Install Steering Valves, Adapters, and Hoses

The Steering Valve is installed under the front, right side of the cab. Two Fendt 7XX Steering Valve Mounting Brackets and the Reactive Steering kit are provided with the Vehicle Specific kit and are required for this installation. If the Vehicle Specific kit was not ordered with this Hydraulic Installation kit, they must be ordered separately.

The Steering Valves, adapters, and hoses should be connected in the order provided in this installation manual to ensure that all the connections can be accessed and tightened properly. Refer to the hose diagram in Figure 5 and the information in Table 3 for information on connecting the correct hydraulic hose to the correct ports on the vehicle and Steering Valve.

Note: Verify all the hoses and fittings are in the correct orientation shown in the figures prior to tightening them. Failure to put them in the proper orientation may cause the hoses to be damaged or not reach the intended connection.

Install Steering Valves, Adapters, and Hoses

1. Locate the valve mounting position on the right side of the vehicle under the cab.

<table>
<thead>
<tr>
<th>Valve Port Hose</th>
<th>Color</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Left to Reactive Steer</td>
<td>Orange</td>
<td>HOSE ASSY. 1/2&quot; X 60&quot; -6F ORFS X -15L MALE</td>
</tr>
<tr>
<td>Right from Reactive Steer</td>
<td>Yellow</td>
<td>HOSE ASSY. 3/8&quot; X 60&quot; -6F X 12L 90 DEG</td>
</tr>
<tr>
<td>Left from Reactive Steer</td>
<td>Orange</td>
<td>HOSE ASSY. 3/8&quot; X 60&quot; -6F X 12L 90 DEG</td>
</tr>
</tbody>
</table>
Install Steering Valves, Adapters, and Hoses

2. Release the two spring latches on the two sides of the battery compartment.

3. Tilt the cover back and pull away to gain access to the battery compartment.

4. Remove the side panels by remove the four bolts with 13mm socket and ratchet.
5. Remove three bolts with 10mm socket and ratchet.

6. Disconnect the two battery terminals.
   
   Note: Disconnect the ground terminal first to avoid shorts.

7. Remove the battery.
8. Remove the cable ties holding battery cables to battery box.

9. Remove four bolts holding the battery box with 13mm socket and ratchet.

10. Remove the battery box.
11. Remove the eight bolts holding the large plastic cover that wraps around in front of the rear wheel and extends back to the rear axle with a 10mm socket and ratchet.

12. Disconnect the two large electrical connectors under the right corner of the cab. Unlock the connectors by pushing the locking levers down and away from the plug.

**Note:** Mark both of the connector’s positions before removing them for ease of refitting.

13. Carefully remove the cable clamps behind the plugs with a small flat screwdriver.
14. Locate the three steel lines, bulkhead connectors, and quick connectors. These three lines provide Pressure, Tank and Load Sensor to the steering Orbitrol.

*Note:* To avoid contamination, clean the area around the connection point using a high pressure washer.

15. Remove the Pressure, Tank and Load Sense hoses that are coupled to the bulkhead connectors. To disconnect each hose, push the hose into the bulkhead connector while holding the plastic circular clip on the connector. Then pull the hose away from the bulkhead connector while continuing to hold the plastic circular clip.
Install Steering Valves, Adapters, and Hoses

16. Remove the steel lines from the front side of all three bulkhead connectors.

17. Remove all three bulkheads connectors from the bracket.

18. Fit the new Pressure bulkhead adapter provided with the hose kit.
19. Reattach the factory Pressure steel line to the front of the new bulkhead adapter.

20. Install the new Tank bulkhead adapter provided with the hose kit.

21. Reattach the factory Tank steel line to the front of new bulkhead adapter.
22. Install the new Load Sense bulkhead adapter provided with the hose kit.

23. Reattach the factory Load Sense steel line to the front of the new bulkhead adapter.

24. Assemble the ADAPTER RUN TEE 18L, ADAPTER ELBOM 18L, REDUCER 18L X 12L METRIC, and ADAPTER SWIVEL UNION 18L (M26) as shown.

**Note:** The new Pressure bulkhead adapter (shown with an arrow on the right) was installed on the vehicle and the PRESSURE hose is not connected at this time but are shown connected to the assembly as reference.

25. Attach the original Pressure bulkhead quick connector to the ADAPTER SWIVEL UNION 18L (M26) (arrow on the left).
26. Attach the Pressure assembly to the bulkhead adapter on the Pressure port of the vehicle.

27. Assemble the ADAPTER RUN TEE 15L EO-2 M22 24 DEG, ADAPTER SWIVEL NUT ELBOW 15L, and ADAPTER SWIVEL UNION 15L as shown.

**Note:** The new Tank bulkhead adapter (shown with an arrow on the right) was installed on the vehicle and the TANK hose is not connected at this time but are shown connected to the assembly as reference.

28. Attach the original Tank bulkhead quick connector to the ADAPTER SWIVEL UNION 15L (arrow on the left).

29. Attach the Tank assembly to the bulkhead adapter on the Tank port of the vehicle.

**Note:** The three factory steel lines on the right and the factory hoses on the left are not shown.

The TANK and PRESSURE lines are not connected at this time and are shown as reference only.
30. Remove the two bolts from the rear of the front, right cab mount.

31. Remove the plug from the TRANS port.

32. Install the Pressure Transducer and tighten with a stubby 3/4” wrench or a 22mm deep well socket and ratchet, depending on the version of Pressure Transducer that is used.

   **Note:** Do not over tighten.

33. Attach the Steering Valve to the Steering Valve Bracket provided with the Vehicle Specific Kit with two long Allen screws provided with the Steering Valve.

   **Note:** Verify the valve block is bolted to the bracket so the Pressure Transducer is on the furthest edge from the bracket.
Install Steering Valves, Adapters, and Hoses

34. Attach the Steering Valve and Steering Valve Bracket to the rear bolt holes of the cab mount using the two supplied M10 x 25mm bolts.

35. Leave bolts loose for now as it may be necessary to rotate valve block and bracket to gain access to fittings in later steps.

36. Attach the PRESSURE (red), TANK (green), LS ORIBTORL (blue), LS OUT (gray) hoses to the Steering Valve.

37. Tighten the connections with a stubby 15/16”, 13/16”, and 11/16” wrench.

38. Attach the Pressure Transducer harness to the Pressure Transducer.
39. Rotate the Steering Valve and Steering Valve Bracket into position, route hoses into the cavity directly behind the Steering Valve.

40. Tighten the Steering Valve bracket bolts with a 17 mm socket and ratchet.

41. Connect PRESSURE (red) hose to the M26 elbow on the Pressure bulkhead assembly.

**Note:** The assembly shown is actually attached to vehicle, picture shows proper adapter to connect to for clarity.

42. Reconnect the existing Pressure hose to the quick connect Pressure bulkhead.
43. Connect TANK (green) hose to M22 elbow on the Tank bulkhead.

*Note:* The assembly shown is actually attached to vehicle, picture shows proper adapter to connect to for clarity.

44. Reconnect the existing Tank hose to the quick connect Tank bulkhead.

45. Connect the LS OUT (Gray) hose to the new Load Sense bulkhead adapter.

*Note:* The assembly shown is actually attached to vehicle, picture shows proper adapter to connect to for clarity.
Install Steering Valves, Adapters, and Hoses

46. Connect the LS ORIBTROL (blue) hose to the ADAPTER SWIVEL NUT ELBOW 8L.

47. Attach the original bulkhead quick connector to the other end of the ADAPTER SWIVEL NUT ELBOW 8L.

48. Connect the original Load Sense hose to the bulkhead quick connector.

49. Assemble the standard Reactive Steering Mounting Bracket (on left) and the Fendt 7XX Reactive Steering Mounting Bracket Adapter (on right) with two M8 bolts, M8 flat washers, and M8 nuts as shown.

**Note:** The Reactive Steering Mounting Bracket and Reactive Steering Bracket are supplied with the Vehicle Specific install kit.

**Note:** A flat spacer bracket (shown with arrow) is also provided with the Reactive Steering Mounting Bracket kit. This spacer must be installed between the two Reactive Steering Adapters in a future step.
50. Attach the two hose adaptors to both Reactive Steer Valves as shown.

51. Attach the two Reactive Steer Valves to the Reactive Steering Bracket assembly as shown using the two long hex bolts provided.

**Note:** Verify the flat spacer bracket shown in Step 49 is placed between the two solenoids prior to attaching them together.

52. Remove the two existing bolts holding the front cover with 13mm socket and ratchet.
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Install Steering Valves, Adapters, and Hoses

53. Attach the Reactive Steering assembly with two M8 x 25 bolts supplied to the vehicle frame.

54. Connect the RIGHT (yellow) hose to the RIGHT steering port on the Steering Valve.

55. Attach an ADAPTER ELBOW M#6 x F#6 to the tee port of the inside Reactive Steer Valve.

56. Connect the other end of the RIGHT (yellow) hose to the ADAPTER ELBOW M#6 x F#6 just installed.
57. Connect the LEFT (orange) hose to the LEFT steering port on the Steering Valve.

58. Attach an ADAPTER ELBOW M#6 x F#6 to the tee port of the outside Reactive Steer Valve.

59. Connect the other end of the LEFT (orange) hose to the ADAPTER ELBOW M#6 x F#6 just installed.

60. Locate the two M22 elbow connections on the underside of the left, front corner of the cab.

61. Mark both the hoses and connectors with the proper colored cable ties before removing any hoses.

**Note:** The hose connection closest to the engine is the Right steer line and the other is the Left steer line. Confirm that the lines are positively identified by following the line up to the steering cylinder.
Install Steering Valves, Adapters, and Hoses

62. Disconnect the two large electrical connectors under the left, front corner of the cab. Unlock the connectors by pushing the locking levers down and away from the plug.

**Note:** Mark both of the connector’s positions before removing them for ease of refitting.

63. Carefully remove the cable clamps behind the plugs with a small flat screwdriver.

64. Disconnect the steer hose on the front side going down behind the fuel tank from the elbow fitting.

**Note:** The hose goes to the Right steer cylinder and the elbow adaptor goes directly to the Right port on the Orbitrol.
65. Connect the Right to Reactive Steer (yellow) hose to the elbow fitting.

66. Route the Right to Reactive Steer hose to the other side of the tractor across the space between the front wind shield and the engine bay.

67. Connect the Right to Reactive Steer hose to the 90 deg adaptor on the top port of the inside Reactive Steer Valve.
68. Attach an ADAPTER SWIVEL NUT ELBOW 15L to the end of the existing Right steer hose.

69. Connect the Right from Reactive Steer (yellow) hose to the ADAPTER SWIVEL NUT ELBOW 15L.

70. Route the Right from Reactive Steer hose along the same path as the Right to Reactive Steer hose

71. Connect to the straight through port of the run tee on the inside Reactive Steer Valve.

72. Disconnect the rear steer line between the elbow fitting and the hose going down behind the fuel tank.

*Note:* The hose goes to the Left steer cylinder and the elbow adaptor goes directly to the Left port on the Orbitrol.
73. Connect the Left to Reactive Steer (orange) hose to the elbow fitting.

74. Route Left to Reactive Steer hose to the other side of the vehicle along the same path as the other hoses.

75. Connect the Left to Reactive Steer (orange) hose to the 90 deg adaptor on the top port of the outside Reactive Steer Valve.

76. Attach an ADAPTER SWIVEL NUT ELBOW 15L to the end of the existing Left steer hose.

77. Connect the Left from Reactive Steer (orange) hose to the ADAPTER SWIVEL NUT ELBOW 15L.
Install Steering Valves, Adapters, and Hoses

78. Route the Left from Reactive Steer hose to the other side of the vehicle along the same path as the other hoses

79. Connect to the straight through port of the run tee on the outside Reactive Steer Valve.

80. Verify and tighten all the hydraulic fittings

81. Verify and tighten all bracket bolts.

82. Attach the Reactive Steer Harness connectors to the two Reactive Steer Valves.
Install Steering Valves, Adapters, and Hoses

83. Reattach the two large electrical connectors under the left, front corner of the cab.

84. Reattach the two large electrical connectors under the right, front corner of the cab.

85. Secure all hoses and electrical harness with cable ties. Verify that all hoses are away from pinch points, moving parts or exhaust manifolds.

86. Verify that all parts and hoses have sufficient clearance to accommodate the movement of the cab suspension.

87. Place the battery in the battery compartment and attach the terminal leads.

Note: Do not reinstall the rest of the panels or drive the vehicle in this condition.
**Install Steering Valves, Adapters, and Hoses**

88. Complete the rest of the AutoSteer vehicle.

89. After the rest of the installation has been completed, perform the **Hydraulic Leak Test** and **Load Sense Pressure Relief Valve Adjustment** procedures.

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90. After the hydraulic system has been checked and the Steering Valve Relief Valve has been adjusted, reattach all the covers that were removed for this part of the installation.

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**Post System Installation Procedures**

After completing the rest of the AutoSteer installation, it is important to come back and perform the following steps prior to starting the vehicle or trying to calibrate and AutoSteer the vehicle.

**Note:** Always perform these steps after the complete installation or system damage may occur and/or poor performance may occur. **DO NOT START THE VEHICLE BEFORE PERFORMING A LEAK TEST.**

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**WARNING**

High-Pressure Fluid Hazard

Read and understand the vehicle’s user manual before installation. Wear hand and eye protection while performing hydraulic system maintenance. Relieve hydraulic system pressure before servicing the hydraulic system.
Prior to starting the vehicle, verify all people and equipment are clear from around the vehicle and the AutoSteer system is powered down. The vehicle could move unexpectedly and cause injury or death to bystanders.

**Note:** The following steps need to be performed after the complete AutoSteer system has been installed, the AutoSteer System has powered up (BUT NOT THE VEHICLE), and the vehicle has been created in the AutoSteer system.

**Hydraulic Leak Test**

After the entire AutoSteer system installation has been completed, the system needs to be checked for leaks. Follow the procedure below to check for leaks.

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

1. Clear any bystanders away from the vehicle.
2. Put the vehicle into Park and/or set the park 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 any leaks have been repaired, or if none are found, start the vehicle again and let it run at a low idle.
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 more times to get any air out of the hoses.
7. Confirm the vehicle turns in the correct direction when the steering wheel is turned manually.
8. Confirm the steering system behaves the same as it did prior to installing the AutoSteer System. Measure the times it takes to manually turn the steering wheel from full left to right and full right to left and compare to the times recorded before the installation. If the times are different, determine why there is a difference and repair.
9. 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.
10. Once any leaks have been repaired, or if none are found, start the vehicle again and let it run at a low idle.
11. Take the vehicle out of Park and/or remove the parking brake and leave the vehicle running.
12. Power up the AutoSteer system and navigate to the steering components test screen. If the safety screen requirements have been met, press the **Continue** or **Accept** button.
13. Press the **Hard Right** and the **Hard Left** buttons several times to force the Steering Valve to turn the steering wheels or steering mechanism to the full right and full left positions and get the air out of the lines.
14. Verify that the vehicle turns in the correct direction it is commanded. Measure the time it takes the AutoSteer System to turn the steering wheel from full left to right and full right to left and compare to the times recorded to the times for manual movement. It should not take more than 3 to 4 seconds to go from lock to lock.
Note: If the wheels turn in the wrong direction, the hoses were attached to the wrong ports on the Steering Valve or to the incorrect steer lines. The steer hoses need to be switched.

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

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

Load Sense Pressure Relief Valve Adjustment

Note: Do not start the vehicle until after the Hydraulic Leak Test has been performed on the vehicle.

The Steering Valve has a built-in Load Sense Pressure Relief Valve that limits the maximum pump pressure when using the AutoSteer system. The Load Sense Pressure Relief Valve must be adjusted after the entire AutoSteer system has been installed and the system has been checked for hydraulic leaks.

Note: Always shut down the vehicle prior to adjusting the Load Sense Pressure Relief Valve adjustment screw.

Note: The Load Sense Pressure Relief Valve in Figure 6 is shown without the hydraulic hoses connected for ease of viewing and identifying the Load Sense Pressure Relief Valve and Pressure Gauge Test (GP) port. When actually adjusting the Load Sense Pressure Relief Valve, it must be performed with the valve mounted on the vehicle, the hydraulic hoses connected, and the rest of the AutoSteer system installed and operational.

Figure 6 Load Sense Pressure Relieve Valve and Diagnostic Port

1. Verify that the vehicle is still in Park and/or the park brake is set to prevent the vehicle from moving and the engine is off.

2. Clear any bystanders from around the vehicle to prevent anyone getting injured when the steering wheels are moved in the following steps.

3. Attach a short extension hose to the diagnostics port labeled GP on the Steering Valve. Attach a 5000 psi pressure gauge to the extension hose.
4. With a 1/2” wrench and 5/32” Allen wrench, loosen the jam nut holding the Load Sense Pressure Relief Valve adjustment screw as shown in Figure 8.

Note: Figure 8 shows the Steering Valve with the hoses disconnected for clarity. The Steering valve must be fully connected to the vehicle to adjust the pressure relief valve.

5. Turn the adjustment screw counter-clockwise two turns.
6. Start the vehicle and leave the engine at a low idle.
7. Check the standby pump pressure shown on the pressure gauge. The standby pressure should be below 350 PSI (24 Bar).
Note: If the standby pump pressure is zero or less than 100 PSI (7 Bar), the Pressure and Return/Tank hoses may have been inverted. Confirm the hoses have been attached properly before continuing.

Note: If the standby pump pressure is above 1000 PSI (69 Bar), it is too high. Determine what is causing the pressure to spool up and repair before moving on. Two most likely causes are that some of the hoses have been inverted or an incorrect orifice or plug has been installed in the Steering Valve.

8. Record the actual standby pressure: _____________________________ PSI (Bar).

9. Manually turn the steering wheel to the full left or right until the wheel hits the stop. Record the maximum pump pressure while holding the wheel at the stops: _____________________________ PSI (Bar).

10. Power up the Display.

11. Follow the instructions in the Display user manual to navigate to the vehicle’s steering test screens, press the Continue or Accept button if the requirements have been met.

12. Press the Hard Right or Hard Left button to command the wheels to turn to the right or left. Allow the steering axle to reach the right stop and hold it there. Let the AutoSteer system continue to command a hard turn at the stop.

13. The maximum pump pressure allowed by the Steering Valve or Orbitrol will be displayed on the pressure gauge.

14. Check the pressure on the pressure gauge. Adjust the Load Sense Pressure Relief Valve until the maximum pressure while the AutoSteer system holds the wheel at the stop reads 100 PSI (7 Bar) above the maximum manual steering pressure recorded in Step 9.

Note: If the Steering Valve's Load Sense Pressure Relief Valve is set too high, the internal Orbitrol’s pressure relief valve may cause the pressure to max out before the Load Sense Pressure Relief Valve starts to work. Continue lowering the adjustment screw on the Load Sense Pressure Relief Valve on the Steering Valve until the maximum pressure starts to decrease.

Note: Always turn off the engine before adjusting the Load Sense Pressure Relief Valve. Do not adjust the Load Sense Pressure Relief Valve with the engine running as there is a chance that a person could get injured if the steering wheels move while working on the Steering Valve.

15. Once the Load Sense Pressure Relief Valve has been adjusted properly, retighten the jam nut with a 1/2” wrench while holding the adjustment screw with a 5/32” Allen wrench to lock it into place.

16. Record the final maximum pressure the pressure relieve valve is set to: _____________________________ PSI (Bar).

17. Press the Stop button and confirm that the pressure drops back to the standby pressure within a second.

18. Shut down the Display, turn off the engine, and remove the pressure gauge from the Steering Valve by sliding the sleeve on the quick release coupler.