Automated Steering Hydraulic Installation Kit

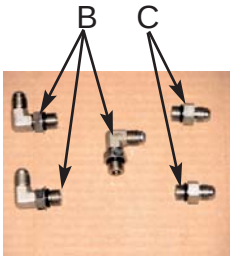
P/N: ED-JD4700

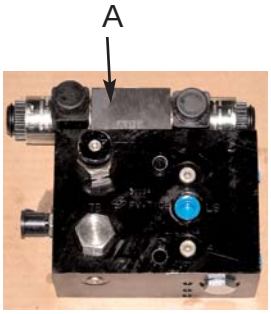
Fits John Deere Sprayer Models:

4700
4710
(No Autotrac Hydraulics)

Overview

A series of equipment specific hydraulic installation kits have been developed to work in conjunction with your automated steering system. This kit contains the necessary components and instructions to install automated steering hydraulics on the John Deere sprayer models listed above. Please read this manual thoroughly before beginning installation.



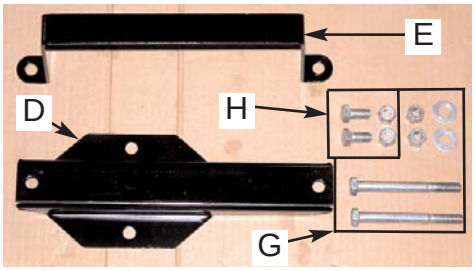


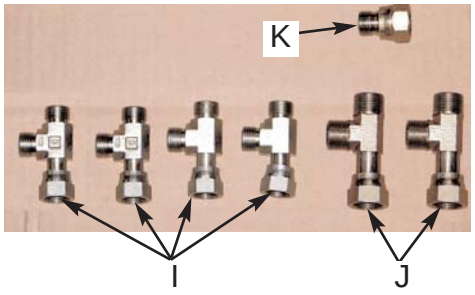
Sprayer Preparation

Before attempting to install hydraulics, park the machine on a clean level floor with adequate clearance to work all around.

Kit Contents

Unpack the installation kit and identify the required parts as shown.

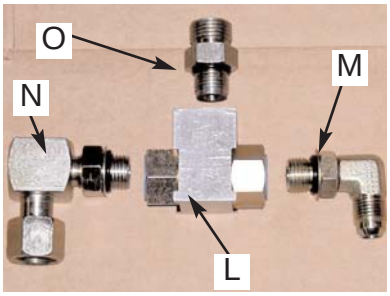


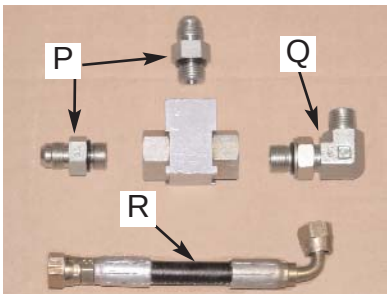


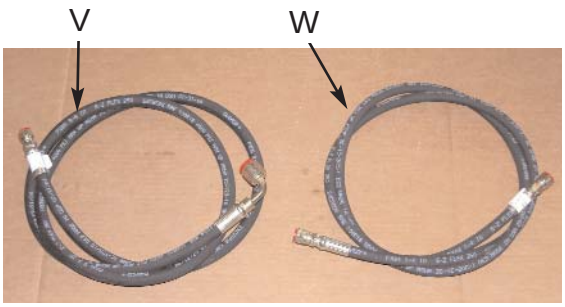
REF	P/N	QTY	DESCRIPTION
A	760-0003	1	Assy, Hyd. Valve Block - LS
	Bag #1 of 4 includes B & C		
B	760-2058	3	Adapter, Hyd. 90 Elbow - #6maleJIC x #6maleORB
C	760-2056	2	Adapter, Hyd. - #6maleJIC x #6maleORB
D	640-0015	1	Hyd. Block Mnt - JD4700/SPX4410
E	640-0014	1	Hyd. Block Mnt - Hammer Strap
F	640-0037	1	Hyd. Block Mnt - Hammer Strap
	Bag #2 of 4 includes G & H		
G	675-2005	2	Bolt, 3/8NC x 3-1/4” Gr5 ZP
	678-1054	2	Washer, Narrow Flat - 3/4”OD x 13/32”ID x 1/16”thk ZP
	676-1035	2	Nut, NyLock - 3/8NC ZP
H	675-2007	2	Bolt, 3/8NC x 3/4” Gr5 ZP
	676-1035	2	Nut, NyLock - 3/8NC ZP
	Bag #3 of 4 includes I, J, & K		
I	760-2046	4	Adapter, Hyd Run Tee - #6 ORFF
J	760-2069	2	Adapter, Hyd Run Tee - #8 ORFF
K	760-2064	1	Adapter, Hyd. - #8femORFF x #6maleORFF

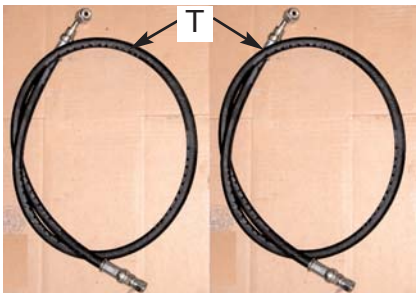
Kit Contents (cont.)

REF	P/N	QTY	DESCRIPTION
	Bag #4 of 4 includes K, L, M, N, O, P, & Q		
L	760-0002	1	Assy, Hyd. Load Shuttle - #6femORB
M	760-2058	1	Adapter, Hyd. 90 Elbow - #6maleJIC x #6maleORB
N	760-2040	1	Adapter, Hyd. 90 Elbow - #6maleORB x #6femORFFswiv
O	760-2048	1	Adapter, Hyd. - #6maleORFF x #6maleORB
P	760-2056	2	Adapter, Hyd - #6maleJIC x #6maleORB
Q	760-2034	1	Adapter, Hyd - 90 Elbow - #4maleORFF x #6maleORB
R	760-1144	1	Hose, Hyd. - 1/4” x 6”, #6femJICswiv x #4femORFFswiv90EL
S	760-1039	2	Hose, Hyd. - 1/4" x 48", #6femJICswiv x #6femORFFswiv90EL
T	760-1040	2	Hose, Hyd. - 3/8" x 32", #6femJICswiv x #6femORFFswiv90EL
U	760-1038	1	Hose, Hyd. - 1/4" x 40", #6femJICswivel Both Ends
V	760-1059	1	Hose, Hyd - 3/8” x 96”, #6femJICswiv x #8femORFFswiv90EL
W	760-1145	1	Hose, Hyd - 1/4” x 103”, #6femJIC swiv both ends
X	051-0143	1	Cable, Hyd. Valve Interface - 15 ft.
	677-2001	20	Tie Strap, 11" Heavy Duty, Not Shown
	710-0053	1	Kit, Steering Wheel Switch, Not Shown









WARNING: **HIGH-PRESSURE FLUID HAZARD.** Hydraulic oil may be hot and under high pressure. To prevent serious injury or death: Relieve system pressure and allow to cool before repairing or disconnecting. Wear proper hand and eye protection when searching for leaks, using wood or cardboard instead of hands. Keep all hydraulic components in good repair.

IMPORTANT: **PREVENT HYDRAULIC SYSTEM CONTAMINATION.** It is essential to thoroughly clean hydraulic system fittings and hose connections prior to disconnecting or removing. Use a spray cleaner such as ‘Brake Clean’ to prevent hydraulic system contamination. Note that o-rings used on ORB and ORFF type fittings may be damaged by solvent cleaners such as ‘Brake Clean’. If a fitting is to be cleaned internally, the o-ring should first be removed and cleaned with a fiberless cloth.

INSTALLATION

1. Prepare Hydraulic Control Block:

Make sure the hydraulic control block is clean and dust free. Remove the plastic plugs and install elbow adapters **(B)** in the **P**, **T**, and **LS** ports. Install straight adapters **(C)** in the **A** and **B** ports. (Figure 3.1)

Note: *To install elbow fittings into the **P** and **T** ports, the pressure test port fitting must first be removed. Once the elbows are installed, reinstall the pressure test port fitting.*

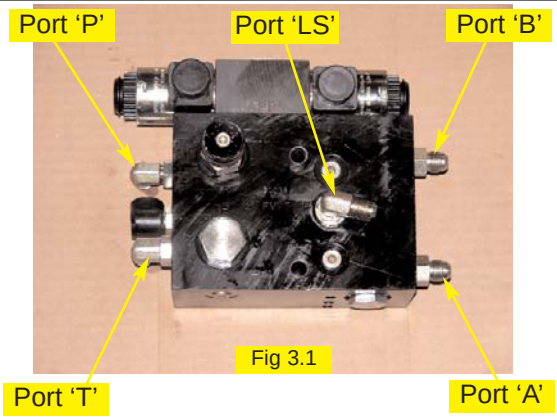


Fig 3.1

2. Install Mounting Bracket:

Install the hydraulic block mounting bracket **(D)** on the sprayer frame at the left side of the engine using the mount strap **(E)** and hardware group **(H)**. (Figure 3.2) Depending on model, it may be necessary to use the longer mount strap **(F)** instead of **(E)**.

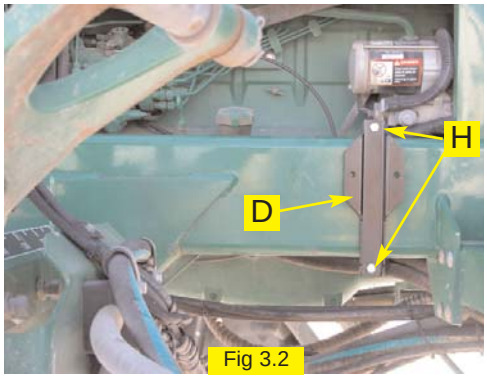


Fig 3.2

3. Install Hydraulic Control Block:

Install the hydraulic control block, as prepared in step **1**, to the mounting bracket using the mounting hardware in group **(G)**. (Figure 3.3) Tighten mounting bolts securely.

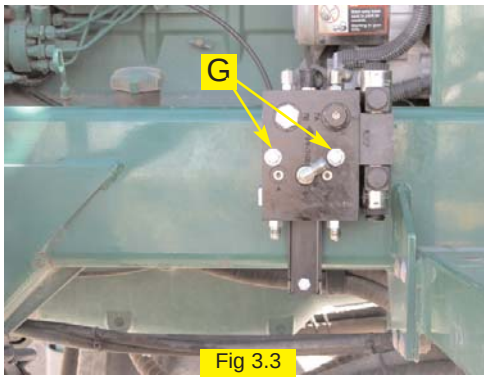


Fig 3.3

If your machine is a John Deere model 4710 with a serial number ending in 4001 or higher, proceed to page **6**, step **4a**. If your machine is a model 4710 with a serial number ending in 4000 or lower or a model 4700, continue to step **4**.

4. Install Pressure and Tank Fittings:

Locate the steering orbital under the cab. On some models a shield will need to be removed to allow access to the orbital. (Figure 4.1)

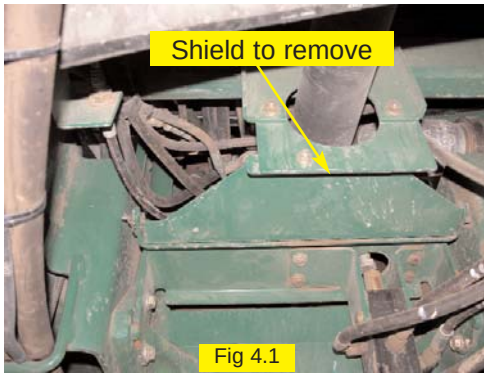


Fig 4.1

Identify the pressure and tank ports. The pressure and tank ports will be stamped **P** and **T** on the orbital casting, and in the orientation shown. (Figure 4.2)

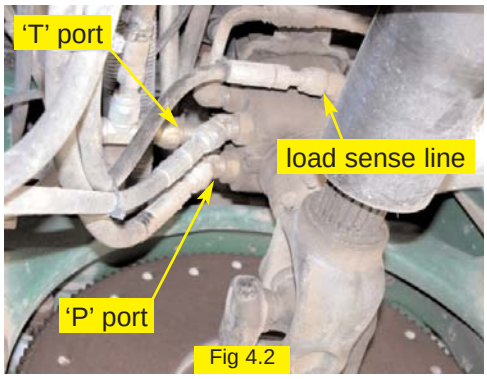


Fig 4.2

Install the provided run-tee fittings **(I)** to the pressure and tank ports. For some applications, the tank port may require the larger #8 ORFF run-tee fitting **(J)**. (Figure 4.3) In applications where a run-tee already exists at the tank port, simply attach the run-tee, provided, to the end position of the current run-tee. Leave the run-tee fittings loose to allow for alignment when attaching hoses. Plastic caps placed on the open ends of the fittings will prevent excessive leakage prior to hose installation.

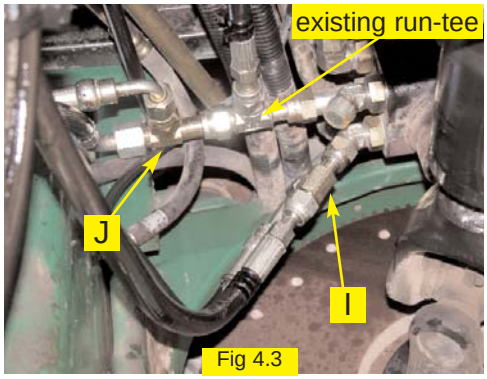


Fig 4.3

5. Install Load Sense Shuttle/Fittings:

Pre-assemble the load sense shuttle **(L)** with the included fittings **(M)**, **(N)**, and **(O)** as shown. (Figure 4.4)

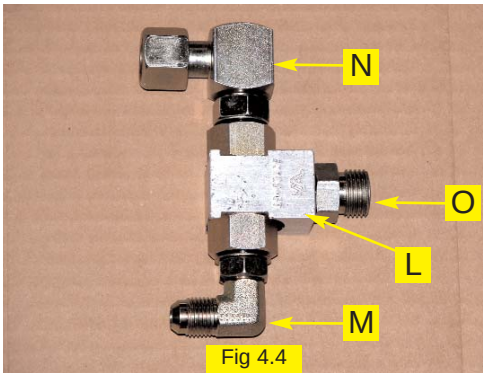


Fig 4.4

5. Continued...

Locate the load sense port on the side of the steering orbital as seen in step **4**. Remove the hose and install the load sense shuttle to the orbital. The end of the load sense shuttle with the female swivel elbow **(N)** will attach directly to the orbital while the machine load sense hose will be reinstalled to the center position **(O)** of the load sense shuttle. (Figure 5.1 and 5.4)

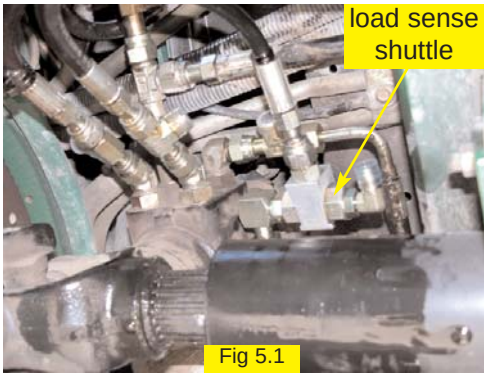


Fig 5.1

6. Install Pressure, Tank, and Load Sense Hoses:

Install pressure and tank hoses **(T)** between the run-tee fittings installed on the orbital and the corresponding **P** and **T** ports on the hydraulic control block. On models requiring the #8 ORFF **(J)** run-tee on the tank port, it is necessary to use the expander fitting **(K)** to adapt the provided hose to the larger run-tee. (Figure 5.2 and 5.4)

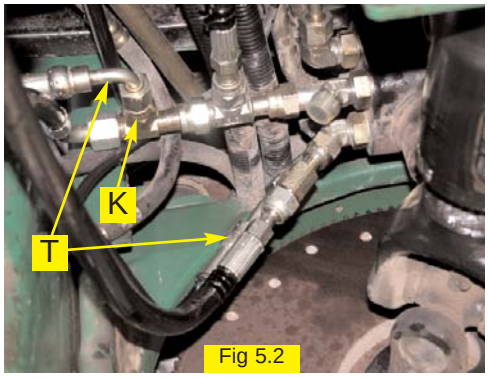


Fig 5.2

Install the load sense hose **(U)** between the **LS** port on the hydraulic control block and the load sense shuttle fitting **(M)**. (Figure 5.3 and 5.4)

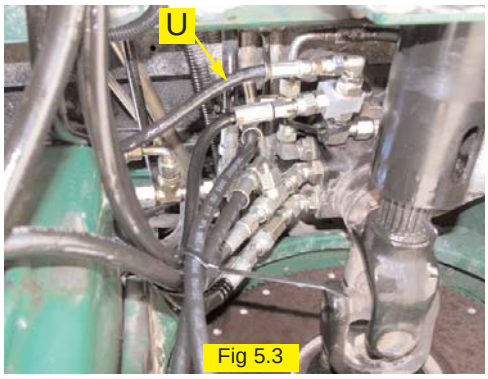


Fig 5.3

Carefully check the hose routing for clearance of moving parts and secure with the heavy tie straps provided. Securely tighten all hydraulic hose fittings and adapters on the pressure, tank, and load sense lines. (Figure 5.4)

Attention: *Proceed to page **9**, step **7**.*

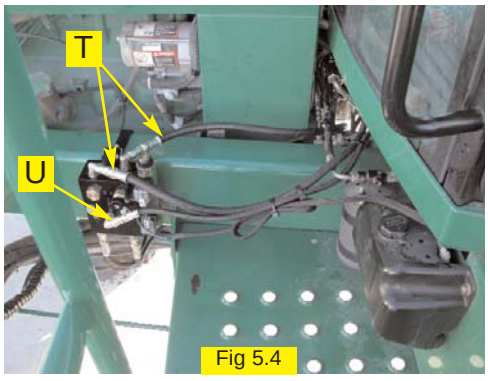


Fig 5.4

4a. Install Pressure and Tank Fittings:

Locate the steering orbital under the cab. On some models a shield will need to be removed to allow access to the orbital. (Figure 6.1)

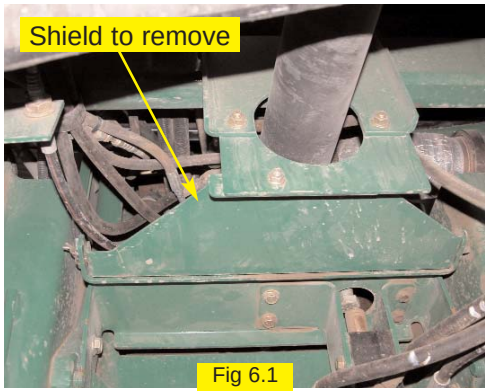


Fig 6.1

Identify the tank port as shown. (Figure 6.2)

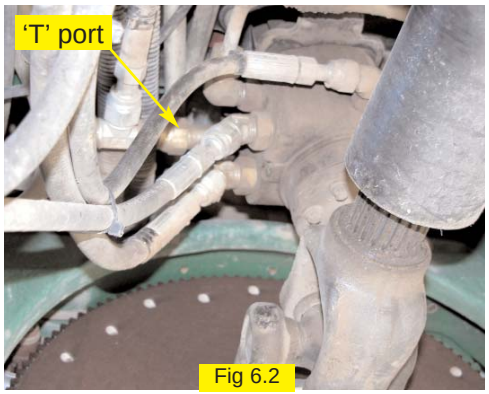


Fig 6.2

Install the provided run-tee fitting **(I)** to the tank port. For some applications, the tank port may require the larger #8 ORFF run-tee fitting **(J)**. (Figure 6.3) In applications where a run-tee already exists at the tank port, simply attach the hydraulic run-tee to the end position of the current run-tee.

Leave the run-tee fitting loose to allow for alignment when attaching hoses. Plastic caps placed on the open ends of the fittings will prevent excessive leakage prior to hose installation.

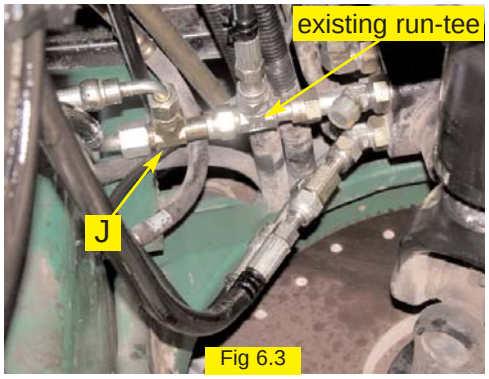


Fig 6.3

4a. Continued...

Locate the steering priority valve on the left side of the sprayer frame near the chemical inductor. Remove the hose on the end of the run-tee attached to the excess flow **(EF)** outlet of the priority divider. Install the run-tee **(J)** provided. (Figure 7.1) Reinstall the hose to the branch of the new run-tee. (Figure 7.2) This run-tee will provide the pressure connection for the hydraulic control block.

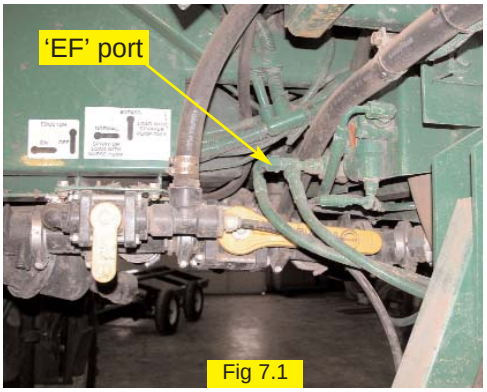


Fig 7.1

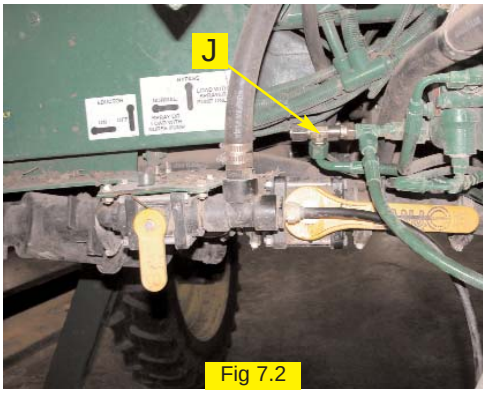


Fig 7.2

5a. Install Load Sense Shuttle/Fittings:

Pre-assemble the load sense shuttle **(L)** with the included fittings **(P**) and **(Q)** as shown. (Figure 7.3)

Locate the sprayer load sense line on the bottom of the hydraulic pump under the sprayer, behind the transmission. (Figure 7.4) Disconnect the hose from the valve block and install the prepared load sense shuttle using the extension hose **(R)** provided. Reconnect the sprayer load sense hose to the end of the load sense shuttle **(Q)**.

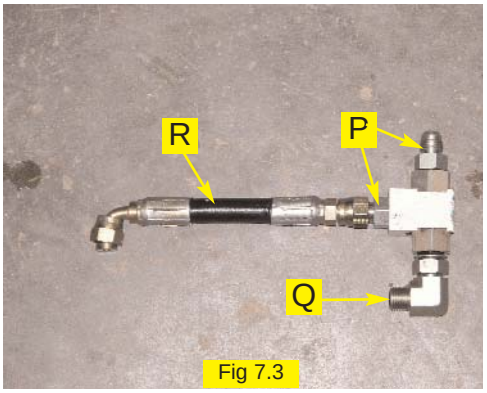


Fig 7.3

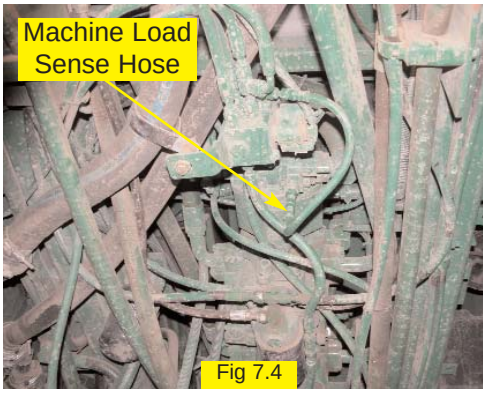


Fig 7.4

6a. Install Pressure, Tank, and Load Sense Hoses:

Route the pressure hose **(V)** from the run-tee installed at the priority valve, inside the sprayer frame, and connect to the **P** port of the hydraulic control block. (Figure 8.1 and 8.4) The hose should be routed with other sprayer plumbing free from entanglement and secured with heavy tie straps (provided).

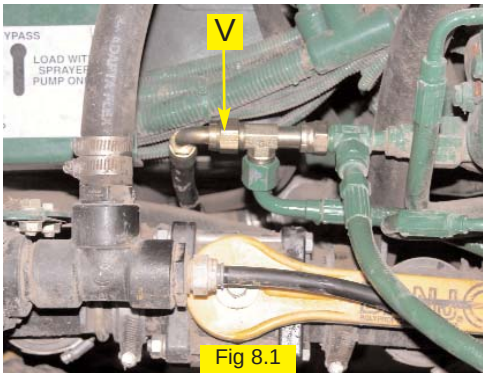


Fig 8.1

Connect the tank hose **(T)** between the **T** port of the hydraulic control block and the run-tee installed at the steering orbital. (Figure 8.2)

On models requiring the #8 ORFF run tee on the tank port, it is necessary to use the expander fitting **(K)** to adapt the provided hose to the larger run-tee **(J)**. (Figure 8.2)

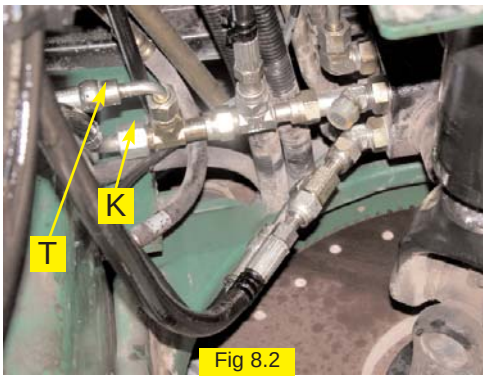


Fig 8.2

Install the load sense hose **(W)** between the open end of the load sense shuttle and the **LS** port of the hydraulic control block. Route the load sense hose **(W)** with the pressure hose **(V)** up to the hydraulic control block. (Figure 8.3 and 8.4)

Use the heavy tie straps provide to secure the hoses to other machine plumbing prevent entanglement. (Figure 8.4 and 8.5)

Carefully check the hose routing for clearance of moving parts and secure with the heavy tie straps provided. Securely tighten all hydraulic hose fittings and adapters on the pressure, tank, and load sense lines.

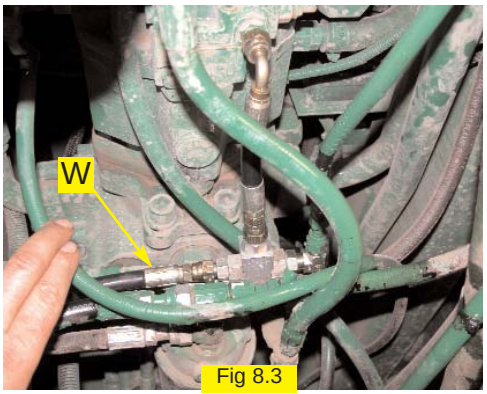


Fig 8.3

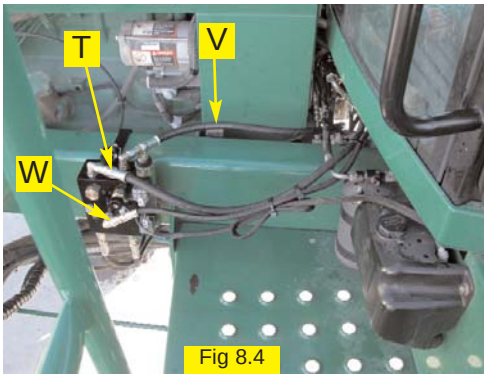


Fig 8.4


Fig 8.5

7. Install Steering Output Fittings:

Locate the steering output ports on the steering orbital. They will be stamped **R** and **L** on the casting and in the orientation shown. Install run-tee fittings **(I)** to the output ports of the orbital. (Figure 9.1) Leave the run-tee fittings loose to allow for alignment when attaching hoses. Plastic caps placed on the open ends of the fittings will prevent excessive leakage prior to hose installation.

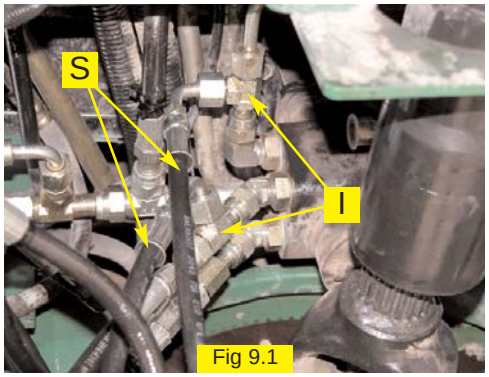


Fig 9.1

8. Install Steering Output Hoses:

Install the provided output hoses **(S)** to the run-tee fittings installed in the previous step. (Figure 9.1)

Route the steering hoses under the frame and up to the hydraulic control block and connect them to the **A** and **B** ports.

Carefully check the hose routing for clearance of moving parts and secure with the heavy tie straps provided. (Figure 9.3) Securely tighten all hydraulic hose fittings and adapters.

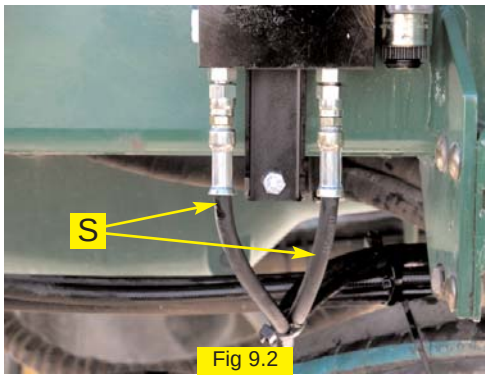


Fig 9.2

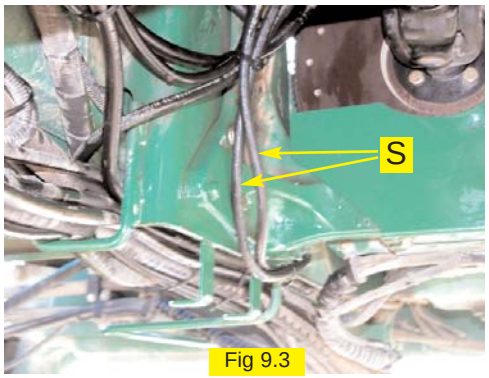


Fig 9.3

9. Install the Valve Control Cable:

Route the valve control cable **(X)** through the cable grommet in the tractor window seal. Run the DIN connectors down to the hydraulic control block and attach as shown. (Figure 10.1 and 10.2)

Remove enough slack out of the cable to prevent entanglement with moving parts. Use tie straps as needed.

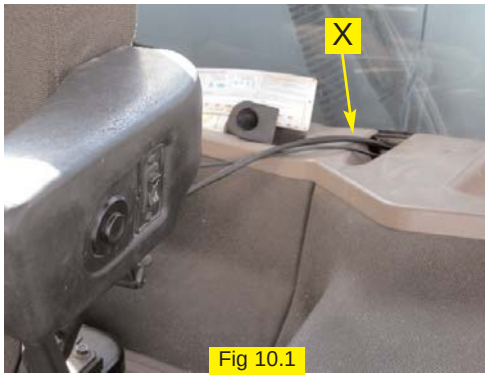


Fig 10.1

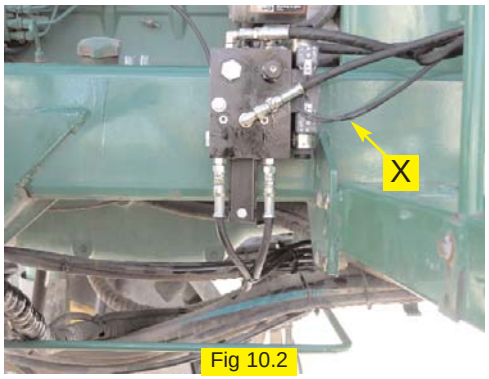


Fig 10.2

10. Verify Operation and Set Steering Control Rate:

Cleanup the installation area around the sprayer and make certain that it is safe to operate. Start the sprayer and check hydraulic connections for any leaks. Rotate the steering wheel from one extreme to the other, and back.

Adjust the hydraulic oil flow control knob to a starting position of **3 turns** from completely closed. To adjust the knob, lift and turn clockwise to reduce flow, counter-clockwise to increase flow.

The coils on the control block have manual push button overrides. Push either manual override to move the steering tires all the way to one extreme. Count the number of seconds for the steering tires to move all the way in the opposite direction while pressing the manual override of the other coil. (Figure 10.3)

Adjust the hydraulic oil flow control knob to achieve an end to end steering cycle time of approximately **15** seconds.

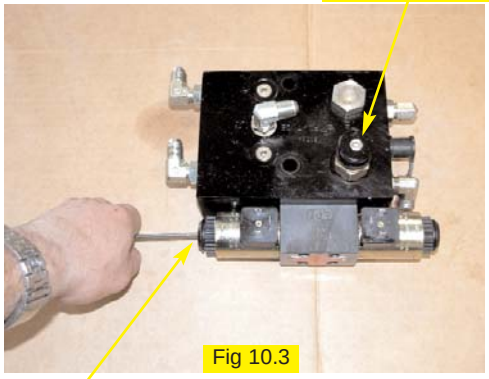


Fig 10.3

Note: *To activate the manual overrides, a tool such as a small screw driver or allen wrench must be inserted into the end of the coil to depress the override button.*

WARNING: **PINCH POINT HAZARD.** To prevent serious injury or death, avoid unsafe practices while manually operating hydraulic steering circuit. Keep others away and stay clear of mechanical steering linkages.

11. Complete Electronic Installation and Setup:

Refer to the owner's manual supplied with your automated steering system to complete the electronic installation and setup.