

Automated Steering Hydraulic Installation Kit

P/N: ED-JD8020

Fits John Deere Tractor Models:

8120

8220

8320

8420

8520

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 8020 series tractors. Please read this manual thoroughly before beginning the installation.

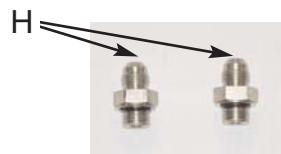
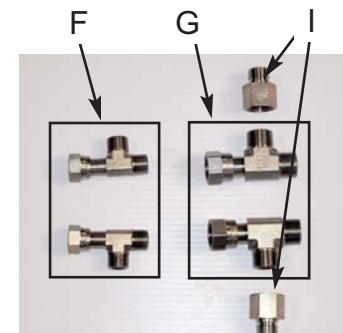
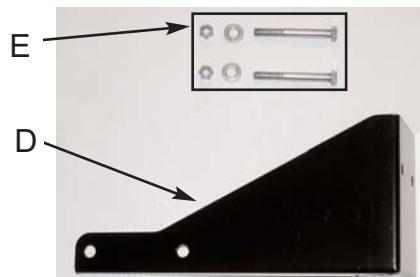
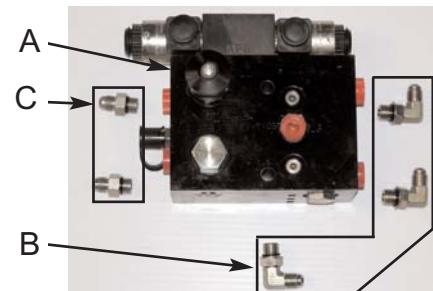
Tractor Preparation

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

Kit Contents

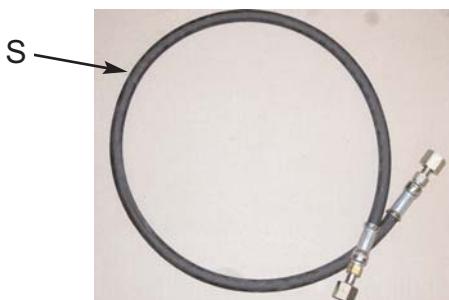
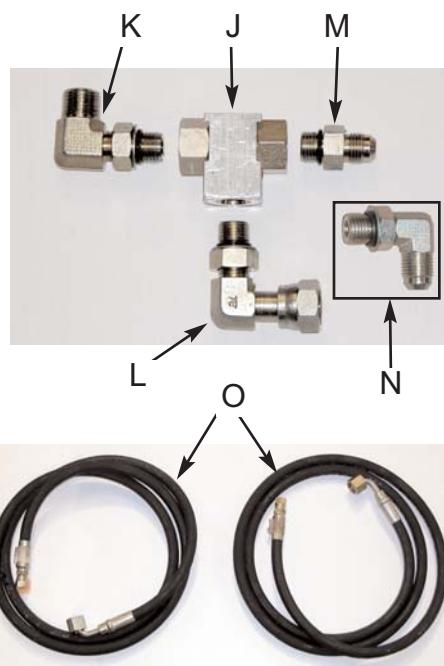
Unpack the installation kit and identify the required parts as shown.

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	640-0021	1	Hyd. Block Mnt, JD8020
Bag #2 of 4 includes E			
E	675-2005	2	Bolt - 3/8NC x 3-1/4" Gr5, ZP
	678-1054	2	Washer, Narrow Flat - 3/4OD x 13/32"ID x 1/16"thk ZP
	676-1035	2	Nut, NyLock - 3/8NC ZP
Bag #3 of 4 includes F, G, H, & I			
F	760-2069	2	Adapter, Hyd. Run Tee - #8 ORFF
G	760-2004	2	Adapter, Hyd. Run Tee - #10 ORFF
H	760-2063	2	Adapter, Hyd. - #6maleJIC x M14maleORB
I	760-2001	2	Adapter, Hyd. #10femORFF x #8maleORFF



Kit Contents (cont.)

REF	P/N	QTY	DESCRIPTION
Bag #4 of 4 includes J, K, L, M, & N			
J	760-0002	1	Asst, Hyd. Load Shuttle - #6femORB
K	760-2049	1	Adapter, Hyd. 90 Elbow - #6maleORFF x #6maleORB
L	760-2040	1	Adapter, Hyd. 90 Elbow - #6maleORB x #6femORFFswiv
M	760-2056	1	Adapter, Hyd. - #6maleJIC x #6maleORB
N	760-2058	1	Adapter, Hyd. 90 Elbow - #6maleJIC x #6maleORB
O	760-1070	2	Hose, Hyd. - 3/8" x 98", #6femJICswiv x #8femORFswiv90EL
P	760-1066	1	Hose, Hyd. - 3/8" x 19", #6femJICswivel both ends
Q	760-1014	1	Hose, Hyd. - 3/8" x 22", #6femJICswiv x #6femJICswiv90EL
R	760-1067	1	Hose, Hyd. - 1/4" x 60", #6femJICswivel both ends
S	760-1078	1	Hose, Hyd. - 1/4" x 44", #6femORFswivel x #8femORFswivel
T	051-0144 677-2001 710-0053	1 20 1	Cable, Interface - 10 ft. Tie Strap, 11" Heavy Duty, Not Shown 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.

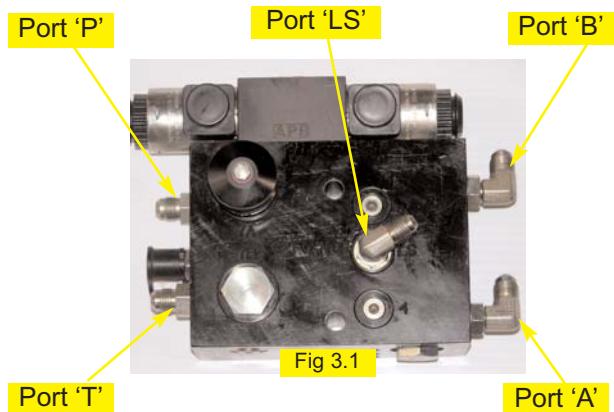
PREVENT HYDRAULIC SYSTEM CONTAMINATION.

IMPORTANT: 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

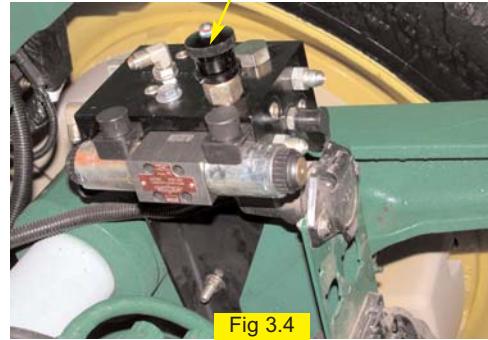
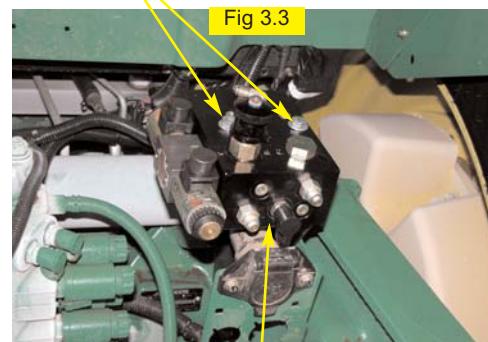
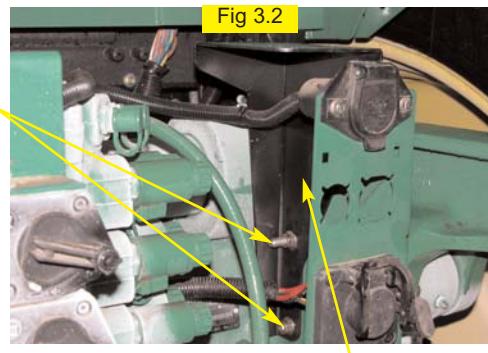
1. Prepare Hydraulic Control Block:

Make sure that the hydraulic control block is clean and dust free. Install elbow adapters (**B**) in the **LS**, **A**, and **B** ports of the hydraulic control block and orient as shown. Install straight fittings (**C**) in **P** and **T** ports of the hydraulic block. (Figure 3.1)



2. Install Mounting Bracket:

Locate the two bolts securing the trailer-wiring bracket to the rear casting of the tractor. Using these two bolts, install the hydraulic mounting bracket (**D**) onto the tractor casting as shown. (Figure 3.2) Attach the hydraulic control block (**A**) to the mounting bracket (**D**) using the provided hardware group (**E**). (Figure 3.3 and 3.4)



3. Install Steering Output Fittings:

Raise the hood on the tractor and remove the black shield on the left side in front of the cab. The shield is held in place by two allen head screws as indicated. For better accessibility the battery box shield may also be removed. (Figure 4.1)

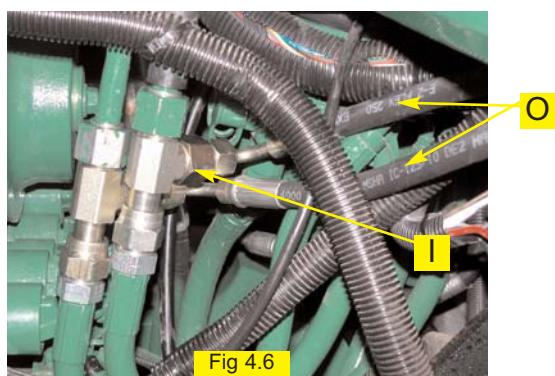
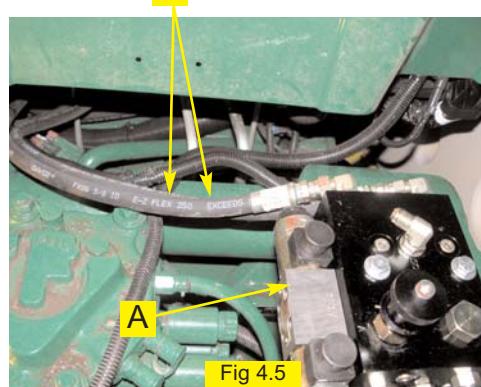
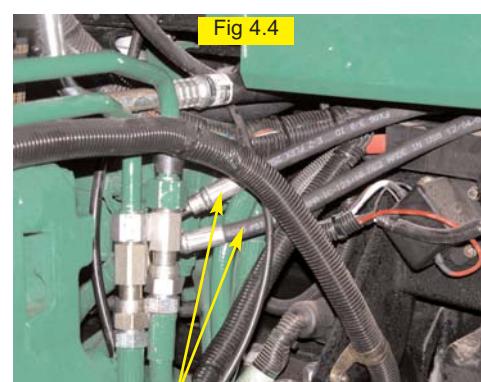
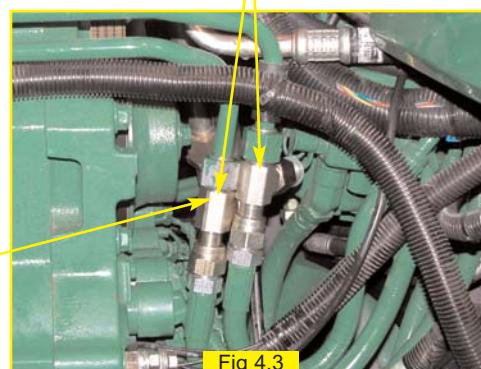
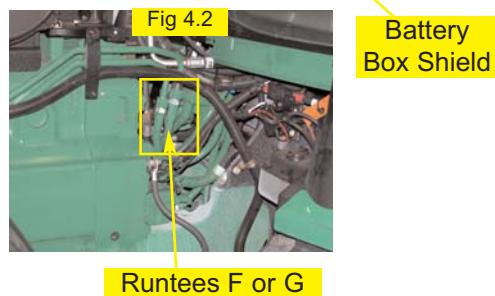
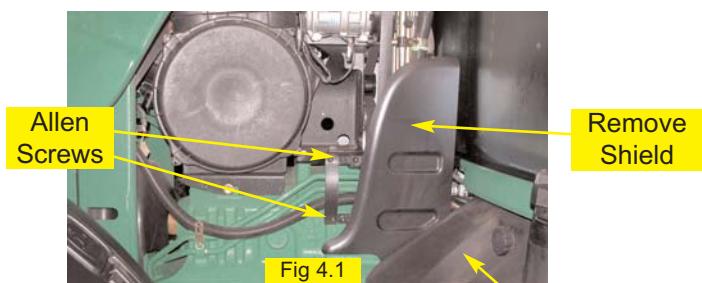
Locate the steering lines and install run-tees (**F**) at the junction of the steel and rubber portions of the steering lines. (Figure 4.2) If the tractor is equipped with the ILS (independent link suspension) option, then the larger runtees (**G**) will be required for installation. Leave run-tee fittings 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. (Figure 4.3)

4. Install Steering Output Hoses:

Make sure that the hose ends are equipped with plastic caps to prevent dirt from entering during hose routing. A piece of stiff wire may be required to guide the hose through proper routing locations.

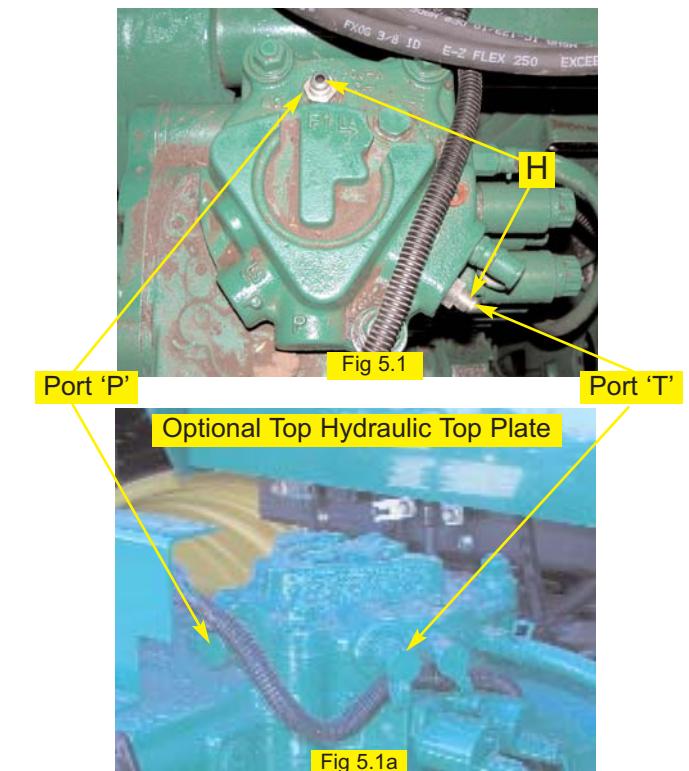
Route hydraulic steering output hoses back from in front of the cab where the run-tees are installed. The ends of the hoses with the smaller fittings will be installed at the back of the tractor. (Figure 4.4 and 4.5) The output hoses will be routed under the tractor cab along the left side and back to the hydraulic control block. (Figure 4.5)

Secure the steering output hoses to the branches of the runtees on the tractor steering lines and to the **A** and **B** ports of the hydraulic control block. (Figure 4.4 and 4.5) If the larger runtees were installed into the steering lines, then adapter fittings (**I**) will be required to attach the steering output hoses to the branches of the runtees. (Figure 4.6) Check hose routing for clearance of moving parts and secure with the provided tie straps.

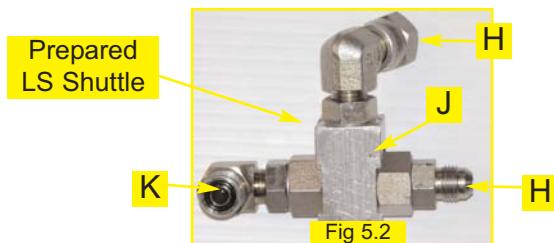


5. Install Tractor Pressure and Tank Fittings:

Remove test port fittings labeled **P** and **T** from the top plate on the tractor hydraulic remotes and install adapter fittings (**H**) in both locations. (Figure 5.1)

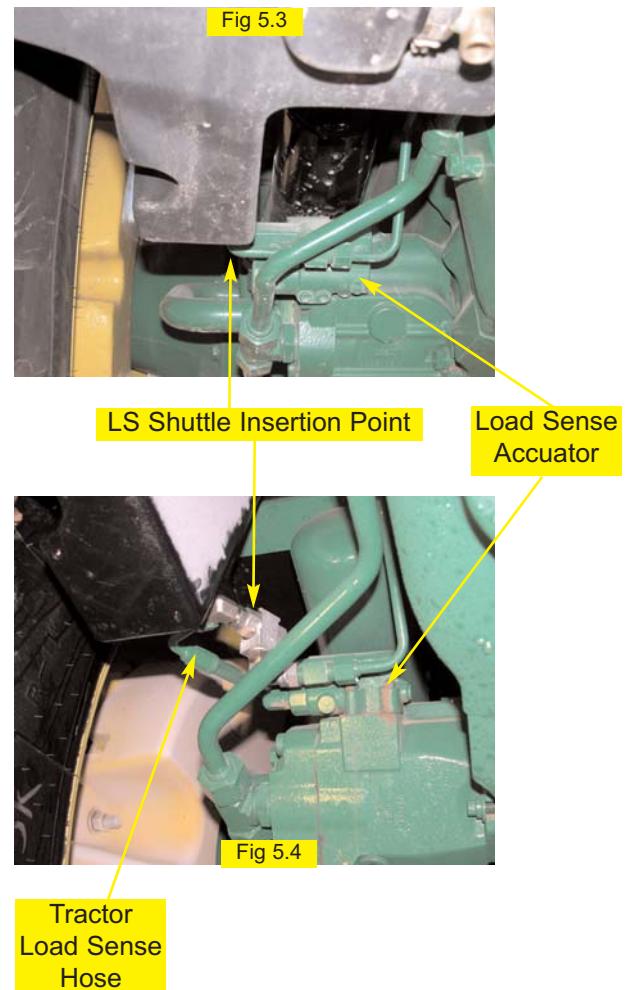


Prepare the load sense shuttle by installing the included fittings as shown. (Figure 5.2)



Locate the load sense accuator on the hydraulic pump under the tractor cab on the right side. (Figure 5.3) Remove the hose from the load sense accuator and install the prepared load sense shuttle as shown. Reattach the tractor load sense hose to the end of the load sense shuttle with the proper adapter fitting. (Figure 5.4)

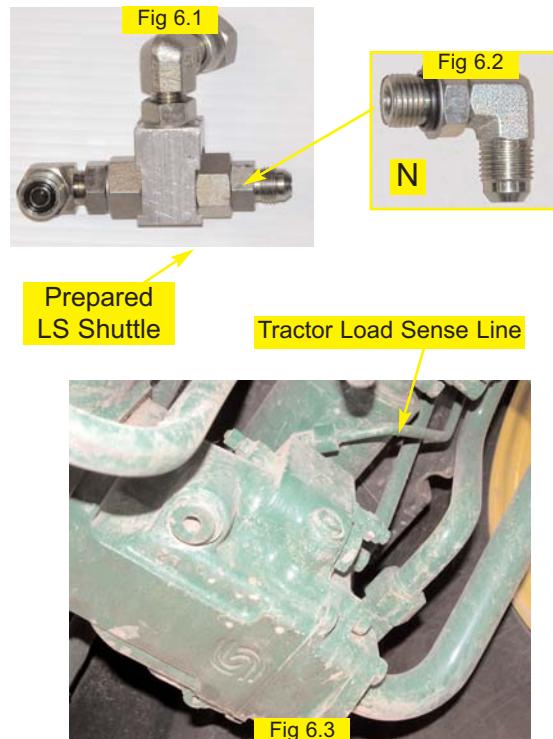
Note: If tractor is equipped with the highflow hydraulic pump option, please refer to page 6 for proper load sense installation.



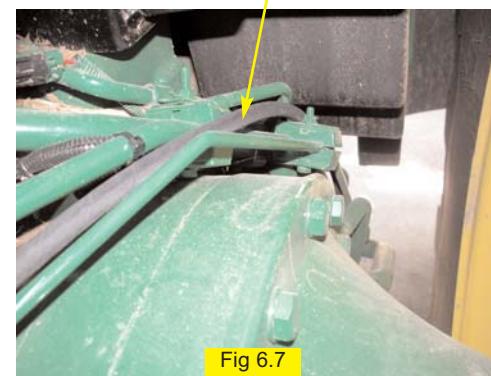
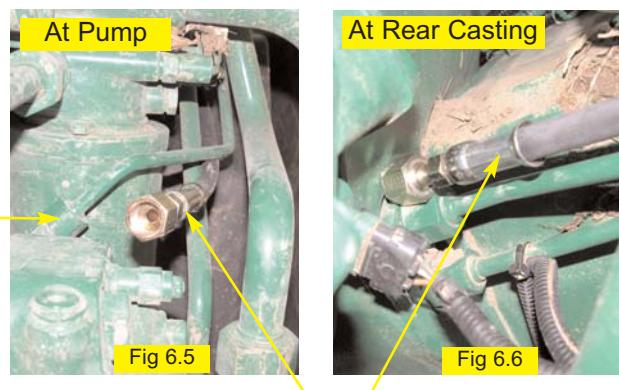
5. Continued... Load sense installation for highflow hydraulic pump option.

For easier connection, an elbow fitting (N) may be used on the load sense shuttle instead of the straight fitting (M). (Figure 6.2)

Locate the tractor load sense line on the back side of the pump that connects to the rear casting of the tractor. (Figure 6.3) If the tractor load sense line is steel it must be replaced with provided hose (S) as show below. (Figure 6.5 and 6.6)



Insert the assembled load sense shuttle as shown and attach the replacement hose (S) (or tractor load sense line) to the end of the load sense shuttle with the adapter fitting (K). (Figure 6.4)



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

Install pressure and tank (**Q** and **P**) hoses between the tractor and hydraulic control block to the corresponding **P** and **T** ports. (Figure 7.1)

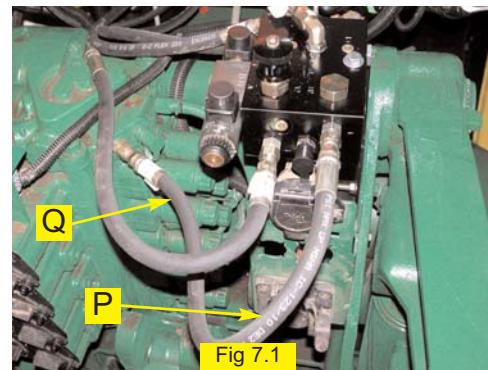
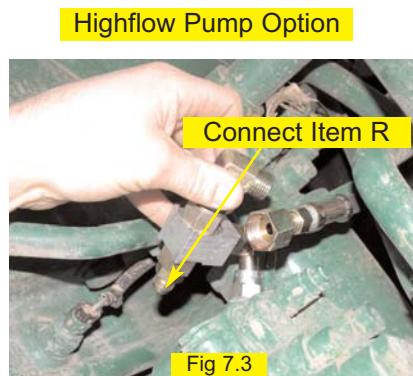


Fig 7.1

Install the load sense hose (**R**) between the **LS** port of the hydraulic control block and the open end of the load sense shuttle installed at the pump. (Figure 7.2)



Connect Item R

Fig 7.3

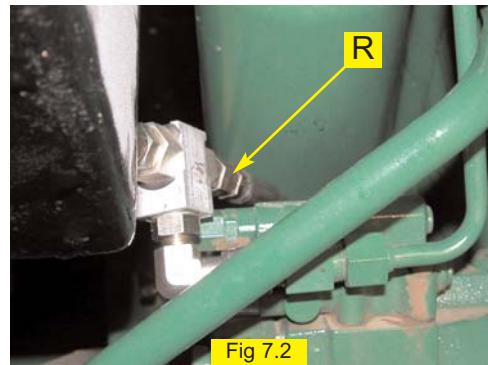


Fig 7.2

Route the load sense hose (**R**) up from the pump along the side of the tractor and secure it to other rigid plumbing. Make sure all hoses are routed properly and free from entanglement as shown in the figures. (Figure 7.4 and 7.5)

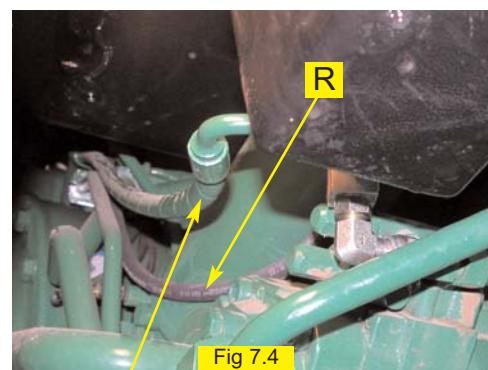


Fig 7.4

Tractor
Load Sense
Hose

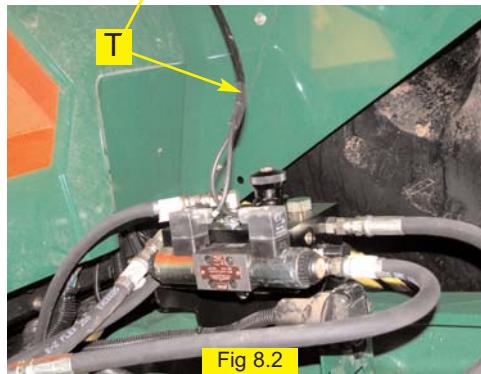
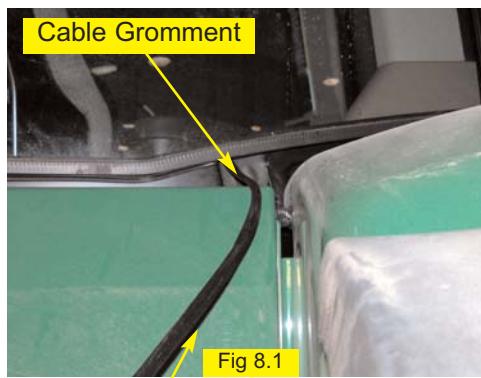


Fig 7.5

Highflow Pump Option

7. Install the Valve Control Cable:

Route valve control cable (T) through the cable grommet in the tractor window seal and run the DIN connectors down to the hydraulic control block. (Figure 8.1) Take enough slack out of the cable to prevent entanglement with tractor moving parts such as the three-point hitch. (Figure 8.2) Use tie straps as needed.



8. Verify Operation and Set Steering Control Rate:

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

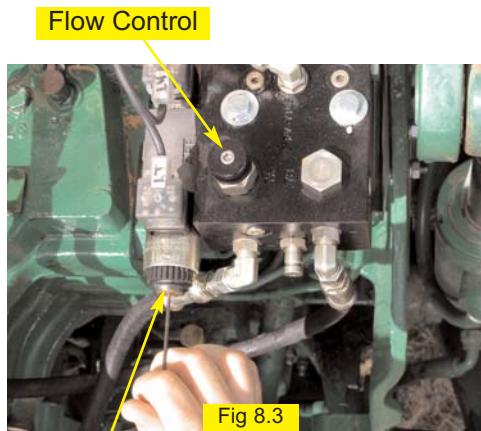
Adjust the hydraulic oil flow control knob to a starting position of **3 turns** from completely closed. To adjust the knob, lift and turn clockwise to reduce flow, counter-clockwise to increase flow.

The coils on the control block have manual push button overrides. Push either manual override to move the tractor wheels all the way to one extreme. Count the number of seconds for the tractor wheels to move all the way in the opposite direction while pressing the manual override of the other coil. (Figure 8.3)

Adjust the hydraulic oil flow control knob to achieve an end to end steering cycle time of approximately **18 seconds**.

9. Complete Electronic Installation and Setup:

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



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.



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.