

Automated Steering Hydraulic Installation Kit

P/N: ED-JD7020SF

Fits John Deere Tractor Models:

6110	6120	7420
6210	6220	7520
6310	6320	
6410	6420	



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 tractor models listed above. Please read this manual thoroughly before beginning the installation.

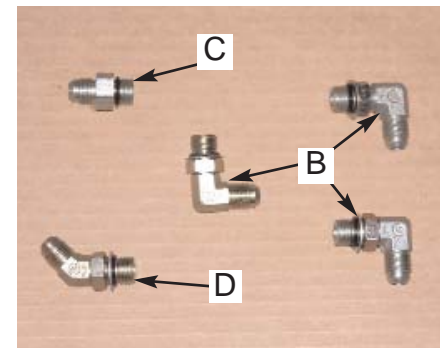
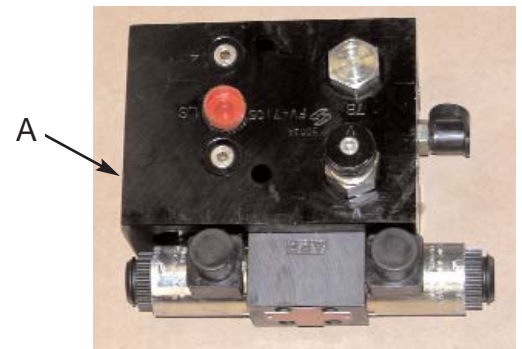
Tractor Preparation

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

Kit Contents

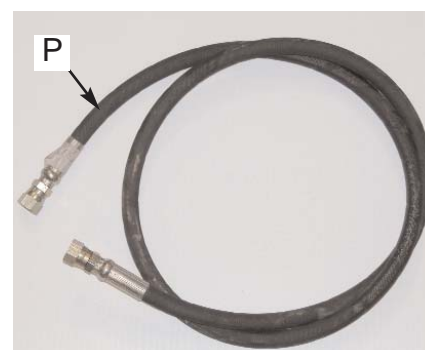
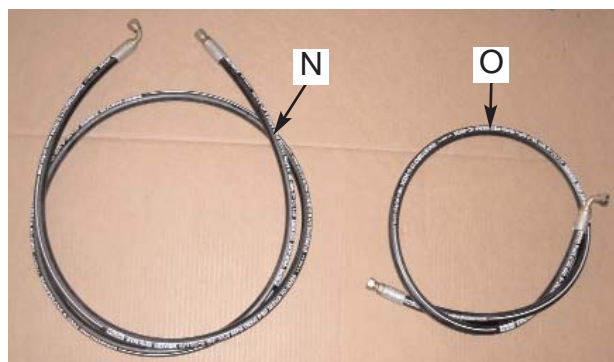
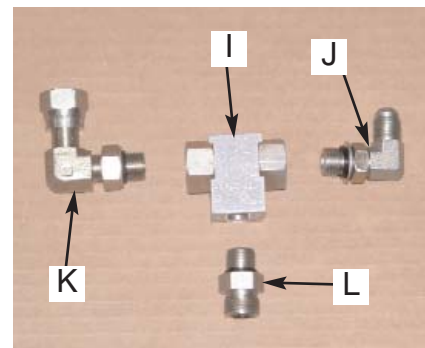
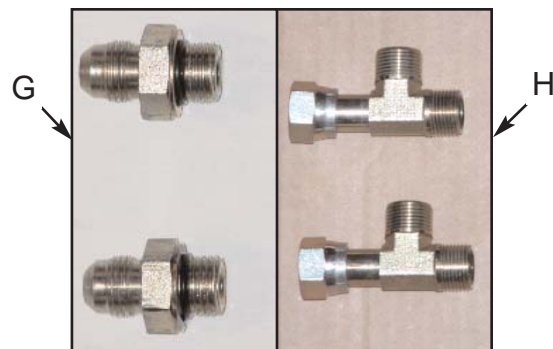
Unpack the installation kit and identify the required parts as shown.

REF	P/N	QTY	DESCRIPTION
A	760-0003	1	Assy, Hyd. Valve Block - LS
Bag 1 of 4 includes B, C, & D			
B	760-2058	3	Adapter, Hyd. 90 Elbow - #6maleJIC x #6maleORB
C	760-2056	1	Adapter, Hyd. - #6maleJIC x #6maleORB
D	760-2057	1	Adapter, Hyd. 45 Elbow - #6maleJIC x #6maleORB
<hr/>			
E	640-0005	1	Hyd. Block Mnt, CMX/AP780
Bag 2 of 4 includes F			
F	675-2005	2	Bolt - 3/8NC x 3-1/4" Gr5, ZP
	678-1054	2	Washer, Narrow Flat - 3/4"OD x 13/32ID x 1/16"thk, ZP
	676-1035	2	Nut, NyLock - 3/8NC ZP



Kit Contents (cont.)

REF	P/N	QTY	DESCRIPTION
Bag 3 of 4 includes G & H			
G	760-2063	2	Adapter, Hyd. - #6maleJIC x M14maleORB
H	760-2069	2	Adapter, Hyd. Run Tee - #8 ORFF
Bag 4 of 4 includes I, J, K, & L			
I	760-0002	1	Assy, Hyd. Load Shuttle - #6femORB
J	760-2058	1	Adapter, Hyd. 90 Elbow - #6maleJIC x #6maleORB
K	760-2040	1	Adapter, Hyd. 90 Elbow - #6maleORB x #6femORFFswiv
L	760-2048	1	Adapter, Hyd. - #6maleORFF x #6maleORB
M	760-1154	2	Hose, Hyd. - 3/8"x18", #6femJICswiv x #8femORFFswiv
N	760-1155	1	Hose, Hyd. - 3/8"x84", #6femJICswiv x #6femJICswiv 90EL
O	760-1062	1	Hose, Hyd. - 3/8"x38", #6femJICswiv x #6femJICswiv 90EL
P	760-1020	1	Hose, Hyd. - 1/4"x79", #6femJICswivel ends
Q	051-0145	1	Cable, Interface - 5 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:

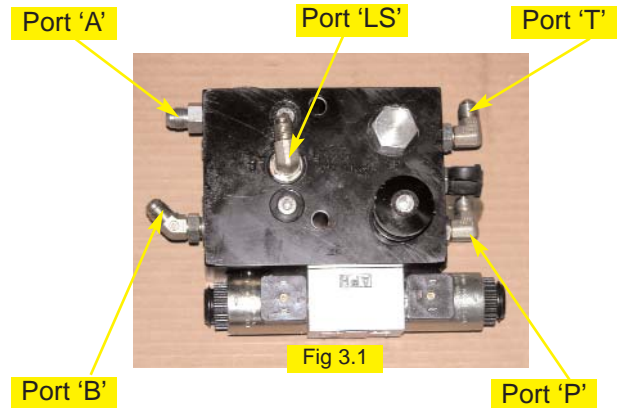
PREVENT HYDRAULIC SYSTEM CONTAMINATION. It is essential to thoroughly clean hydraulic system fittings and hose connections prior to disconnecting or removing. Use a spray cleaner such as 'Brake Clean' to prevent hydraulic system contamination. Note that o-rings used on ORB and ORFF type fittings may 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:

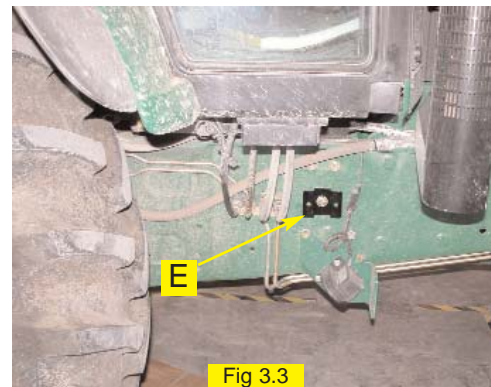
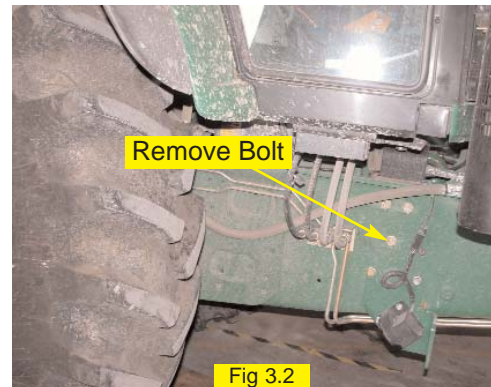
Make sure the hydraulic control block is clean and dust free. Remove the plastic plugs and install the elbow adapters (**B**) in the **P**, **T**, and **LS** ports. Install the straight adapter fitting (**C**) into the **A** port and the 45 degree adapter (**D**) into the **B** port. (Figure 3.1)

***Note:** To install the 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.*



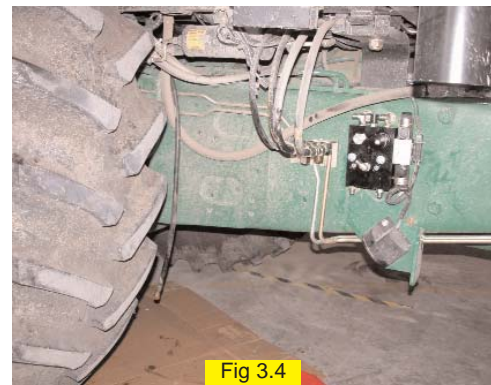
2. Install Mounting Bracket:

Locate the frame bolts below the cab on the right side of the frame, near the steering lines as shown. (Figure 3.2) Remove the frame bolt and install the mounting bracket (**E**) as shown. (Figure 3.3)



3. Install Hydraulic Control Block:

Using the provided hardware in group (**F**), mount the hydraulic control block to the bracket as shown. (Figure 3.4)

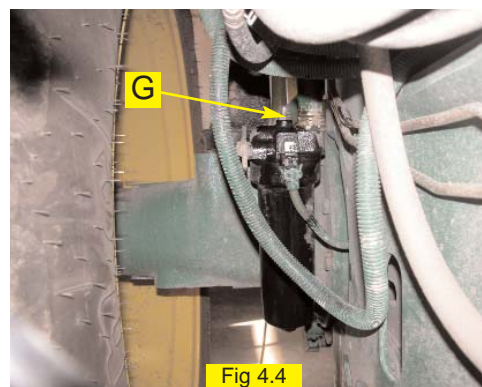
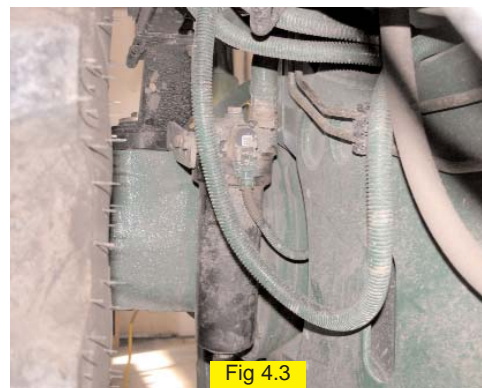
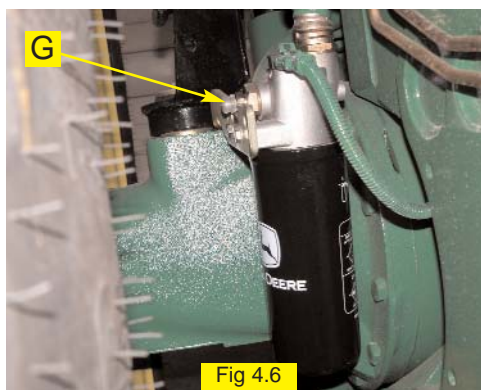
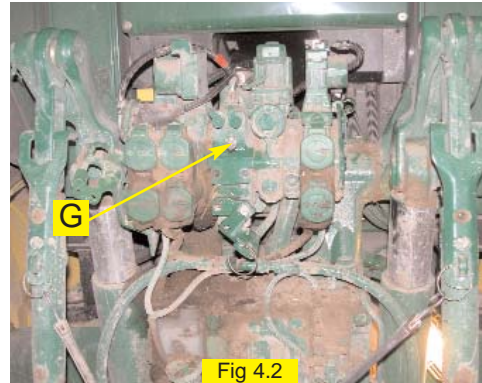
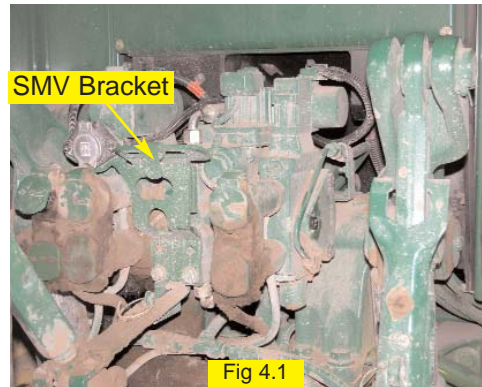


4. Install Pressure and Tank Fittings:

Remove the SMV sign bracket from the rear of the tractor to access the test ports on the remote valve stack. (Figure 4.1) Remove the lower test port from the hydraulic valve stack casting, at the rear of the tractor, as indicated. Install the adapter fitting (G) in its place. (Figure 4.2) This will be used as the pressure supply for the hydraulic control block.

Locate the hydraulic filter under the right side of the cab, ahead of the rear axle. (Figure 4.3) Remove the plug from the top of the filter head and install the adapter fitting (G) in its place. (Figure 4.4) This will be used as the tank return for the hydraulic steering system. On some models the plug to remove is on the side of the filter head. (Figure 4.5 and 4.6)

Use plastic caps on open fittings to prevent excess leakage during installation.



5. Install Load Sense Shuttle:

Pre-assemble the load sense shuttle (I) with adapter fittings (J), (K), and (L) as shown. (Figure 5.1)

Locate the tractor load sense line on the hydraulic valve stack. The location of the load sense line will be different depending on the model of tractor. (Figure 5.2, 5.3, and 5.4) Disconnect the rubber hose portion of the load sense line from the valve stack.

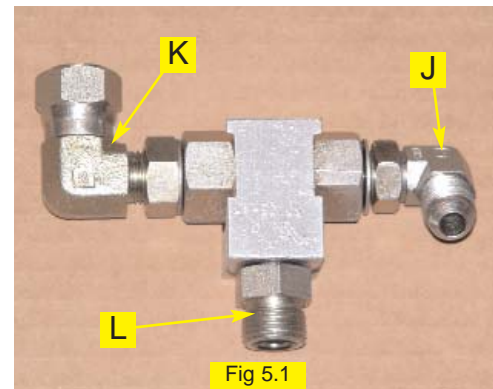


Fig 5.1

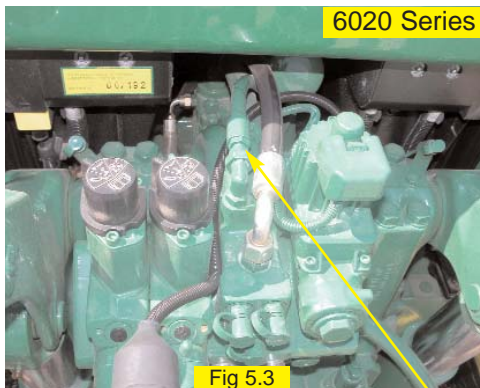


Fig 5.3

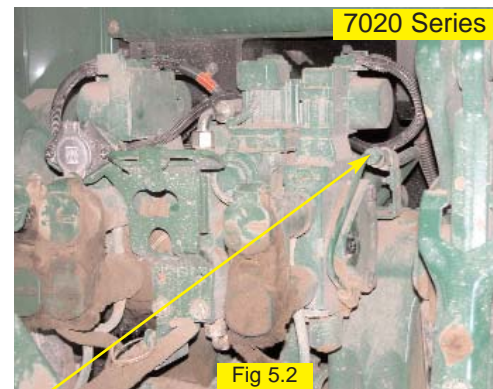


Fig 5.2

Tractor Load Sense Line

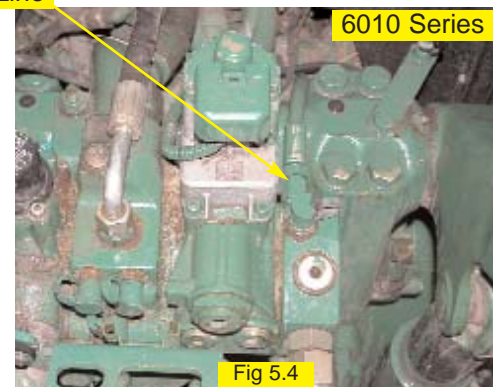


Fig 5.4

Install the end of the load sense shuttle with the elbow fitting (K) onto the steel tube or fitting coming from the valve stack. Attach the rubber hose portion of the tractor load sense line to the center position of the load sense shuttle, containing fitting (L) as shown. (Figure 5.5 and 5.6) Leave the load sense shuttle connections loose to allow for easier installation, and secure after all connections are made. Use heavy tie straps (provided) to secure the load sense assembly, as necessary, to prevent vibration and fatigue failure.



Fig 5.6

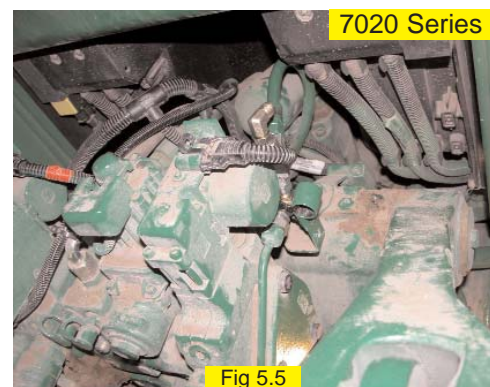


Fig 5.5

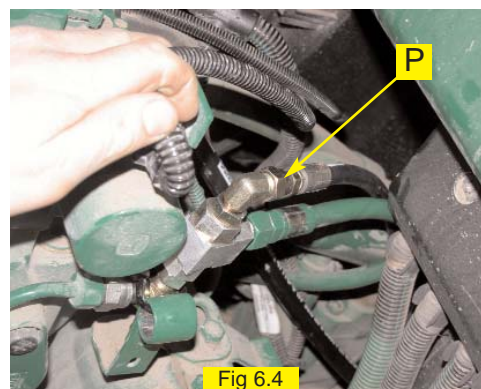
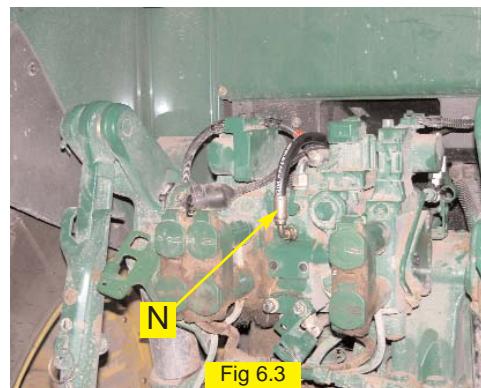
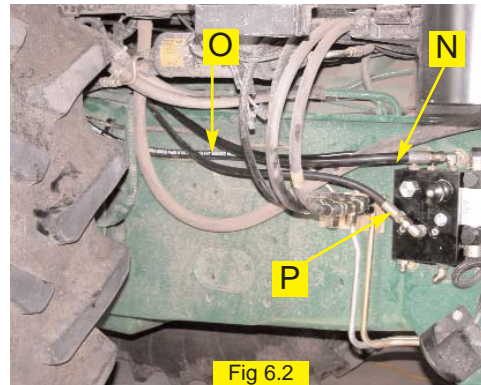
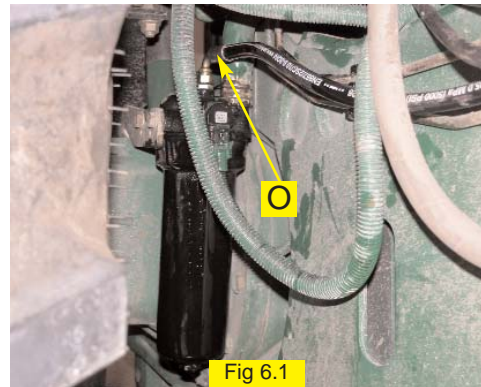
6. Install Pressure, Tank, and Load Sense Hoses:

Route the tank hose (**O**) from the adapter fitting (**L**) installed at the hydraulic filter forward along the right side of the tractor frame and connect to the **T** port of the hydraulic control block. (Figure 6.1 and 6.2)

Connect the pressure hose (**N**) between the **P** port of the hydraulic control block and the adapter fitting (**G**) installed in the hydraulic valve stack at the rear of the tractor as shown. (Figure 6.2 and 6.3)

Install the load sense hose (**P**) between the open end (**J**) of the load sense shuttle and the **LS** port of the hydraulic control block. (Figure 6.2 and 6.4)

All hoses should be routed with other tractor plumbing free from entanglement and secured with heavy tie straps (provided).



7. Install Steering Output Fittings:

Locate the tractor steering lines under the right side of the cab. (Figure 7.1) Install run-tee fittings (**H**) where the steering lines connect to the rubber hoses as shown. (Figure 7.2) 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.

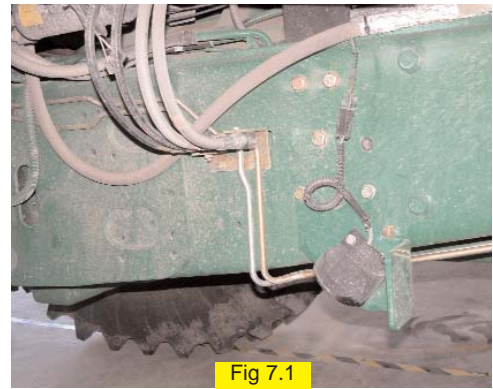


Fig 7.1

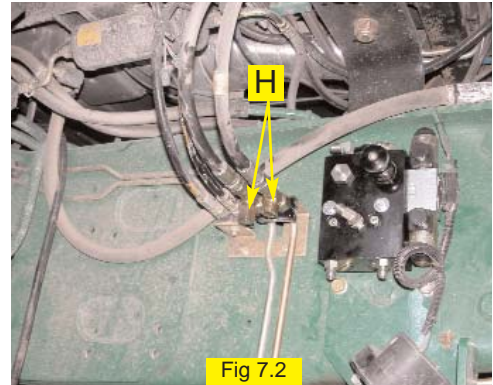


Fig 7.2

8. Install Steering Output Hoses:

Connect the O'ring Face ends of the hydraulic steering hoses (**M**) to the run-tee fittings (**H**) installed in step 7. Attach the JIC ends of the steering hoses to the **A** and **B** ports of the hydraulic control block as shown. (Figure 7.3)

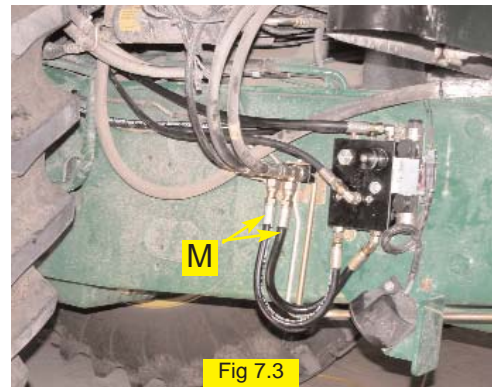
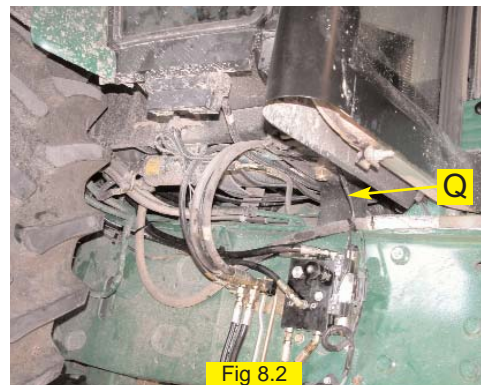
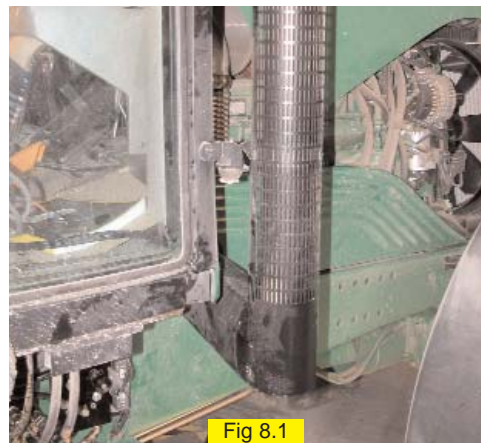


Fig 7.3

9. Install the Valve Control Cable:

Route the valve control cable (**Q**) through the the right side tractor window seal. (Figure 8.1) It is necessary to remove the light bracket to allow this window to open. Route the DIN connectors down to the hydraulic control block and attach as shown. (Figure 8.2)

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



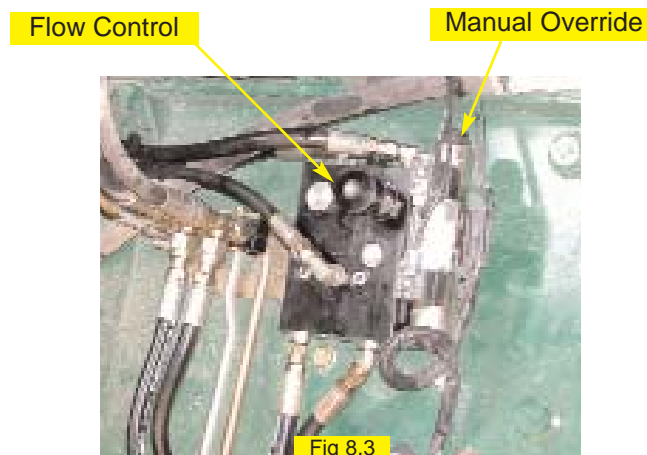
10. Verify Operation and Set Steering Control Rate:

Cleanup the installation area around the machine and make certain that it is safe to operate. Start the machine 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 to achieve an end to end steering cycle time of approximately **18 seconds**.



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.

11. Complete Electronic Installation and Setup:

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



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.