

Automated Hydraulic Steering Kit Installation Guide

Kit P/N: ED-JD60STS

Fits John Deere Combine Models:

	9560 STS
9650	9660 STS
9750	9760 STS
	9860 STS



Read and Follow Safety Messages

- In these instructions, you will see the heading **WARNING** and the safety alert symbol . They indicate a hazardous situation that, if not avoided, could result in death or serious injury. The safety messages provide information to identify a hazard associated with potential injury.
- Before installing, operating, or performing maintenance or service on any part of the system:
 - Read and understand the Automated Hydraulic Steering Kit Installation Guide instructions and all of the safety information.
 - Read and understand the Automated Steering System User Guide.
- Do not allow anyone to operate without instruction.
- Keep these instructions and all related safety information with the manuals for your machine and other implements.

If you have questions or need assistance, contact your local dealer or distributor.

Overview

For the machine models listed above, a steering hydraulics kit has been developed for your automated steering system.

The items in the kit are detailed in the table that follows the safety warnings below. After the kit table there is a step-by-step installation section.

Please read this manual thoroughly before beginning the installation.

WARNING:

To avoid serious injury or death during machine operation, install the appropriate kit for your machine make and model.

Machine Preparation

WARNING:

Inspect the machine and perform any needed maintenance (for example, contaminated hydraulic fluid) before installing the automated hydraulic steering kit. This kit cannot perform as intended on a machine that is not maintained properly. Errors in performance increase the risk of operator and bystander injury or death.

Failure to maintain clean hydraulic fluid and operational hydraulic components can cause loss of directional control resulting in serious injury or death.

To avoid serious injury, wear hand and eye protection and use wood or cardboard when checking for leaks.

Turn off the machine and power off the eDrive when installing or performing maintenance.

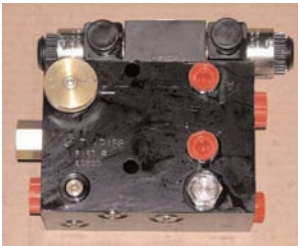
Before attempting to install hydraulics, park the machine on a clean level floor with adequate clearance to work all around.

Before you perform any drilling, cutting or fastening, ensure that no other machine components, such as hydraulic hoses or electrical wiring, will be damaged. Failure to follow this warning may cause physical injury and/or damage to the machine.

To 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, referred to in the Kit Contents section, 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.

Kit Contents

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

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
A	760-0005	1	Assy, hyd valve block - OC (Hydraulic steering block)	
Bag 1 of 3 contains B, C, D and E				
B	760-2079	1	Adapter, hyd #8maleJIC x #8maleORB (P port on hydraulic steering block)	
C	760-2074	1	Adapter, hyd 90 elbow - #8maleJIC x #6maleORB (T port on hydraulic steering block)	
D	760-2080	1	Adapter, hyd 90 elbow - #8maleJIC x #8maleORB (EF port on hydraulic steering block)	
E	760-2058	2	Adapter, hyd 90 elbow - #6maleJIC x #6maleORB (A and B ports on hydraulic steering block)	

Kit Contents (continued)

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
F	640-0028	1	Hyd block mounting	
Bag 2 of 3 contains G and 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	675-2010	2	Bolt - 5/16NC x 3/4 Gr5 ZP	
	678-1055	2	Washer, flat - 5/16" ZP	
	676-1036	2	Nut, nylock - 5/16NC ZP	
Bag 3 of 3 contains I and J				
I	760-2069	2	Adapter, hyd run tee - #8ORFF	
J	760-2046	1	Adapter, hyd run tee - #6ORFF	
K	760-1103	1	Hose, hyd - 3/8" x 44", #6femJICswiv x #6femORFFswiv90EL (Steering hose)	
L	760-1018	1	Hose, hyd - 3/8" x 45", #6femJICswiv x #8femORFFswiv90EL (Steering hose)	
M	760-1104	1	Hose, hyd - 1/2" x 32", #8femJICswiv x #8femORFFswiv (Pressure hose)	

Kit Contents (continued)

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
N	760-1106	1	Hose, hyd - 3/8" x 28", #8femJICswiv x #8femORFswiv90EL (Tank hose)	
O	760-1105	1	Hose, hyd - 1/2" x 28", #8femJIC x #8maleORFF (Excess flow hose)	
P	051-0144	1	Cable, interface - 10ft	
Q	677-2001	20	Tie strap, 11" heavy duty	
R	710-0053	1	Kit, steering wheel switch (not shown)	

INSTALLATION

⚠ WARNING:

Before installing, disconnecting or repairing the hydraulic hoses and components, turn off the machine and relieve all pressure from the hydraulic system by turning the steering wheel left and right. Failure to remove the pressure can result in serious injury or death from unexpected machine movement.

To avoid burn injury when installing, disconnecting or repairing the hydraulic hoses and components, turn off the machine and allow the system to cool down prior to touching the parts of the machine that are heated.

To avoid burn or electric shock injury when installing or removing the kit, do not touch parts of the machine that are heated or electrically energized.

1. Prepare the hydraulic steering block.

NOTE: Make sure the hydraulic steering block is clean and dust free.

Prepare the hydraulic steering block **A** as follows:

- Install adapter fitting **B** in the P port.
- Install adapter fitting **C** in the T port.
- Install adapter fitting **D** in the EF port.
- Install adapter fittings **E** in the A and B ports.

2. Mount the hydraulic steering block.

- a. Locate the two holes in the support member under the left side of the cab (but see **NOTE** following). Using hardware **H** (not visible), mount the hydraulic steering block bracket **F** on the support member (Figure 2a-i - with inset). Make sure the face of the bracket extends beyond the edge of the support member to allow proper installation of the hydraulic steering block.

NOTE: For some models, you will need to drill your own $\frac{3}{8}$ " holes in the support member. Drill the first hole $7\frac{1}{4}$ " from the edge of the frame support (but see next paragraph on the 9560STS) and $1\frac{1}{2}$ " from the leading edge of the support. Drill the second hole $3\frac{1}{16}$ " from the first hole (Figure 2a-ii).

On the 9560STS, because of its narrower chassis, drill the first hole just 3" from the edge of the frame support (Figure 2a-ii).

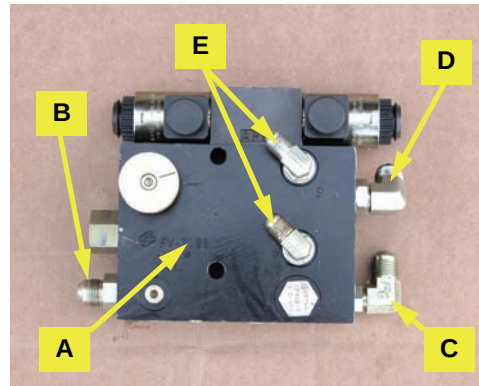


Figure 1: Prepared steering block

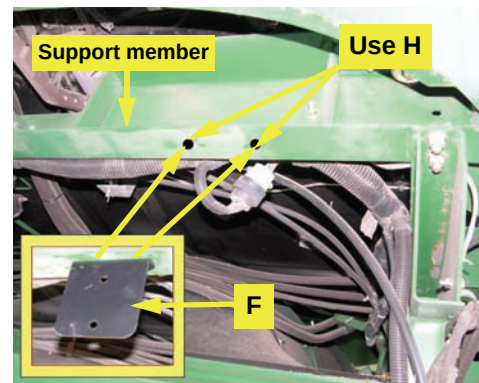


Figure 2a-i (with inset): Steering block mounting location and installed mounting bracket

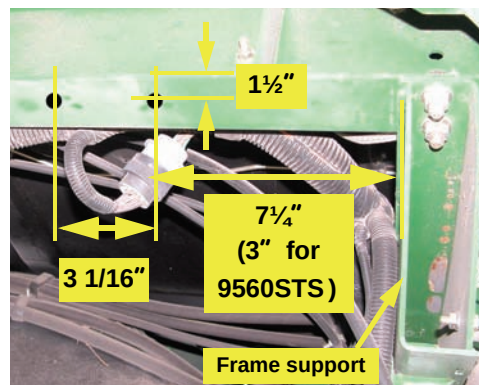


Figure 2a-ii: Drilled alternative steering block mounting bracket holes

2. **Mount the hydraulic steering block (continued).**
- b. Using provided hardware **G**, mount the prepared hydraulic steering block—with its **EF** and **T** ports to the left—to its mounting bracket **F** (Figure 2b).

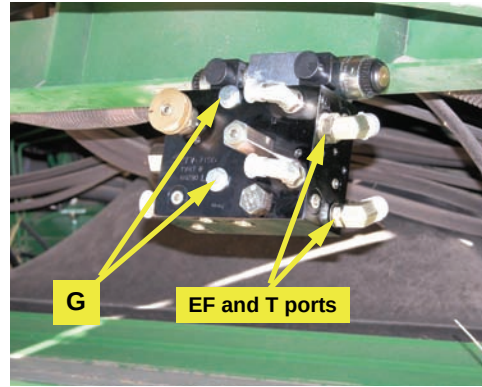


Figure 2b: Steering block - mounted

3. **Install the pressure, tank and excess flow fitting.**

The hydraulic control block will receive pressure from the tank port at the combine's steering orbital. Excess flow and tank flow from the hydraulic control block will be returned to the tank line disconnected from the steering orbital (Figure 3).

Remove the tank line from the steering orbital and install the run tee fitting **I** to the end of the hose (Figure 3 - run tee not shown, and Figure 4b).

NOTE:

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.

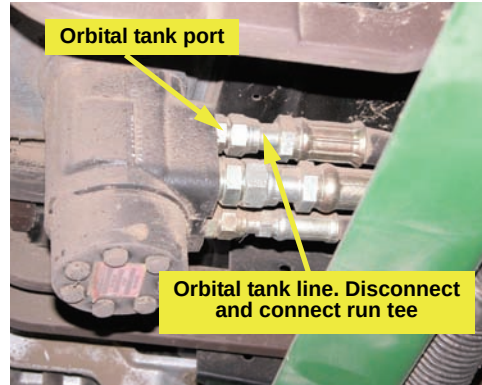


Figure 3: Tank line at orbital (run tee not shown)

4. **Install the pressure, tank and excess flow hoses.**

- a. Install the pressure hose **M** between the fitting in the **P** port of the hydraulic steering block and the tank port of the steering orbital (from which you disconnected the tank hose in step 3) (Figure 4a).
- b. Install the tank hose **N** between the fitting in the **T** port of the hydraulic steering block and the branch of the run tee you connected to the orbital tank hose in step 3 (Figure 4b).
- c. Install the excess flow hose **O** between the fitting in the **EF** port of the hydraulic steering block and the open end of the run tee you connected to the orbital tank hose in step 3 (Figure 4b).

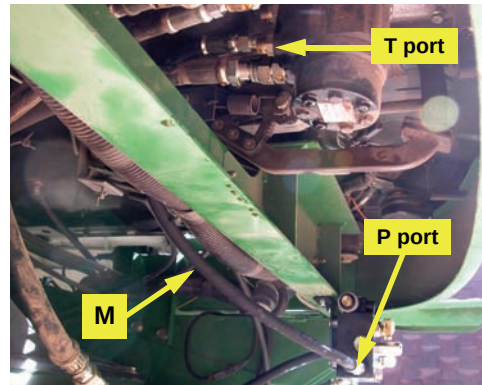


Figure 4a: Installed pressure hose - steering block P port to orbital T port

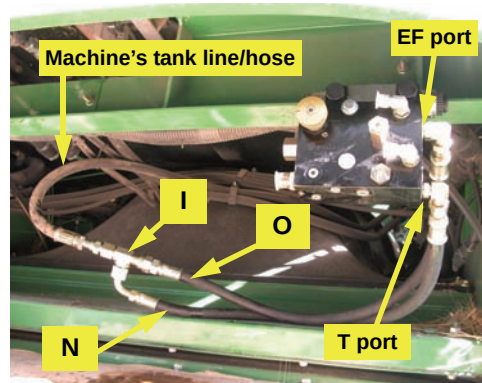


Figure 4b: Installed tank and excess flow hoses - steering block to run tee (and tank line)

5. **Install the steering output fittings.**

Locate the steering lines on the right side of the steering orbital (Figure 5-i) disconnect them and install run tees **I** and **J** (Figure 5-ii).

NOTE:

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.

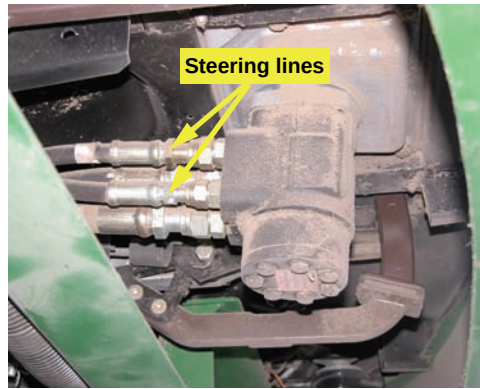


Figure 5-i: Steering lines/ports at orbital

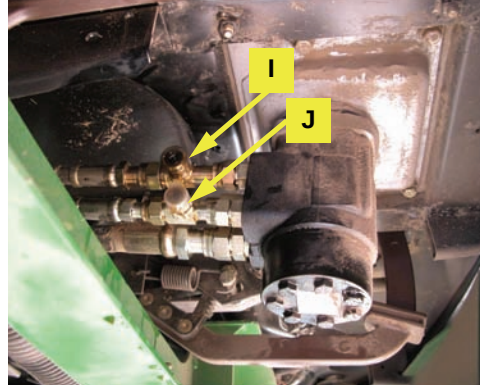


Figure 5-ii: Installed run tees at steering lines/ports at orbital

6. **Install the steering output hoses.**

- a. Connect the 90° elbow ends of the steering output hoses **L** and **K** to the run tees **I** and **J** respectively at the steering orbital (Figure 6a)

- b. Connect the straight ends of **L** and **K** to the fittings in the **A** and **B** ports of the hydraulic steering block (Figure 6b).

NOTE:

*All hoses should be routed with other machine plumbing free from entanglement and secured with the heavy duty tie straps **Q** provided.*

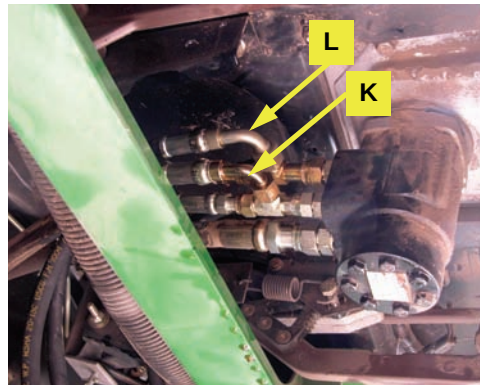


Figure 6a: Steering hoses at run tees at orbital

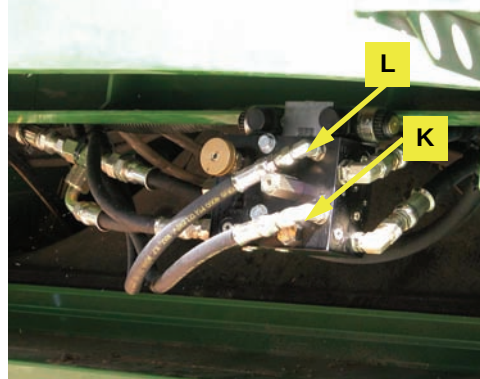


Figure 6b: Steering hoses at steering block

7. **Install the valve control cable.**

- a. Install the hydraulic control cable **P** at the hydraulic steering block by attaching the two DIN connectors to the two coils (Figure 7a).

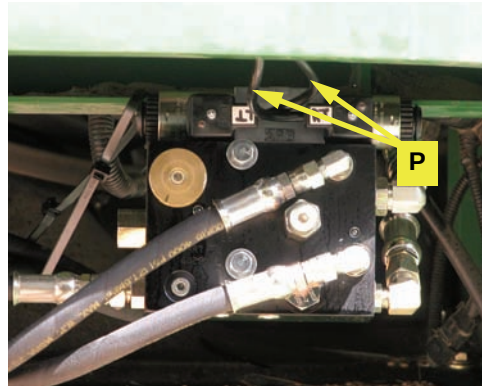


Figure 7a: Valve cable connected at steering block

- b. Route the cable into the cab through the removable plate in the floor near the parking brake pedal (Figure 7b). Secure the cable with tie straps **Q** as necessary.

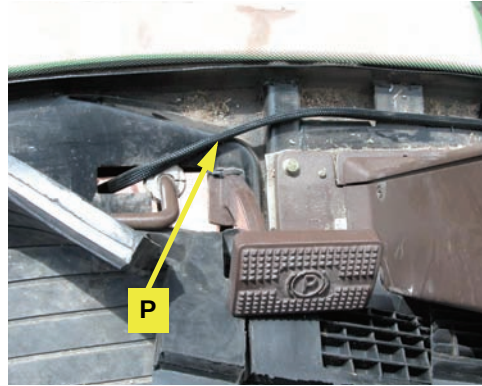


Figure 7b: Valve cable routed through the cab access hole

8. Verify operation and set automated steering control rate.

⚠ WARNING: *During tests of the hydraulic response, the machine may move unexpectedly. Be prepared for vehicle movement to avoid injury.*

Keep others away and stay clear of mechanical steering linkages to prevent serious injury or death from pinch point hazards while manually operating the hydraulic steering circuit.

- a. Tighten all the connections and clean up the installation area around the machine and make certain that it is safe to operate.
- b. Start the machine and check all the hydraulic steering connections for leaks.
- c. Rotate the steering wheel from one extreme to the other and back.
- d. Adjust the automated steering oil flow control knob to a starting position of **2** turns from completely closed. To adjust the knob (Figure 8):
 - Turn clockwise to reduce flow.
 - Turn counter clockwise to increase flow.
- e. The coils on the hydraulic steering block have manual push button overrides. Push either manual override to move the steering wheels all the way to one extreme (Figure 8).

NOTE: *To activate the manual overrides, a tool such as a small screwdriver or Allen wrench must be inserted into the end of the coil to depress the override button.*

- f. While pressing the override button of the other coil, count the number of seconds for the steering wheels to move all the way in the opposite direction.
- g. Adjust the automated steering oil flow control to achieve an end-to-end steering cycle time of approximately **14** seconds. Use the knurled locking nut to secure the final flow control setting.

9. Complete automated steering electronic installation and setup.

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

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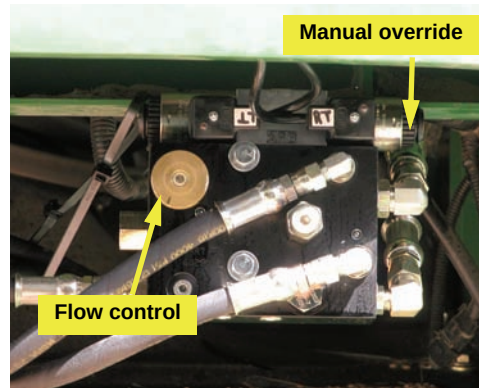


Figure 8: Steering block manual override and flow control button

