

Automated Steering Hydraulic Installation Kit

P/N: ED-CL960

**Fits CLAAS Forage Harvester Models:
Series 494**

940 960 980

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.

Read and understand the Automated Steering Hydraulic Installation Kit instructions and all of the safety information before installing, operating, or performing maintenance or service on the hydraulic system. Before installing the Automated Steering Hydraulic Installation Kit, read and understand the Automated Steering System User Guide. Do not allow anyone to operate without instruction. If you have a question or need assistance, contact your local dealer or distributor.

Keep these instructions and all related safety information with the manuals for your machine and other implements.

Overview

A series of equipment-specific kits has 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 Class Forage Harvester models listed above.

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 Steering Hydraulic Installation 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 automated steering controller when installing or performing maintenance.

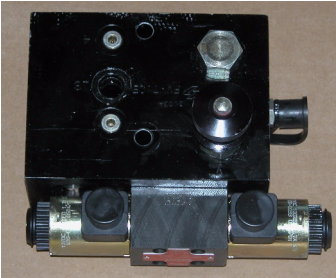
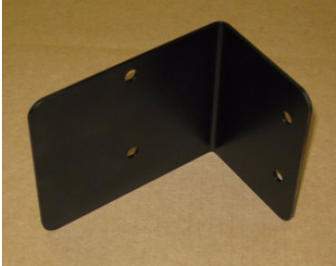
Before attempting to install hydraulics, park the machine on a clean level floor with adequate clearance to work all around.

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.

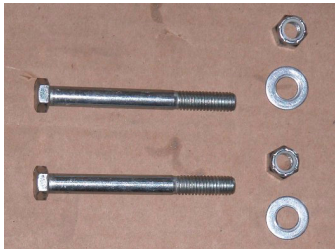
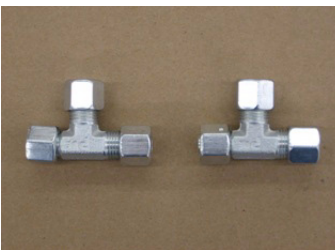
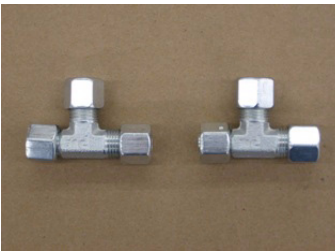


Kit Contents

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

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
A	760-0003	1	Assy, Hyd. Valve Block - LS eDrive	
Bag # 1 of 3 contains B, C and D				
B	760-2058	2	Adapter, Hyd. 90 Elbow - #6maleJIC x #6m	
C	760-2073	2	Adapter, Hyd. - #8maleJIC x #6maleORB	
D	760-2045	1	Adapter, Hyd. Plug - #6maleORB	
E	640-0083-000	1	Brkt, Hyd. Block Mnt - CL960	

Kit Contents (*continued*)

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
Bag # 2 of 3 contains F and G				
F	675-2003	2	Bolt, 3/8NC x 1Gr5ZP	
	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	
G	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	
Bag # 3 of 3 contains H and I				
H	760-2025	2	Adapter, Hyd. Run Tee - #15L EO	
I	760-2013	2	Adapter, Hyd. Run Tee - #12L EO	
J	760-1309-000	2	Hose, Hyd-1/2" x 20", #8fJIC x #15fMLE90	

Kit Contents *(continued)*

REF	PART NUMBER	QTY	DESCRIPTION	PHOTOGRAPH
K	760-1308-000	2	Hose, Hyd-3/8" x 24", #6fJIC x #12fMLE90	
L	051-0144	1	Cable, E-Drive Interface - 10 ft.	
	677-2001	20	Tie straps, 11" Heavy Duty	Not shown
	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 automated steering block.

Make sure the automated steering block is clean and dust free then install adapter fitting **B** in the **A** and **B** port, the adapter fitting **C** in the **P** and **T** ports and adapter fitting **D** in the **LS** port (Figure 1).

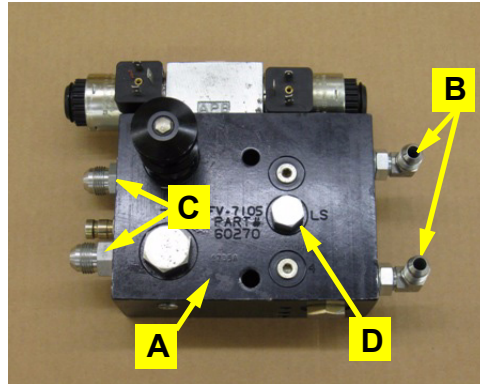


Figure 1: Prepared automated steering block

2. Mount the automated steering block.

- a. The automated steering block will be mounted on the left side of the machine under the cab (Figure 2a).

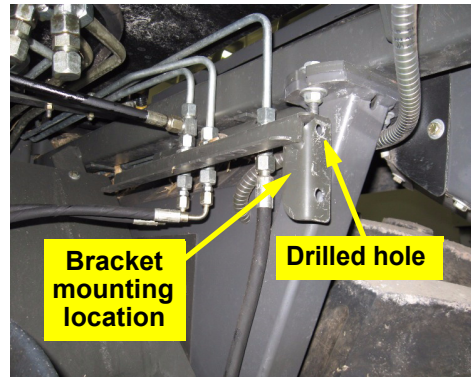


Figure 2a: Bracket mounting location and drilled hole

- b. Using bracket **E** as a template, drill one 3/8 hole in the bracket mounting location (Figures 2a and 2b).

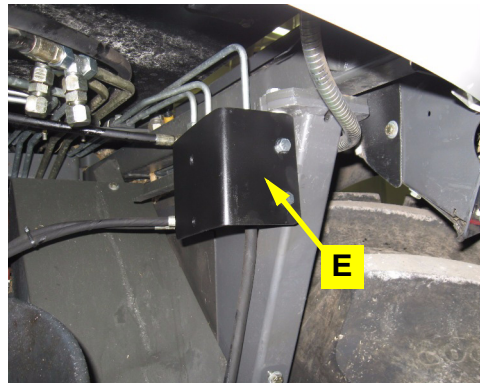


Figure 2b: Mounted bracket

2. **Mount the automated steering block (continued)**

- c. Use the provided mounting hardware **F** to attach bracket **E** to the mounting location. Attach the automated steering block **A**, as prepared in step 1, to the bracket using hardware **G** (Figure 2c).

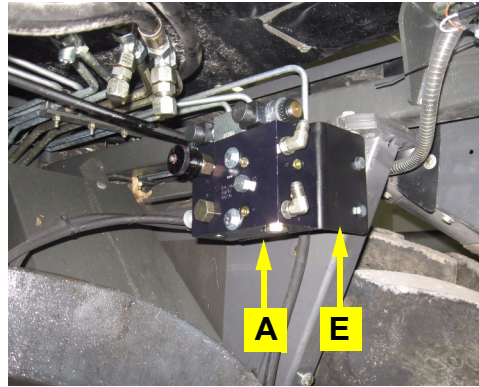


Figure 2c: Mounted automated steering block

3. **Install the pressure and tank fittings.**

- a. Locate the pressure and tank hoses attached to the steering orbital under the cab (Figure 3a).

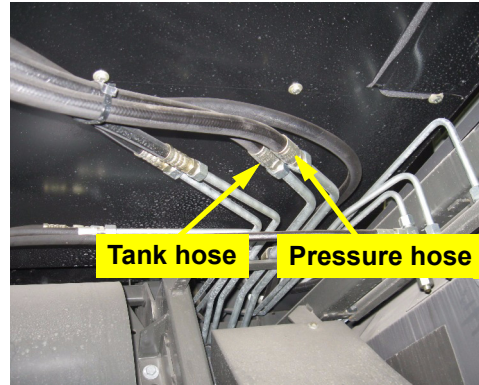


Figure 3a: Pressure and tank location

- b. Disconnect the rubber tank and pressure hose from the steel pressure and tank line. Install run-tee fittings **H** between the steel and rubber lines (Figure 3b).

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.

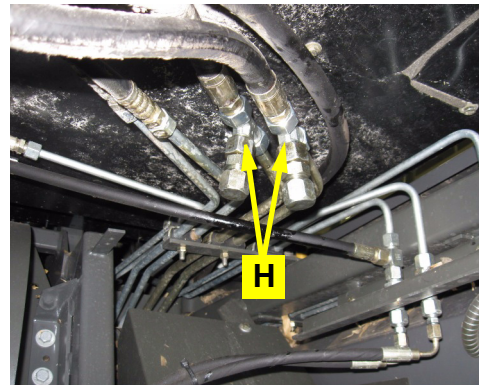


Figure 3b: Installed pressure and tank fittings

4. **Install the pressure and tank hoses.**

Attach pressure and tank hoses **J** to installed run-tee fittings **H** and adapter fittings **C** at the automated steering block. Attach the pressure hose to the **P** port and the tank hose to the **T** port of the automated steering block (Figure 4).

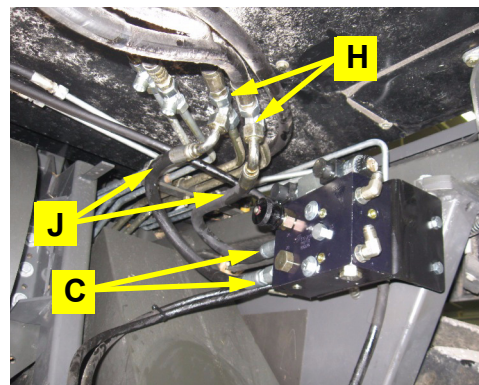


Figure 4: Installed pressure and tank hoses

5. Install the steering fittings.

- a. Locate the two steering hoses attached to the steering orbital under the cab (Figure 5a).

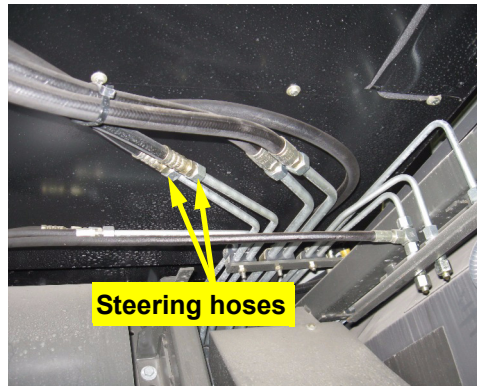


Figure 5a: Steering location

- b. Disconnect the rubber steering hoses from the steel steering lines. Install run-tee fittings **I** between the steel and rubber hoses (Figure 5b).

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.

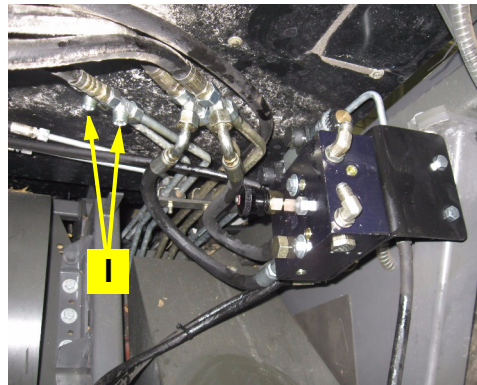


Figure 5b: Installed steering fittings

6. Install the steering hoses.

Attach steering hoses **K** to installed run-tee fittings **I** and adapter fittings **B** at the automated steering block (Figure 6).

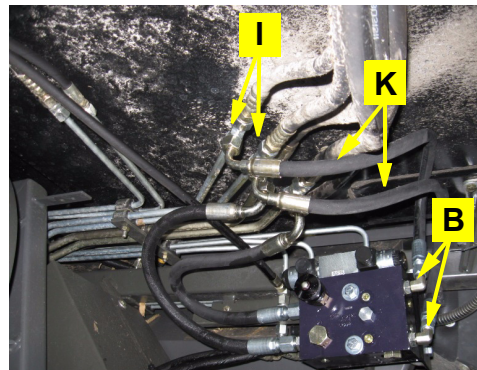


Figure 6: Installed Steering Hoses

7. Install the valve control cable.

Route the valve control cable **L** from the automated steering block to the cab and then through the cab door (Figure 7).



Figure 7: Installed valve control cable

8 Verify operation and set automated steering control rate.

⚠ WARNING During tests of the hydraulic response, the machine may move unexpectedly. Be prepared for machine 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 the Automated 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:
 - Turn clockwise to reduce flow.
 - Turn counter clockwise to increase flow (Figure 8).
- e. The coils on the Automated 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 (Figure 8).
- g. Adjust the automated steering oil flow control to achieve an end-to-end steering cycle time of approximately **13** 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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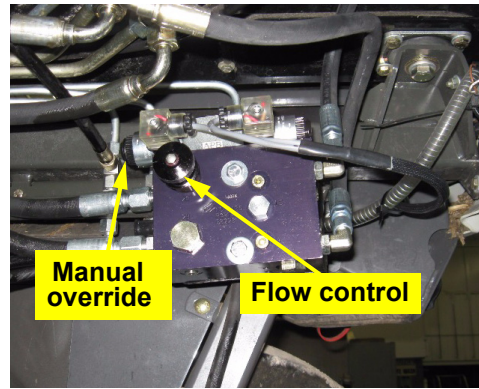


Figure 8: Steering block manual override and flow control button