

# Automated Steering Hydraulic Installation Kit

P/N: ED-CPUMA

Fits CaseIH<sup>®</sup> and New Holland<sup>®</sup> models:

<i>Puma 165</i>	<i>T7030</i>
<i>Puma 180</i>	<i>T7040</i>
<i>Puma 195</i>	<i>T7050</i>
<i>Puma 210</i>	<i>T7060</i>



## Overview

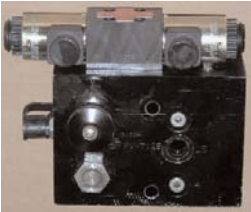



A series of equipment-specific kits has been developed to work in conjunction with your automated steering system. This kit contains the necessary components and instructions to install the automated steering hydraulics on the CaseIH and New Holland tractor models listed above. Please read this manual thoroughly before beginning the installation.

## Machine Preparation












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










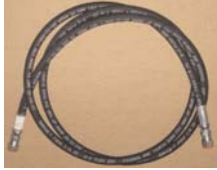
## Kit Contents

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

REF	P/N	QTY	DESCRIPTION	PHOTOGRAPHS
A	760-0003	1	Assy, Hyd Valve Block - LS	
<b>Bag #1 of 5 includes B &amp; C</b>				
B	760-2058	5	Adapter, Hyd. 90 Elbow - #6mJIC x #6mORB	
C	760-2055	1	Adapter, Hyd. 90 Elbow - #6mJIC x #6fJIC swivel	
D	640-0056	1	Brkt, Hyd Blk Mnt	

## Kit Contents (continued)


REF	P/N	QTY	DESCRIPTION	PHOTOGRAPHS
<b>Bag #2 of 5 includes E, F &amp; G</b>				
E	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	
F	675-2028-000	2	Bolt, 14m2 x 306r8.8, ZP	
	678-1056	2	Washer, Narrow Flat - 5/8" Nominal	
G	675-2029	2	Bolt, 1/4NC x 3"Gr5 ZP	
	678-1053	2	Washer, Flat - 1/4" ZP	
	676-1034	2	Nut, Lock - 1/4NC ZP	
<b>Bag #3 of 5 includes H, I, J, &amp; K</b>				
H	760-2010	1	Adapter, Hyd. - #10mJIC x M22mORB	
I	760-2002	1	Adapter, Hyd - #10fJIC x #8mJIC	
J	760-2004	1	Adapter, Hyd. Run Tee - #10ORFF	
K	760-2001	1	Adapter, Hyd. - #10fORF x #8mORF	
<b>Bag #4 of 5 includes L, M, N, O &amp; P</b>				
L	760-0002	1	Assy, Hyd. Load Shuttle - #6fORB	
M	760-2090	1	Adapter, Hyd. - #6mORB x #4fORB	
N	760-2089	1	Adapter, Hyd. 90 - Elbow #4mORB x #4fORF	
O	760-2058	1	Adapter, Hyd. 90 Elbow - #6mJIC x #6mORB	

REF	P/N	QTY	DESCRIPTION	PHOTOGRAPHS
P	760-2033	1	Adapter, Hyd. #4mORF x #6mORB	
<b>Bag #5 of 5 includes Q, R, S &amp; T</b>				
Q	760-2050	2	Adapter, Hyd. 90 Elbow - #6mORF x #8mORB	
R	760-2060	2	Adapter, Hyd. - #6mJIC x #8mORB	
S	760-2054	2	Adapter, Hyd Run Tee - #6JIC	
T	760-0001	1	Assy, Hyd. Counter Balance Reactive	
U	760-1259	1	Hose, Hyd - 3/8" x 95", #6fJIC x #8fJIC90	
V	760-1023	1	Hose, Hyd - 3/8" x 58", #6fJIC x #8fORF90	
W	760-1093	2	Hose, Hyd - 3/8" x 38", #6fJIC Both Ends	
X	760-1276	2	Hose, Hyd - 3/8" x 22", #6fJIC x #6fORF	
Y	760-1277	1	Hose, Hyd-1/4" x 90", #6fJIC Both Ends	

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**Kit Contents (continued)**

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<b>REF</b>	<b>P/N</b>	<b>QTY</b>	<b>DESCRIPTION</b>	<b>PHOTOGRAPHS</b>
Z	051-0144	1	Cable, Interface - 10 ft.	
	677-2001	20	Tie Strap, 11" Heavy Duty	Not Shown
	710-0053	1	Kit, Steering Wheel Switch	Not Shown

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# WARNINGS

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**ATTENTION:**

**READ** this entire installation guide **before** beginning installation. Failure to comply with warnings in this guide can result in personal injury or damage to equipment, and will void all warranties.

**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.

**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.

**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 Automated Steering Block:

- a. Make sure the automated steering block is clean and dust free.
- b. Install the small elbow adapter fitting (**B**) in the **LS**, **A**, **B**, **P** and **T** ports. (Figure 1.)

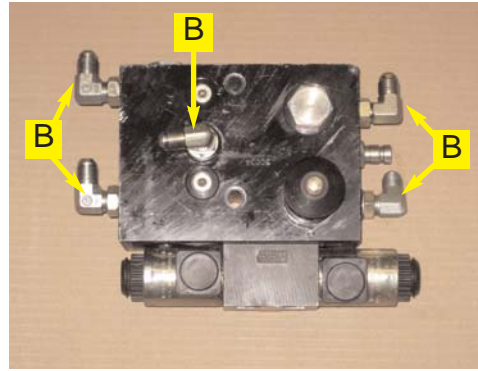


Figure 1. Prepared automated steering block.

## 2. Mount Automated Steering Block:

- a. Locate the two holes in the engine casting on the left side of the tractor in front of the fuel tank. (Figure 2a.)

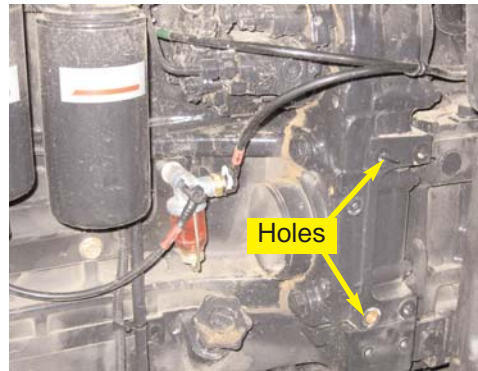


Figure 2a. Mounting location.

- b. Mount the bracket (**D**) as shown using the hardware (**F**). (Figure 2b.)

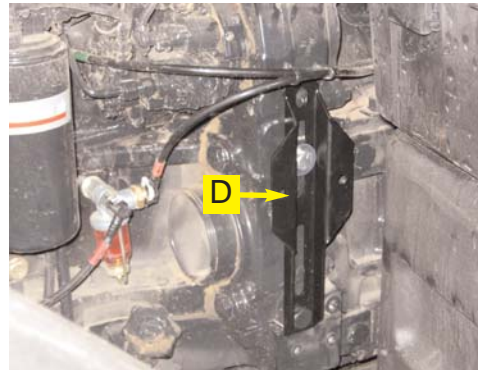


Figure 2b. Installed mounting bracket.

- c. Use the provided mounting hardware in group (**E**) to attach the automated steering block, as prepared in step 1, to the mounting bracket (**D**). (Figure 2c.)



Figure 2c. Mounted automated steering block.



**3. Install Pressure and Tank Fittings:**

- a. The automated steering block will receive pressure from the top port on the hydraulic valve stack at the back of the tractor. The automated steering block will return to the tank port on the steering orbital which is located on the fire wall. (Figure 3a. and 3b.)

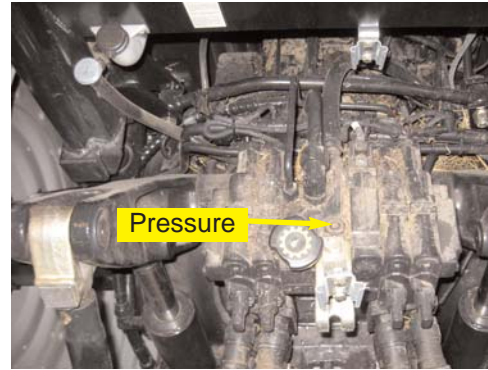


Figure 3a. Pressure location.

- b. Remove the pressure plug from the top of the valve stack and install the adapter fitting (**H**). (Figure 3c.)
- c. Remove the existing tank hose from the steering orbital. (Figure 3d.)
- d. Install the run-tee fitting (**J**) onto the top right port on the steering orbital. (Figure 3d.)
- e. Replace the tank hose, connecting it to the top of the run tee. (Figure 3d.)
- f. Install the adapter fitting (**K**) onto the branch of the run-tee (**J**). (Figure 3d.)



Figure 3b. Tank location.

**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.

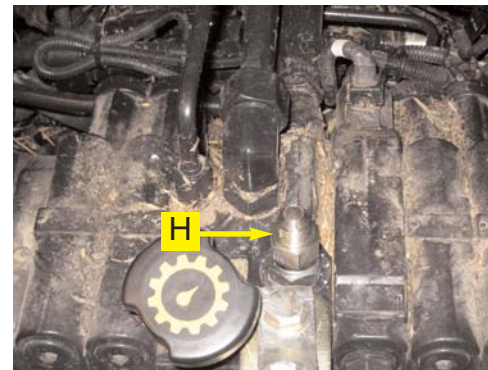


Figure 3c. Installed pressure fitting.

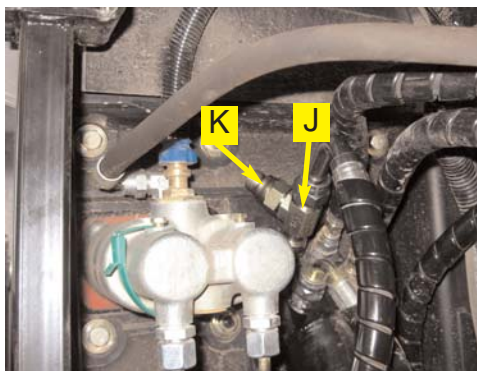


Figure 3e. Installed tank fittings.

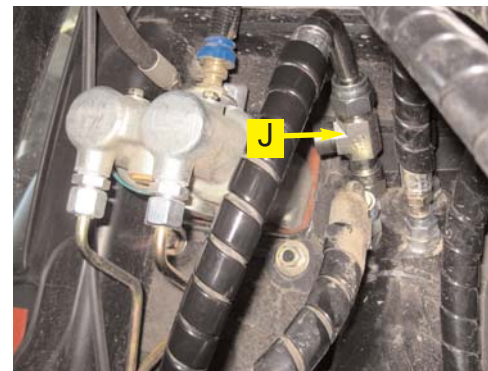


Figure 3d. Installed tank fittings.

**4. Install Load Sense Shuttle:**

- a. Pre-assemble the load sense shuttle (**L**) with adapter fittings **M**, **N**, **O** and **P** as shown. (Figure 4a.)

**NOTE:** Make sure the shuttle is assembled as shown in Figure 4a.

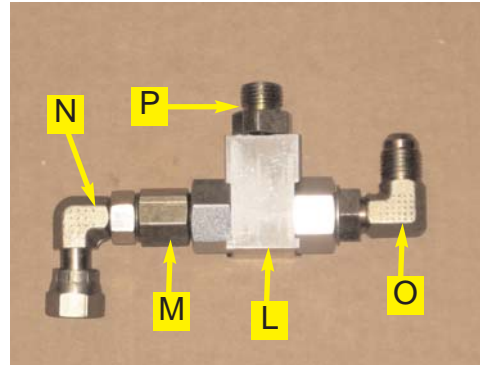


Figure 4a. Pre-assembled load sense shuttle.

- b. Locate the tractor load sense line on the lower right side of the valve stack on the back of the tractor. (Figure 4b.)

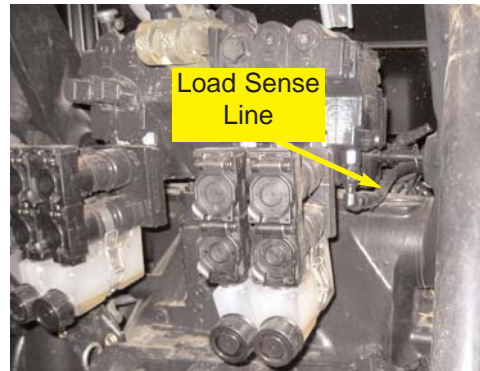


Figure 4b. Load sense line.

- c. Disconnect the load sense line from the valve stack. (Figure 4c. and 4d.)
- d. Attach the center male fitting (**P**) from the pre-assembled load sense shuttle, in step **4a**, to the line removed from the valve stack. (Figure 4c. and 4d.)
- e. Attach the female fitting (**N**) on the pre-assembled load sense shuttle, in step **4a**, to the valve stack. (Figure 4c. and 4d.) Leave the load sense shuttle connections loose to allow for easier installation and secure after all connections are made.

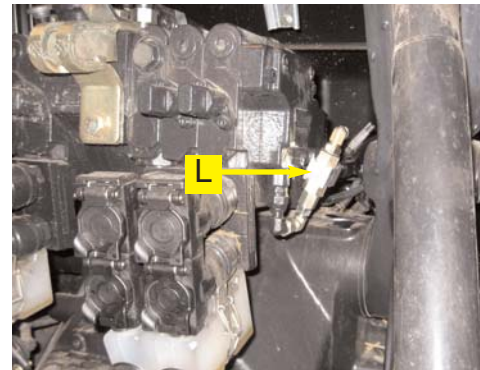


Figure 4c. Installed load sense shuttle.

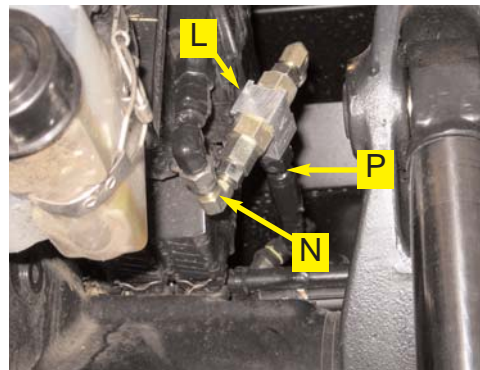


Figure 4d. Installed load sense shuttle.



**5. Install Pressure, Tank and Load Sense Hoses:**

- a. Connect the straight end of the pressure hose (**U**) from the **P** port of the automated steering block to the adapter fitting (**H**) installed on the tractors hydraulic valve stack. For easier hose installation, install the elbow adapter fitting (**C**) onto the **P** port adapter fitting (**B**) of the automated steering block. (Figure 5a. and 5b.)
  
- b. Connect the load sense hose (**Y**) from the **LS** port on the automated steering block to the open end of the load sense shuttle (**L**). (Figure 5a. and 5b.)
  
- c. Connect the straight-end of the tank hose (**V**) from the **T** port on the automated steering block to the adapter fitting (**K**) on the steering orbital. (Figure 5a. and 5c.)

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

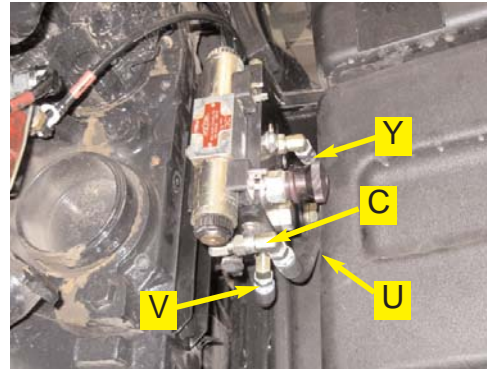


Figure 5a. Installed pressure, tank and load sense hoses at automated steering block.

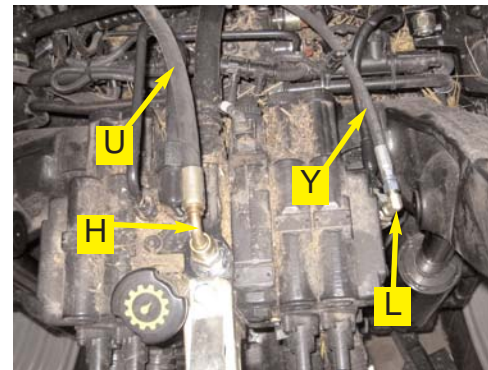


Figure 5b. Installed pressure and load sense hoses.

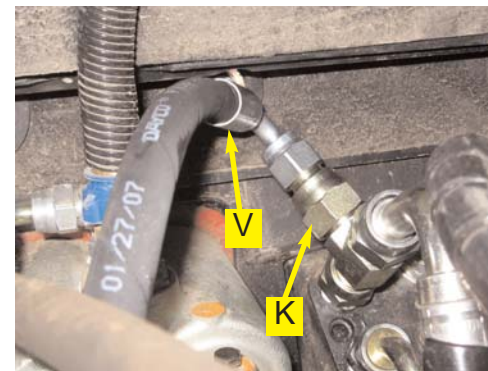


Figure 5c. Installed tank line.

**6. Assemble Counter-Balance Valve:**

- a. Install the elbow fitting (Q) into the V1 and V2 ports and the straight adapter fitting (R) into the C1 and C2 ports of the counter-balance valve block (T). (Figure 6.)
- b. Install the run-tees fitting (S) to the straight adapters (R). (Figure 6.)

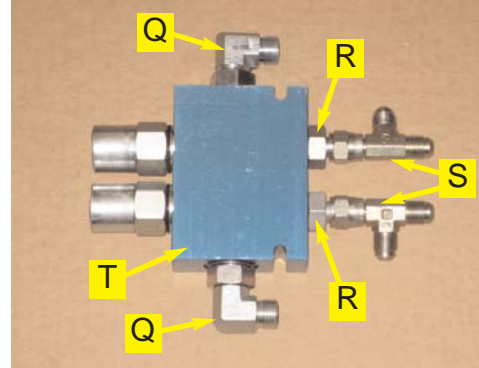


Figure 6. Assembled counter-balance valve.

**7. Install Counter-Balance Valve Block:**

- a. Install the counter-balance valve block (T) outside the left hood support. (Figure 7a.)
- b. Use the counter-balance valve as a template to drill two 5/16" holes as shown. (Figure 7a.)



Figure 7a. Counter-balance valve location.

- c. Use the provided hardware in group (G) to attach the counter-balance valve block to the hood support. (Figure 7b.)

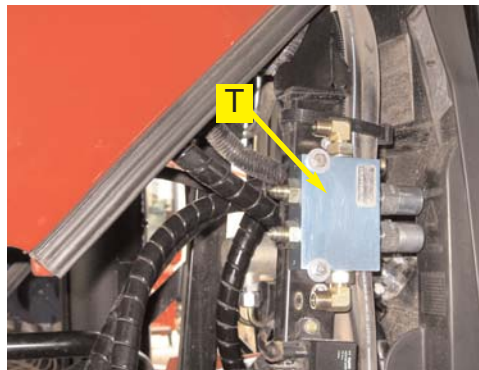


Figure 7b. Installed counter-balance valve.

- d. Locate the two steering lines on the left side of the engine. (Figure 7c.)



Figure 7c. Steering lines.

**7. Install Counter-Balance Valve (continued):**

- e. Disconnect the rubber steering lines and re-connect them to adapter fitting (Q) on the counter-balance valve. (Figure 7d.)

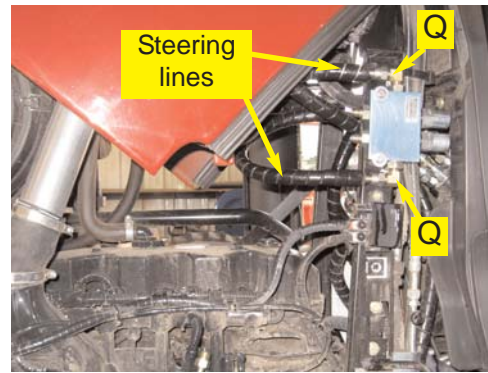


Figure 7d. Steering lines at counter-balance valve.

**8. Install Steering Output Hoses:**

- a. Connect the hydraulic steering hoses (W) from the A and B ports on the automated steering block to the branch of the run tee fitting (S) on the counter balance valve. (Figure 8a. and 8b.)

**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.

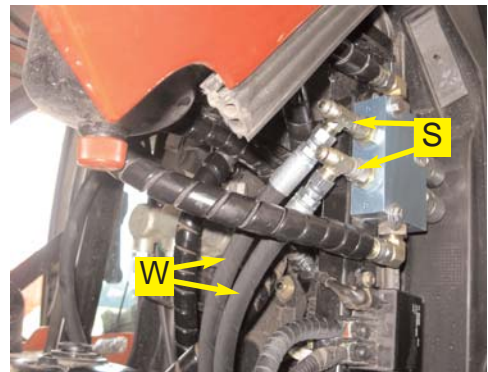


Figure 8a. Installed steering lines.



Figure 8b. Installed steering lines..

- b. Connect the hydraulic steering hoses (X) from the end of the run tee fitting (S) on the counter balance valve to the original steel steering lines. (Figure 8c.)

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

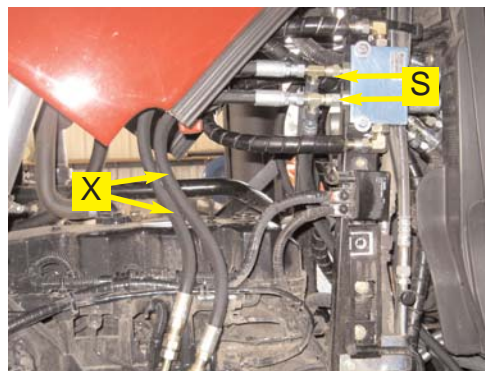


Figure 8c. Installed steering hoses at automated steering block.



**9. Install the Valve Control Cable:**

Route the valve control cable (Z) from the automated steering block, on top of the transmission and through the access hole on the right front corner of the cab. (Figure 9a. to 9c.)

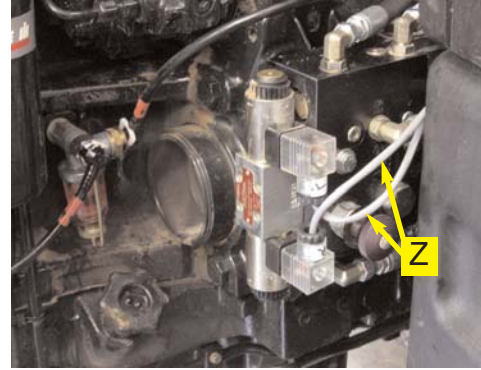


Figure 9a. Valve cable installed at automated steering block.

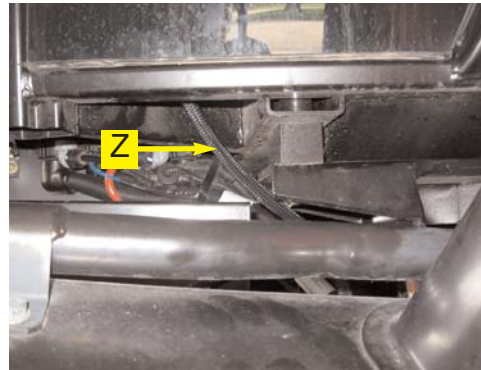


Figure 9b. Valve cable routed in access hole.

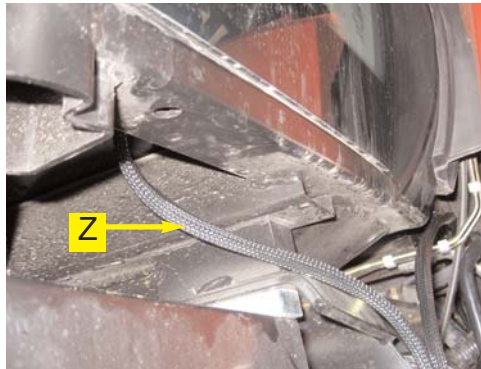


Figure 9c. Valve cable routed in access hole.

## 10. Verify Operation and Set Automated Steering Control Rate:

- a. Clean up the installation area around the machine and make certain that it is safe to operate.
- b. Make sure all fittings and hoses have been tightened
- c. Start the machine and check the automated steering connections for any leaks.
- d. Rotate the steering wheel from one extreme to the other and back.



**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.

- 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 10.)
  - 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 10.)
- 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.
- f. Count the number of seconds for the steering wheels to move all the way in the opposite direction while pressing the manual override the other coil.
  - g. Adjust the automated steering oil flow control to achieve an end-to-end steering cycle time of approximately **18** seconds. Use the knurled locking nut to secure the final flow control setting.

## 11. 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.

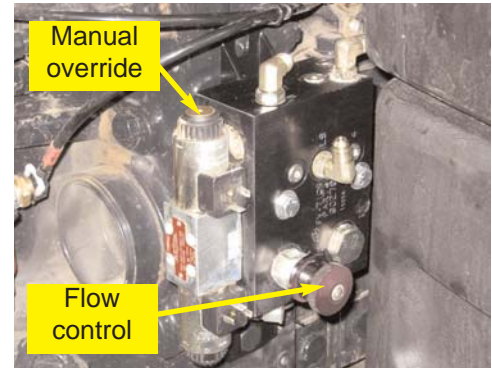


Figure 10. Manual override and flow control valve.







