

Automated Steering Hydraulic Installation Kit

P/N: ED-CATCDE

Fits CAT Tractor Models:

65C	65D	65E
75C	75D	75E
85C	85D	85E
		95E



Overview





A series of equipment-specific kits have 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 tractor models listed above. Please read this manual thoroughly before beginning the installation.

Machine Preparation







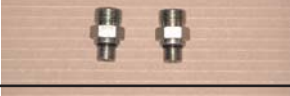





Before attempting to install the automated steering kit, park the machine on a clean, level floor with adequate clearance to work all around.

Kit Contents

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

REF	P/N	QTY	DESCRIPTION	PHOTOGRAPHS
A	760-0010	1	Assy, Hyd. Valve Block - DPC-11	
Bag #1 of 3 includes B				
B	760-2058	4	Adapter, Hyd. 90 Elbow - #6maleJIC x #6maleORB	
C	640-0051	1	Hyd. Block Mount - CAT C/D/E	
Bag #2 of 4 includes D				
D	675-2002	2	Bolt - 1/4NC x 2-1/2" Gr5, ZP	
	678-1053	2	Washer, Flat - 1/4" ZP	
	676-1034	2	Nut, Lock - 1/4NC ZP	

Kit Contents (cont.)

REF	P/N	QTY	DESCRIPTION	PHOTOGRAPHS
Bag #3 of 4 includes E, F, & G				
E	760-2046	2	Adapter, Hyd. Run Tee - #6 ORF	
F	760-2069	2	Adapter, Hyd. Run Tee - #8 ORF	
G	760-2064	2	Adapter, Hyd. #8femORF x #6maleORF	
Bag #4 of 4 includes H, I, J, K, L, & M				
H	760-0002	2	Assy, Hyd. Load Shuttle - #6femORB	
I	760-2056	2	Adapter, Hyd. - #6maleJIC x #6maleORB	
J	760-2040	2	Adapter, Hyd. 90 Elbow - #6maleORB x #6femORFswivel	
K	760-2067	2	Adapter, Hyd. - #8maleORF x #6maleORB	
L	760-2064	2	Adapter, Hyd. - #8femORF x #6maleORF	
M	760-2048	1	Adapter, Hyd. - #6maleORF x #6maleORB	
N	760-1002	2	Hose, Hyd. - 3/8" x 36", #6femJIC x #6femJIC	
O	760-1249	2	Hose, Hyd. - 3/8" x 40", #6femJIC x #6femORF	
P	051-0144	1	Cable, Interface - 10ft	
	677-2001	20	Tie Strap, 11" Heavy Duty, Not Shown	
	710-0053	1	Kit, Steering Wheel Switch, Not Shown	

WARNINGS



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.



WARNING:

CRUSHING HAZARD. To prevent serious injury or death, avoid unsafe practices while operating hydraulic steering circuit on track tractors. Keep others away and stay clear of tracks. Turning the steering wheel while the vehicle is stationary causes the tracks to counter rotate. Be Alert!

INSTALLATION CAT E-SERIES

(For C and D-Series installation proceed to page 10)

1. Prepare Automated Steering Block:

- a. Make sure the Automated Steering Block is clean and dust free.
- b. Install the elbow adapter fittings (**B**) in the **P**, **T**, **A**, and **B** ports. (Figure 1a.)

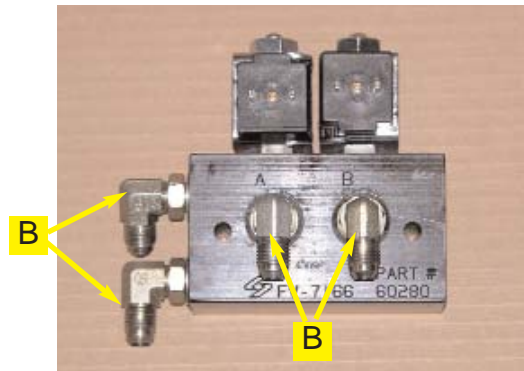


Figure 1a. Prepared Automated Steering Block.

2. Mount Automated Steering Block:

- a. Locate the top two bolts on the brake valve cover, next to the frame, in front of the cab, on the right side of the machine. (Figure 2a.)
- b. Use the existing bolts to mount the bracket (**C**) to the valve cover. (Figure 2b.)
- c. Use the provided mounting hardware in group (**D**) to attach the Automated Steering Block, as prepared in step 1, to the mounting bracket (**C**). (Figure 2c.)

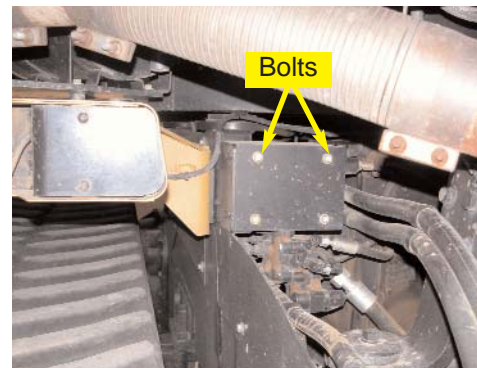


Figure 2a. Bolt location.



Figure 2c. Installed Automated Steering Block.

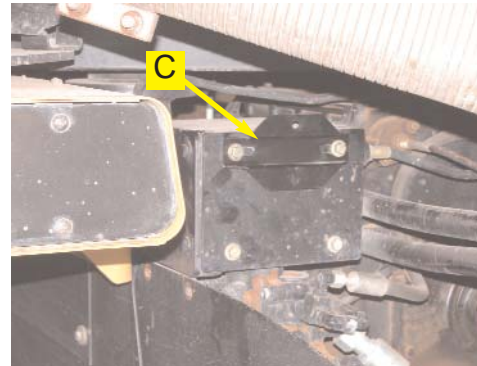


Figure 2b. Installed mounting bracket.

3. Install Pressure and Tank Fittings:

- a. The Automated Steering Block will make pressure and tank connections at the manual steering valve in front of the tractor cab. (Figure 3a.)
- b. The pressure connection is the hose on the bottom left side of the steering valve. Remove the pressure hose and install the run tee fitting (**E**). The tank connection is the hose located on top of the steering valve. Remove the tank hose and install the run tee fitting (**E**). (Figure 3b.)

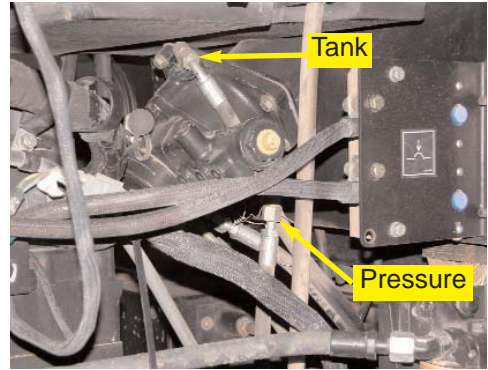


Figure 3a. Pressure and tank locations

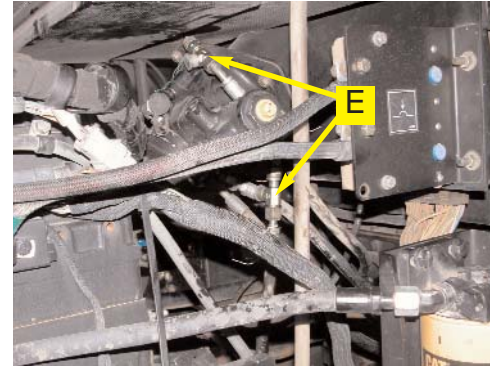


Figure 3b. Installed pressure and tank run tees.

4. Install Pressure and Tank Hoses:

- a. Connect the pressure hose (**O**) from the pressure run tee fitting (**E**) installed in step 3 to the **P** port on the Automated Steering Block. (Figure 4a and 4b.)
- b. Connect the tank hose (**O**) from the tank run tee fitting (**E**) to the **T** port on the Automated Steering Block. (Figure 4a and 4b.)

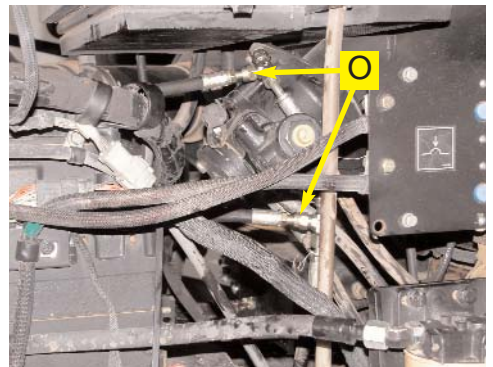


Figure 4a. Installed pressure and tank hoses at manual steering valve.



Figure 4b. Installed pressure and tank hoses at Automated Steering Block.

5. Install Steering Output Fittings:

- a. Preassemble the load shuttles (**H**) with adapter fittings (**I**), (**J**), (**K**), (**L**), and (**M**) as shown. (Figure 5a.)
- b. Locate the bottom two hoses on the manual steering valve. (Figure 5b.)
- c. Install the pre-assembled load shuttles with fitting (**J**) attached to the steering valve. One steering output port is larger and requires adapter fitting (**L**) for installation. Reattach the appropriate output hoses to the center port on the load shuttles. (Figure 5c.)

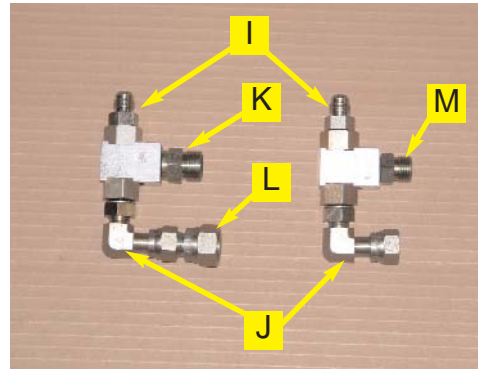


Figure 5a. Assembled load shuttles.

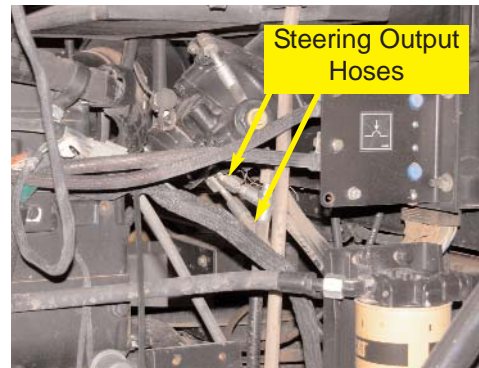


Figure 5b. Location of steering output hoses.

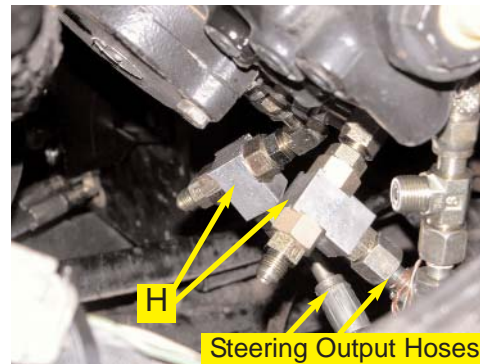


Figure 5c. Installed load shuttles at manual steering valve.

6. Install Automated Steering Output Hoses:

Connect the automated steering hoses (N) from the **A** and **B** ports on the Automated Steering Block to the open ends of the load shuttles installed in step 5. (Figure 6a and 6b.)

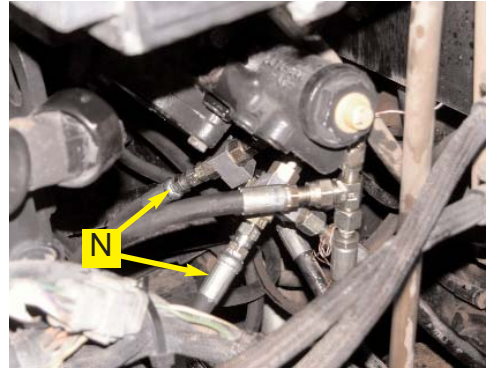


Figure 6a. Installed automated steering hoses at load shuttles.

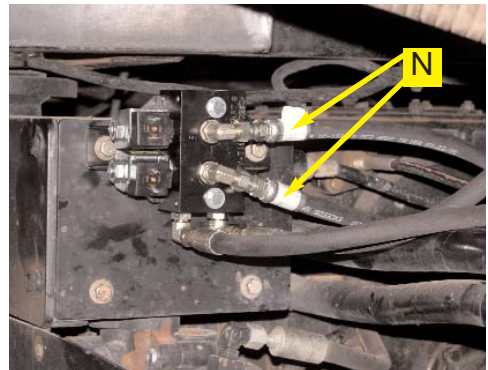


Figure 6b. Installed automated steering hoses at Automated Steering Block.

7. Install the Valve Control Cable:

Route the valve control cable (**P**) from the Automated Steering Block, into the cab, through the access panel on the right side of the tractor. (Figure 7a and 7b.)

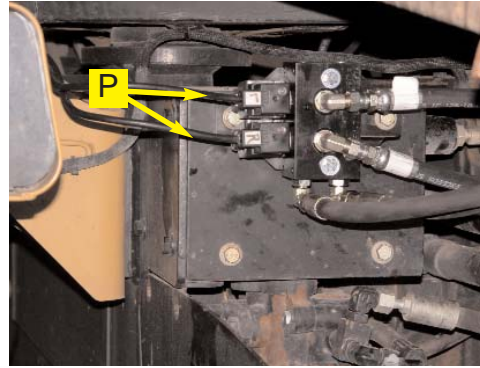


Figure 7a. Valve cable installed at Automated Steering Block.

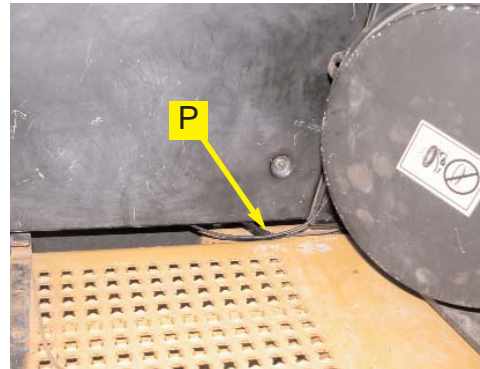


Figure 7b. Valve cable routed in through side access panel.

8. Verify Operation and Set Automated Steering Control Rate:

- a. Tighten all of 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 hydraulic connections for any leaks.
- c. Rotate the steering wheel from one direction to the other and back to check manual steering function.
- d. Make sure the **Vehicle Type** in your automated steering controller is set to **Track** mode.
- e. Use the **Valve Test** function in your automated steering controller to verify that the machine steers in the proper direction, left and right.
- f. In the menu of your automated steering controller adjust the **Steering Speed** to a starting value of **25** and adjust the **Max Turn Rate** to a value of **90**.
- g. Operate the machine in an open field with the automated steering system to fine tune the **Steering Speed**. Increasing the **Steering Speed** value will cause the steering to make faster corrections, decreasing the value will cause slower corrections.
- h. The **Max Turn Rate** value should **ONLY** be adjusted lower to prevent extremely large steering movements in reaction to disturbances or aggressive line acquisition. This adjustment is secondary to the **Steering Speed**.

IMPORTANT:

It is very important that the manual steering of the machine be in good working order prior to using automated steering. If the machine will not drive in a relatively straight line with no input to the steering wheel, then the manual steering must be serviced in order to achieve balanced tracking.

NOTE:

The automated steering contour guidance mode is not recommended with track tractors. This automated steering system uses a constant, fixed rate steering control method. This method is extremely robust on track machines in straight guidance. In contours with track tractors, however, this method may result in aggressive corrections and poor tracking performance.

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.

INSTALLATION CAT C and D-SERIES

(For E-Series installation return to page 4)

1. Prepare Automated Steering Block:

- a. Make sure the Automated Steering Block is clean and dust free.
- b. Install the elbow adapter fittings (**B**) in the **P**, **T**, **A**, and **B** ports. (Figure 1a.)

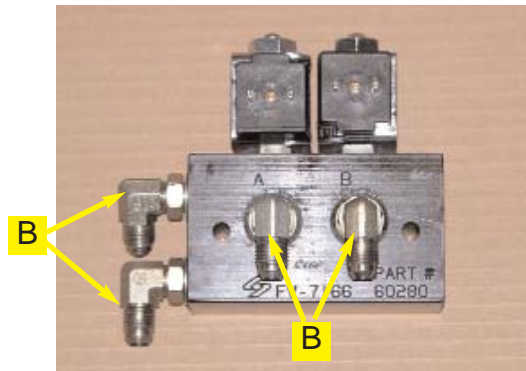


Figure 1a. Prepared Automated Steering Block.

2. Mount Automated Steering Block:

- a. Locate the top two bolts on the brake valve cover, next to the frame, in front of the cab, on the right side of the machine. (Figure 2a.)
- b. Use the existing bolts to mount the bracket (**C**) to the brake valve cover. (Figure 2b.)
- c. Use the provided mounting hardware in group (**D**) to attach the Automated Steering Block, as prepared in step 1, to the mounting bracket (**C**). (Figure 2c.)

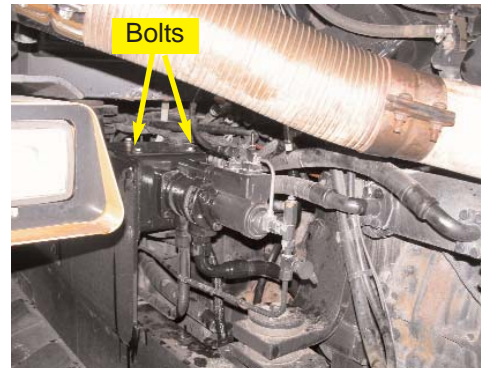


Figure 2a. Bolt location.



Figure 2c. Installed Automated Steering Block.

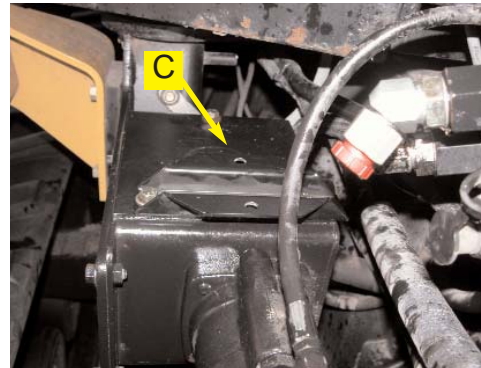


Figure 2b. Installed mounting bracket.

3. Install Pressure and Tank Fittings:

- a. The Automated Steering Block will make pressure and tank connections at the manual steering valve in front of the tractor cab. (Figure 3a.)
- b. The pressure connection is the hose on the bottom right side of the steering valve. Remove the pressure hose and install the run tee fitting (**F**). The tank connection is the hose on the bottom left side of the steering valve. Remove the tank hose and install the run tee fitting (**F**). (Figure 3b.)

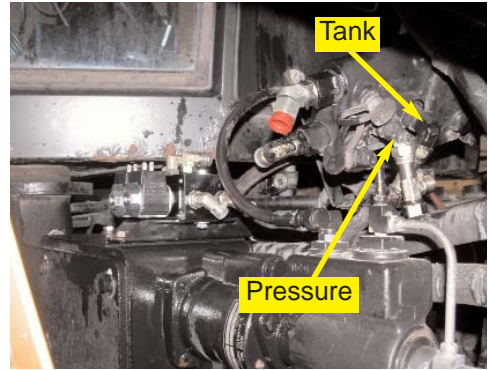


Figure 3a. Pressure and tank locations

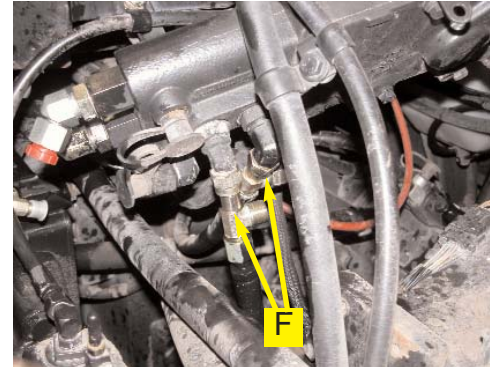


Figure 3b. Installed pressure and tank run tees.

4. Install Pressure and Tank Hoses:

- a. Using adapter fitting (**G**), connect the pressure hose (**O**) from the pressure run tee fitting (**F**) installed in step 3 to the **P** port on the Automated Steering Block. (Figure 4a and 4b.)
- b. Using adapter fitting (**G**), connect the tank hose (**O**) from the tank run tee fitting (**F**) to the **T** port on the Automated Steering Block. (Figure 4a and 4b.)

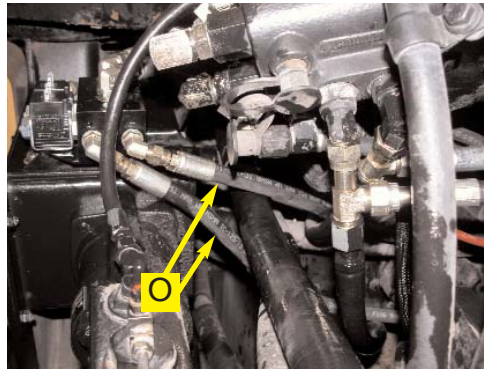


Figure 4a. Installed pressure and tank hoses at Automated Steering Block.

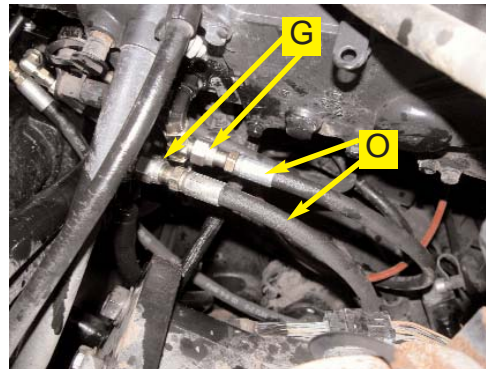


Figure 4b. Installed pressure and tank hoses at manual steering valve.

5. Install Steering Output Fittings:

- a. Preassemble the load shuttles (**H**) with adapter fittings (**I**), (**J**), (**K**), and (**L**) as shown. (Figure 5a.)
- b. Locate the two hoses on the right side of the manual steering valve. (Figure 5b.)
- c. Install the pre-assembled load shuttles with fitting (**J**) and adapter (**L**) attached to the manual steering valve. Reattach the appropriate output hoses to the center port on the load shuttles. (Figure 5c.)

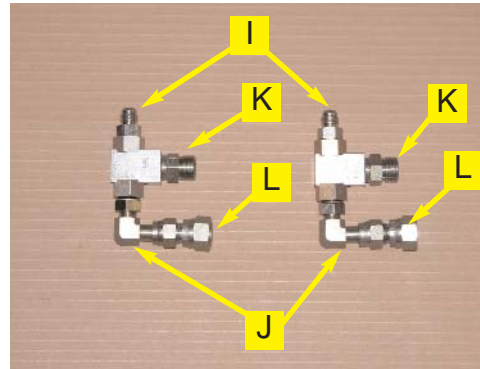


Figure 5a. Assembled load shuttles.

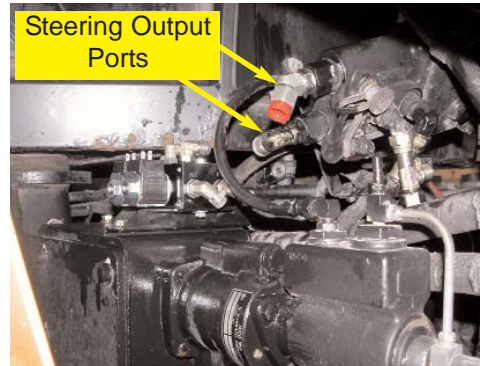


Figure 5b. Location of steering output ports on manual steering valve.

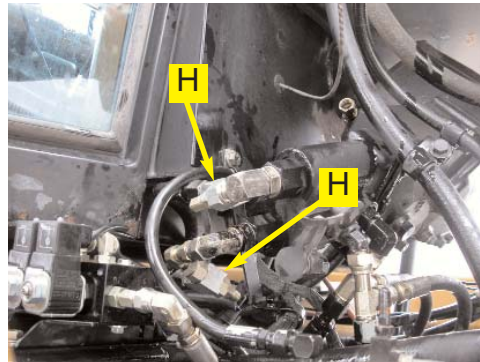


Figure 5c. Installed load shuttles at manual steering valve.

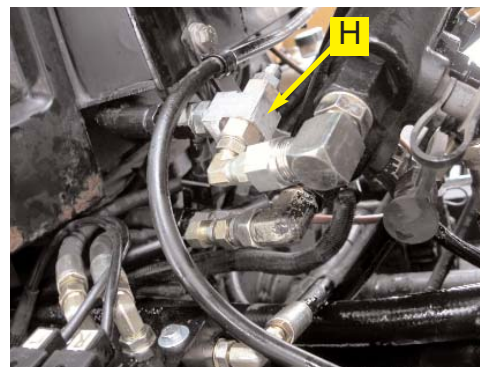


Figure 5c. Installed load shuttles at manual steering valve.

6. Install Automated Steering Output Hoses:

Connect the automated steering hoses (**N**) from the **A** and **B** ports on the Automated Steering Block to the open ends of the load shuttles installed in step 5. (Figure 6a and 6b.)

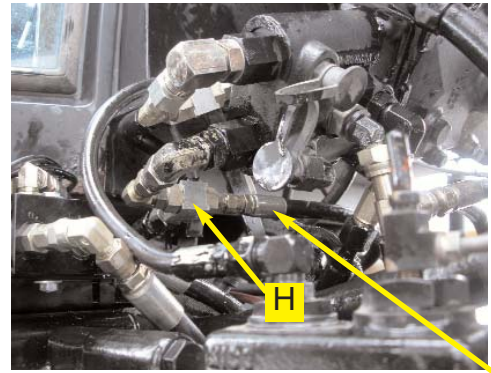


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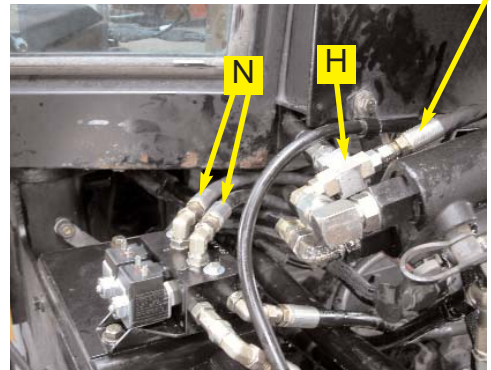


Figure 6b. Installed automated steering hoses at Automated Steering Block.

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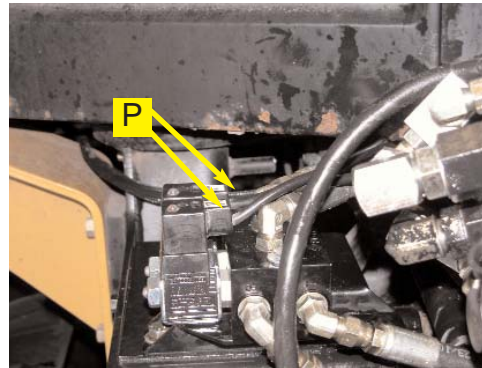


Figure 7a. Valve cable installed at Automated Steering Block.

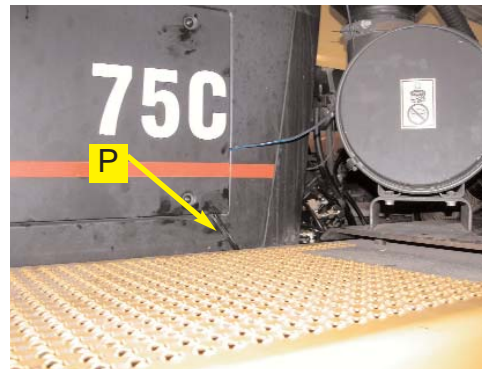


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