# Automated Steering Hydraulic Installation Kit

P/N: ED-CASE2WD

## **Fits Case Tractor Models:**

2090	2094	
2290	2294	3294
2390	2394	3394
2590	2594	3594

#### **Overview**

A series of equipment-specific hydraulic installation 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 Case tractor models listed above.

## **Machine Preparation**

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

#### **Kit Contents**

REF P/N

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



**PHOTOGRAPHS** 

		•		
A	760-0005	1	Assy, Automated Steering Block - OC	
	Bag #1 of 5 includes B,	C, D & E		
В	760-2080	1	Adapter, Hyd 90 elbow #8 maleJIC x #8 maleORB	
С	760-2079	1	Adapter, Hyd #8 maleJIC x #8 maleORB	<b>A</b>
D	760-2056	1	Adapter, Hyd #6 maleJIC x #6 maleORB	<b>A</b>
Е	760-2058	2	Adapter, Hyd 90 elbow	

#6maleJIC x #6maleORB

**QTY DESCRIPTION** 

REF	P/N	QTY	DESCRIPTION	PHOTOGRAPHS
F	640-0011	1	Automated Steering Block Mnt	
	Bag #2 of 5 include	s G & H		
G	675-2005	2	Bolt - 3/8NC x 3-1/4" Gr5, ZP	O
	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	
Н	675-2007	2	Bolt - 3/8NC x 3/4" Gr5, ZP	
	676-1035	2	Nut, NyLock - 3/8NC ZP	
	Bag #3 of 5 include	s I & J		
I	760-2077	1	Adapter, Hyd. Run Tee - #8 JIC	
J	760-2078	1	Adapter, Hyd 90 elbow #8 maleJl x #8 femaleJIC	IC F
K	760-0001	1	Assy, Hyd. Counter Balance - Reactive Valve	AA
	Bag #4 of 5 include	s L, M & N		
L	760-2080	2	Adapter, Hyd. 90 elbow #8 maleJIC	Cx
-	, 66 2666	_	#8 maleORB	8 8
M	760-2079	2	Adapter, Hyd. #8 maleJIC x #8 maleORB	<b>A A</b>
N	760-2077	2	Adapter, Hyd. Run Tee - #8 JIC	뤽 뤽
O	675-2002	2	Bolt - 1/4NC x 2-1/2"Gr5 ZP	7 7
	678-1053	2	Washer, Flat - 1/4ZP	o   O
	676-1034	2	Nut, Lock Nut - 1/4 NC ZP	o     o

REF	P/N	QTY	DESCRIPTION	PHOTOGRAPHS
	Bag #5 of 5 includes O, P & Q			
P	760-1197	2	Hoses, Hyd 3/8" x 74", #6fJIC x #8fJIC90	00
Q	760-1225	1	Hose, Hyd 3/8" x 30", #8fJIC x #8fJIC	
R	760-1224	1	Hose, Hyd 3/8" x 25", #8fJIC x #8fJIC	
S	760-1226	1	Hose, Hyd 1/2" x 60", #8fJIC x #8fJIC90	
T	760-1227	1	Hose, Hyd 1/2" x 36", #8fJIC x #8mJIC	
U	760-1116	1	Hose, Hyd 3/8 x 40", #6fЛС x #8fЛС90	

REF	P/N	QTY	DESCRIPTION	PHOTOGRAPHS
7	051-0143	1	Cable, Interface - 15 ft.	
	677-2001	20	Tie Strap, 11" Heavy Duty	Not Shown
	710-0053	1	Kit, Steering Wheel Switch	Not Shown

# **WARNINGS**





**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.





**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.





and cleaned with a fiberless cloth.

**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.

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

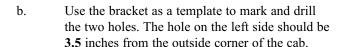
# **INSTALLATION**

### 1. Prepare Automated Steering Block:

- a. Make sure the Automated Steering Block is clean and dust free.
- b. Install the elbow adapters (E) into the A and B ports and the larger elbow adapter (B) into the P port of the Automated Steering Block. (Figure 1.)
- c. Install the straight adapter (**D**) into the **T** port and the larger straight adapter (**C**) into the **EF** port of the Automated Steering Block. (Figure 1.)

## 2. Mount Automated Steering Block:

a. Locate the right, front corner of the cab. (Figure 2a.)



- c. Install the mounting bracket (**F**) to the corner of the cab using the hardware in group (**H**). (Figure 2b.)
- d. Use the provided mounting hardware in group (G) to attach the Automated Steering Block, as prepared in step 1, to the mounting bracket (F). (Figure 2c.)



Be sure the block is orientated with the valve coils on top.

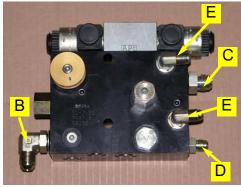


Figure 1. Prepared Automated Steering Block.

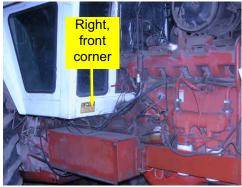


Figure 2a. Right, front corner of cab.

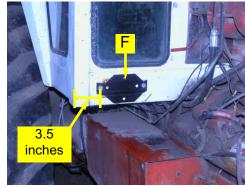


Figure 2b. Installed mounting bracket.



Figure 2c. Mounted Automated Steering Block.

#### 3. Install Pressure, Tank, and Excess Flow Fittings:

- a. The Automated Steering Block will receive pressure from the tank port on the steering orbital. The tank port is the upper, right port on the steering orbital. Excess flow and tank flow from the Automated Steering Block will be returned to the line previously attached at the orbital. (Figure 3a.)
- b. Remove the tank line from the orbital.
- c. Install the elbow fitting (**J**) to the orbital and the run tee (**N**) to the tank line as shown. (Figure 3c.)



Use plastic caps to prevent leakage from the open ports.

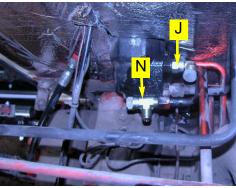


Figure 3c. Elbow fitting and run tee installed to orbital and on the tank line.

### 4. Install Pressure, Tank, and Excess Flow Hoses:

- a. Install the provided pressure hose (S) between the P port of the Automated Steering Block and elbow fitting (J) attached to the orbital.
   (Figure 4a. and 4b.)
- b. Connect the provided tank hose (U) and excess flow hose (T) to the run tee installed in step 3.

  Connect the opposite end of hose (U) to the the T port of the Automated Steering Block. Connect the opposite end of hose (T) to the EF port of the Automated Steering Block. (Figure 4b.)
- c. Tighten all the hydraulic connections and use the provided heavy tie straps to secure hoses for problem free operation.

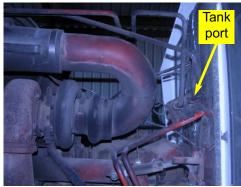


Figure 3a. Tank port location.

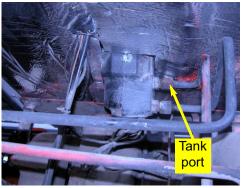


Figure 3b. Tank port location.

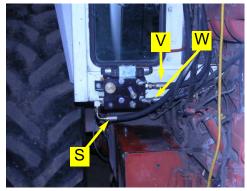


Figure 4a. Installed pressure, tank, and excess flow hoses at block.

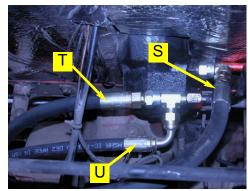


Figure 4b. Hoses installed at orbital and on tank line.

#### 5. Assemble the Counter-Balance Valve block:

a. Install the elbow fittings (L) into V1 and V2 ports and straight adapter fittings (M) into the C1 and C2 ports of the counter-balance valve block (K). (Figure 5a.)

b. Install the run tees (N) to the straight adapters. (Figure 5b.)

### 6. Install Counter-Balance Valve Block:

- a. The counter-balance valve block (**K**) will be installed inside the left frame rail behind the front axle. (Figure 6a.)
- b. Use the counter-balance valve block as a template to drill two **5/16**" holes.
- c. Use the provided hardware group (**O**) to install the counter-balance valve block. (Figure 6a.)
- d. Locate the steering lines on the front steering cylinder. Front steering cylinder configurations may vary by tractor model, see figures 6b. through 6e.

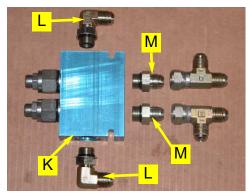


Figure 5a. Counter-balance valve block pieces.

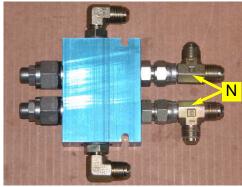


Figure 5b. Assembled counter-balance valve block.



Figure 6a. Installed counter-balance valve block.



Figure 6b. Location of steering lines.

### 6. Install Counter-Balance Valve block (continued):

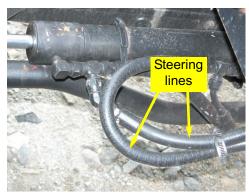


Figure 6c. Alternate configuration.

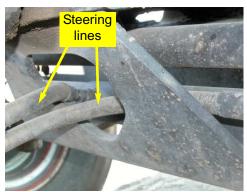


Figure 6d. Alternate configuration.



Figure 6e. Alternate configuration.



Figure 6f. Steering lines connected to counter-balance valve block.

e. Remove the steering lines.

f. Connect the steering lines to the elbow fittings on the V1 and V2 ports of the counter-balance valve block. (Figure 6f.)

#### 7. Install Steering and Hoses:

a. Route the provided steering lines (**R**) up to the **A** and **B** ports of the Automated Steering Block from the run tees on the counter-balance valve block. (Figure 7a.)

- b. Attach the elbow hose ends to the ends of the run tees connected to the C1 and C2 ports on the counter-balance valve block. (Figure 7b.)
- c. Attach the provided steering hoses (**Q** and **R**) between the branch of the run tees and the steering cylinder. (Figure 7c.)
- NOTE: Do not cross hose connections when installing hoses onto the counter-balance valve. The steering hose connected to the V1 port will apply pressure to the cylinder port connected to the C1 port. The same is true for the V2 and C2 ports.
- d. Tighten all hydraulic connections and use the heavy tie straps provided to secure all hoses for problem-free operation.

### 8. Install the Valve Control Cable:

Route the valve control cable (V) from the Automated Steering Block, under the cab and inside the rear window. (Figure 8.)

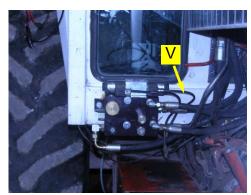


Figure 8a. Routed valve control cable.



Figure 7a. Steering hoses connected at Automated Steering Block.

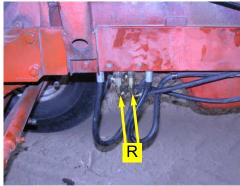


Figure 7b. Steering hoses connected to counter-balance valve..



Figure 7c. Hoses connected between counter-balance valve and steering cylinder



Figure 8b. Routed valve cable in cab.

# 9. 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. Start the machine and check the automated steering connections for any leaks.
- Rotate the steering wheel from one extreme to the other and back.





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the 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 9.)
- 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.



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. (Figure 9.)
- 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. (Figure 9.)

# 10. 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.

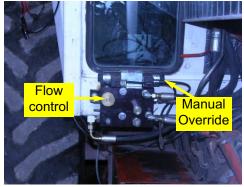


Figure 9. Automated Steering flow control knob and manual override button.

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#### **Overview**

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## **Machine Preparation**

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

#### **Kit Contents**

REF P/N

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



**PHOTOGRAPHS** 

KEI	1/11	ų i i y	DESCRIPTION	HOTOGRAFIIS
A	760-0005	1	Assy, Automated Steering Block - OC	
	Bag #1 of 5 includes B, C, D & E			
В	760-2080	1	Adapter, Hyd 90 elbow #8 maleJIC x #8 maleORB	
С	760-2079	1	Adapter, Hyd #8 maleJIC x #8 maleORB	<b>.</b>
D	760-2056	1	Adapter, Hyd #6 maleJIC x #6 maleORB	<b>4</b>
Е	760-2058	2	Adapter, Hyd 90 elbow #6maleJIC x #6maleORB	F F

OTY DESCRIPTION

REF	P/N	QTY	DESCRIPTION	PHOTOGRAPHS
F	640-0011	1	Automated Steering Block Mnt	
	Bag #2 of 5 includes G & H			
G	675-2005	2	Bolt - 3/8NC x 3-1/4" Gr5, ZP	O
	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	675-2007	2	Bolt - 3/8NC x 3/4" Gr5, ZP	
	676-1035	2	Nut, NyLock - 3/8NC ZP	
	Bag #3 of 5 includes I & J			
I	760-2077	1	Adapter, Hyd. Run Tee - #8 JIC	40
J	760-2078	1	Adapter, Hyd 90 elbow #8 maleJIC x #8 femaleJIC	8
K	760-0001	1	Assy, Hyd. Counter Balance - Reactive Valve	
	Bag #4 of 5 includes L, M & N	N		
L	760-2080	2	Adapter, Hyd. 90 elbow #8 maleJIC x #8 maleORB	FF
M	760-2079	2	Adapter, Hyd. #8 maleJIC x #8 maleORB	8 8
N	760-2077	2	Adapter, Hyd. Run Tee - #8 JIC	
O	675-2002	2	Bolt - 1/4NC x 2-1/2"Gr5 ZP	7 7
	678-1053	2	Washer, Flat - 1/4ZP	0 0
	676-1034	2	Nut, Lock Nut - 1/4 NC ZP	o   o

REF	P/N	QTY	DESCRIPTION	PHOTOGRAPHS
	Bag #5 of 5 includes O, P & Q			
P	760-1197	2	Hoses, Hyd 3/8" x 74", #6fJIC x #8fJIC90	00
Q	760-1225	1	Hose, Hyd 3/8" x 30", #8fJIC x #8fJIC	
R	760-1224	1	Hose, Hyd 3/8" x 25", #8fJIC x #8fJIC	
S	760-1226	1	Hose, Hyd 1/2" x 60", #8fJIC x #8fJIC90	
T	760-1227	1	Hose, Hyd 1/2" x 36", #8fJIC x #8mJIC	
U	760-1116	1	Hose, Hyd 3/8 x 40", #6fЛС x #8fЛС90	

REF	P/N	QTY	DESCRIPTION	PHOTOGRAPHS
V	051-0143	1	Cable, Interface - 15 ft.	
	677-2001	20	Tie Strap, 11" Heavy Duty	Not Shown
	710-0053	1	Kit. Steering Wheel Switch	Not Shown

# **WARNINGS**





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proper hand and eye protection when searching for leaks, using wood or cardboard instead of hands. Keep all hydraulic components in good repair.





and cleaned with a fiberless cloth.

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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

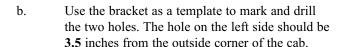
# **INSTALLATION**

### 1. Prepare Automated Steering Block:

- a. Make sure the Automated Steering Block is clean and dust free.
- b. Install the elbow adapters (E) into the A and B ports and the larger elbow adapter (B) into the P port of the Automated Steering Block. (Figure 1.)
- c. Install the straight adapter (**D**) into the **T** port and the larger straight adapter (**C**) into the **EF** port of the Automated Steering Block. (Figure 1.)

## 2. Mount Automated Steering Block:

a. Locate the right, front corner of the cab. (Figure 2a.)



- c. Install the mounting bracket (**F**) to the corner of the cab using the hardware in group (**H**). (Figure 2b.)
- d. Use the provided mounting hardware in group (G) to attach the Automated Steering Block, as prepared in step 1, to the mounting bracket (F). (Figure 2c.)



Be sure the block is orientated with the valve coils on top.

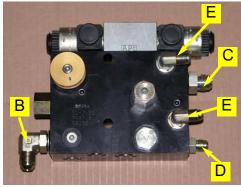


Figure 1. Prepared Automated Steering Block.

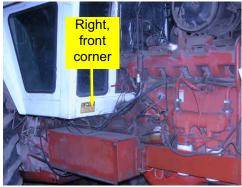


Figure 2a. Right, front corner of cab.

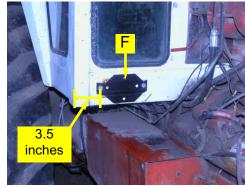


Figure 2b. Installed mounting bracket.



Figure 2c. Mounted Automated Steering Block.

#### 3. Install Pressure, Tank, and Excess Flow Fittings:

- a. The Automated Steering Block will receive pressure from the tank port on the steering orbital. The tank port is the upper, right port on the steering orbital. Excess flow and tank flow from the Automated Steering Block will be returned to the line previously attached at the orbital. (Figure 3a.)
- b. Remove the tank line from the orbital.
- c. Install the elbow fitting (**J**) to the orbital and the run tee (**N**) to the tank line as shown. (Figure 3c.)



Use plastic caps to prevent leakage from the open ports.

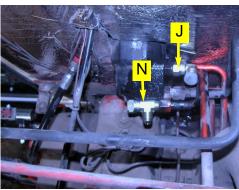


Figure 3c. Elbow fitting and run tee installed to orbital and on the tank line.

### 4. Install Pressure, Tank, and Excess Flow Hoses:

- a. Install the provided pressure hose (S) between the P port of the Automated Steering Block and elbow fitting (J) attached to the orbital.
   (Figure 4a. and 4b.)
- b. Connect the provided tank hose (U) and excess flow hose (T) to the run tee installed in step 3.

  Connect the opposite end of hose (U) to the the T port of the Automated Steering Block. Connect the opposite end of hose (T) to the EF port of the Automated Steering Block. (Figure 4b.)
- c. Tighten all the hydraulic connections and use the provided heavy tie straps to secure hoses for problem free operation.



Figure 3a. Tank port location.

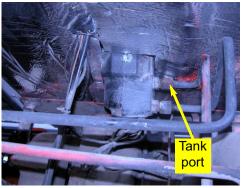


Figure 3b. Tank port location.

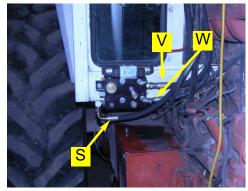


Figure 4a. Installed pressure, tank, and excess flow hoses at block.

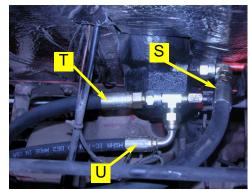


Figure 4b. Hoses installed at orbital and on tank line.

#### 5. Assemble the Counter-Balance Valve block:

a. Install the elbow fittings (L) into V1 and V2 ports and straight adapter fittings (M) into the C1 and C2 ports of the counter-balance valve block (K). (Figure 5a.)

b. Install the run tees (N) to the straight adapters. (Figure 5b.)

### 6. Install Counter-Balance Valve Block:

- a. The counter-balance valve block (**K**) will be installed inside the left frame rail behind the front axle. (Figure 6a.)
- b. Use the counter-balance valve block as a template to drill two **5/16**" holes.
- c. Use the provided hardware group (**O**) to install the counter-balance valve block. (Figure 6a.)
- d. Locate the steering lines on the front steering cylinder. Front steering cylinder configurations may vary by tractor model, see figures 6b. through 6e.

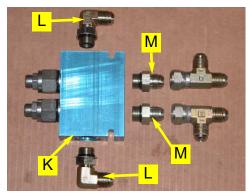


Figure 5a. Counter-balance valve block pieces.

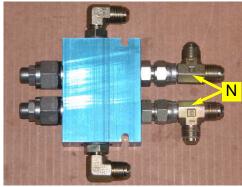


Figure 5b. Assembled counter-balance valve block.



Figure 6a. Installed counter-balance valve block.



Figure 6b. Location of steering lines.

### 6. Install Counter-Balance Valve block (continued):

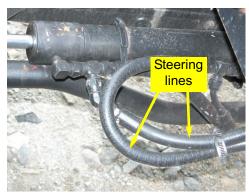


Figure 6c. Alternate configuration.

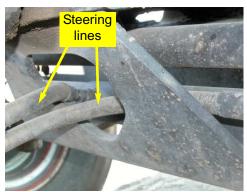


Figure 6d. Alternate configuration.



Figure 6e. Alternate configuration.



Figure 6f. Steering lines connected to counter-balance valve block.

e. Remove the steering lines.

f. Connect the steering lines to the elbow fittings on the V1 and V2 ports of the counter-balance valve block. (Figure 6f.)

#### 7. Install Steering and Hoses:

a. Route the provided steering lines (**R**) up to the **A** and **B** ports of the Automated Steering Block from the run tees on the counter-balance valve block. (Figure 7a.)

- b. Attach the elbow hose ends to the ends of the run tees connected to the C1 and C2 ports on the counter-balance valve block. (Figure 7b.)
- c. Attach the provided steering hoses (**Q** and **R**) between the branch of the run tees and the steering cylinder. (Figure 7c.)
- NOTE: Do not cross hose connections when installing hoses onto the counter-balance valve. The steering hose connected to the V1 port will apply pressure to the cylinder port connected to the C1 port. The same is true for the V2 and C2 ports.
- d. Tighten all hydraulic connections and use the heavy tie straps provided to secure all hoses for problem-free operation.

### 8. Install the Valve Control Cable:

Route the valve control cable (V) from the Automated Steering Block, under the cab and inside the rear window. (Figure 8.)

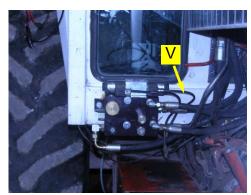


Figure 8a. Routed valve control cable.



Figure 7a. Steering hoses connected at Automated Steering Block.

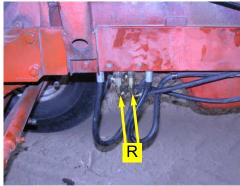


Figure 7b. Steering hoses connected to counter-balance valve..



Figure 7c. Hoses connected between counter-balance valve and steering cylinder



Figure 8b. Routed valve cable in cab.

# 9. 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. Start the machine and check the automated steering connections for any leaks.
- Rotate the steering wheel from one extreme to the other and back.





**PINCH POINT HAZARD.** To prevent serious injury or death, avoid unsafe practices while manually operating

the 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 9.)
- 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.



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. (Figure 9.)
- 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. (Figure 9.)

# 10. 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.

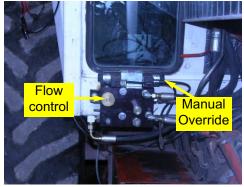


Figure 9. Automated Steering flow control knob and manual override button.