

# Automated Steering Hydraulic Installation Kit

P/N: ED-VD6

## Fits Versatile Tractor Models:

<b>836</b>	<b>936</b>
<b>846</b>	<b>946</b>
<b>856</b>	<b>956</b>
<b>876</b>	<b>976</b>

## Overview

A series of equipment specific hydraulic installation kits have 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 Versatile Designation 6 tractors. Please read this manual thoroughly before beginning the installation.



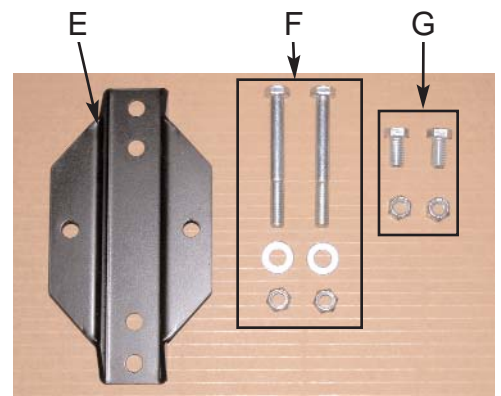
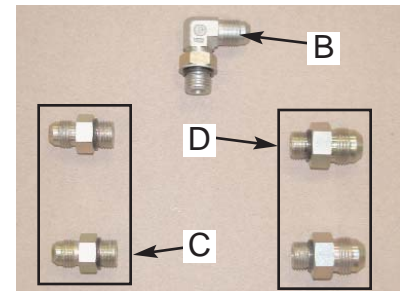
## Tractor Preparation

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

## Kit Contents

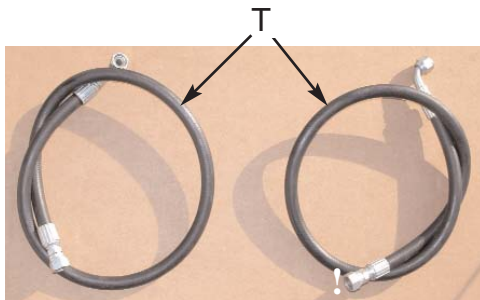
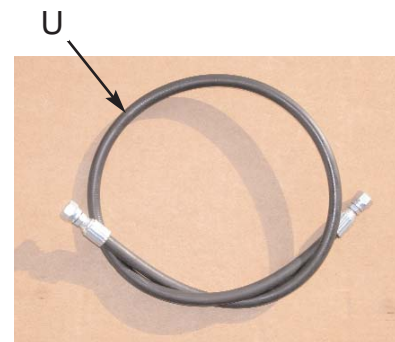
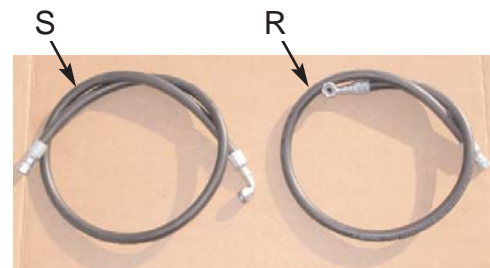
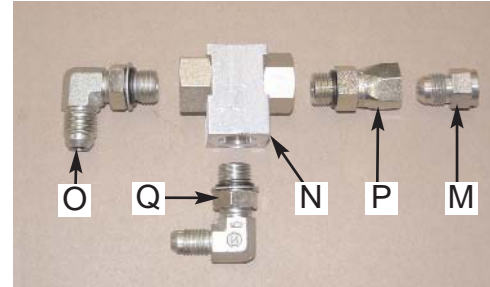
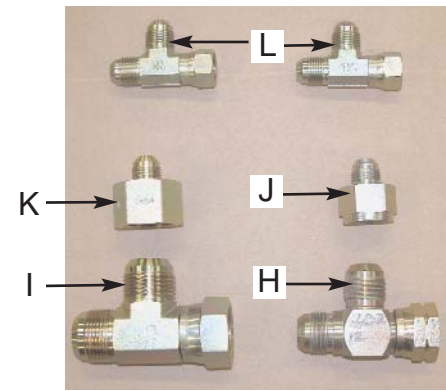
Unpack the installation kit and identify the required parts as shown.

REF	P/N	QTY	DESCRIPTION
A	760-0004	1	Assy, Hyd. Valve Block - LS, High Flow
<b>Bag #1 of 4 includes B, C, &amp; D</b>			
B	760-2058	1	Adapter, Hyd. 90 Elbow - #6maleJIC x #6maleORB
C	760-2056	2	Adapter, Hyd. - #6maleJIC x #6maleORB
D	760-2073	2	Adapter, Hyd. - #8maleJIC x #6maleORB
<b>Bag #2 of 4 includes F &amp; G</b>			
E	640-0011	1	Hydraulic Block Mnt, Spra Coupe 4440
<b>Bag #2 of 4 includes F &amp; G</b>			
F	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
G	675-2007	2	Bolt, 3/8NC x 3/4" Gr5 ZP
	676-1035	2	Nut, NyLock - 3/8NC ZP



## Kit Contents (cont.)

REF	P/N	QTY	DESCRIPTION
<b>Bag #3 of 4 includes H, I, J, K, &amp; L</b>			
H	760-2016	1	Adapter, Hyd. Run Tee - #12 JIC
I	760-2027	1	Adapter, Hyd. Run Tee - #16 JIC
J	760-2012	1	Adapter, Hyd. - #12femJIC x #8maleJIC
K	760-2026	1	Adapter, Hyd. - #16femJIC x #8maleJIC
L	760-2077	2	Adapter, Hyd. Run Tee - #8 JIC
<b>Bag #4 of 4 includes M, N, O, R, &amp; Q</b>			
M	760-2029	1	Adapter, Hyd. - #4femJIC x #6maleJIC
N	760-0002	1	Hyd. Load Shuttle - #6femORB
O	760-2058	1	Adapter, Hyd. 90 Elbow - #6maleJIC x #6maleORB
P	760-2041	1	Adapter, Hyd. - #6maleORB x #6femJICswivel
Q	760-2037	1	Adapter, Hyd. 90 Elbow - #4maleJIC x #6maleORB
R	760-1117	1	Hose, Hyd 3/8" x 44", #6femJICswiv x #8femJICswiv 90EL
S	760-1115	1	Hose, Hyd 3/8" x 57", #6femJICswiv x #8femJICswiv 90EL
T	760-1122	2	Hose, Hyd 3/8" x 45", #8femJICswiv x #8femJICswiv 90EL
U	760-1012	1	Hose, Hyd. - 1/4" x 48", #6femJICswivel Both Ends
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



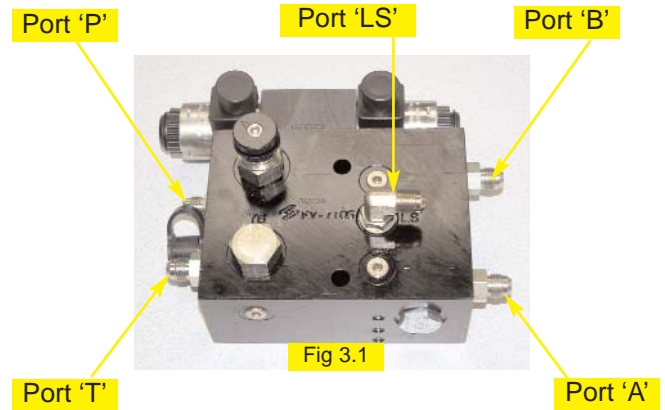
**WARNING:** **HIGH-PRESSURE FLUID HAZARD.** Hydraulic oil may be hot and under high pressure. To prevent serious injury or death: Relieve system pressure and allow to cool before repairing or disconnecting. Wear proper hand and eye protection when searching for leaks, using wood or cardboard instead of hands. Keep all hydraulic components in good repair.

**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 Hydraulic Control Block:

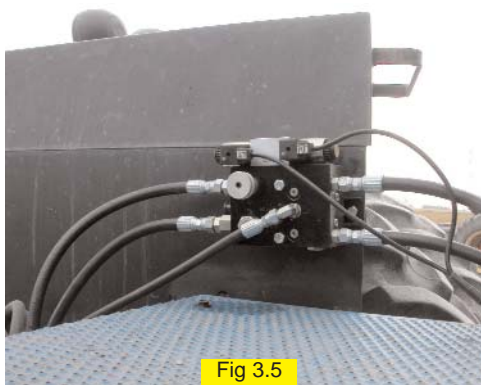
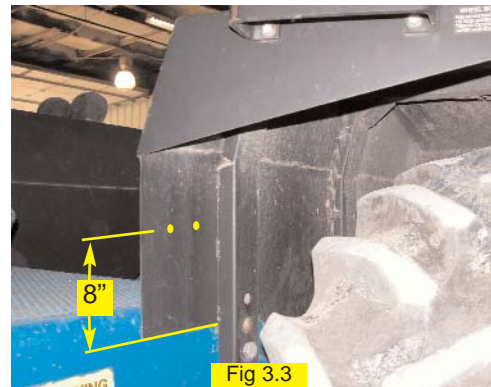
Make sure the hydraulic control block is clean and dust free. Remove the plastic plugs and install the adapters (**D**) in the **P** and **T** ports. Install the adapters (**C**) into the **A** and **B** ports, and install the elbow adapter (**B**) into the **LS** port of the hydraulic control block. (Figure 3.1)



## 2. Mount Hydraulic Control Block:

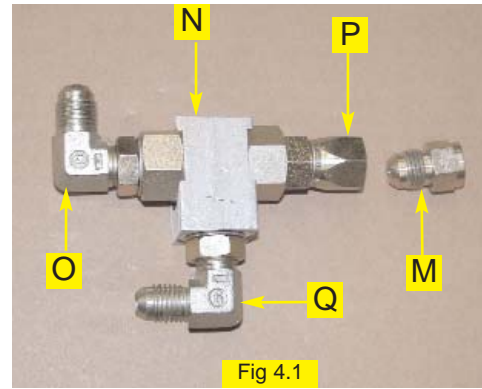
The hydraulic control block mounting bracket (**E**) will be bolted horizontally inside the left rear fender. (Figure 3.2) Locate and drill two  $\frac{7}{16}$ " holes in the left rear fender. The holes will be 8" up from the bottom of the fender sheet-metal as shown. (Figure 3.3) Use the mounting bracket as a template for the correct hole spacing. Install the mounting bracket using hardware group **G**. (Figure 3.4)

Mount the prepared hydraulic control block to the installed mounting bracket using hardware group **F** in the orientation shown. (Figure 3.5)

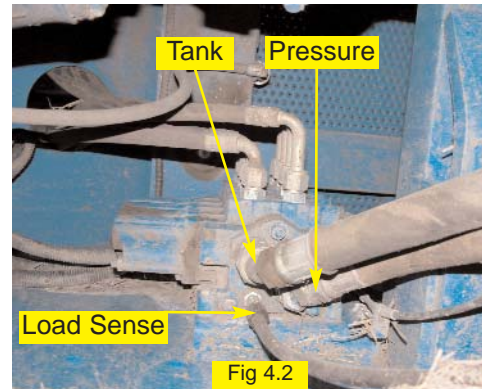


### 3. Install Pressure, Tank, and Load Sense Fittings:

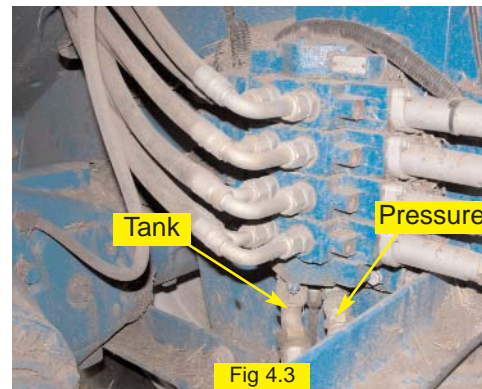
Pre-assemble the load sense shuttle (N) with adapter fittings (O), (P), and (Q) as shown. (Figure 4.1)



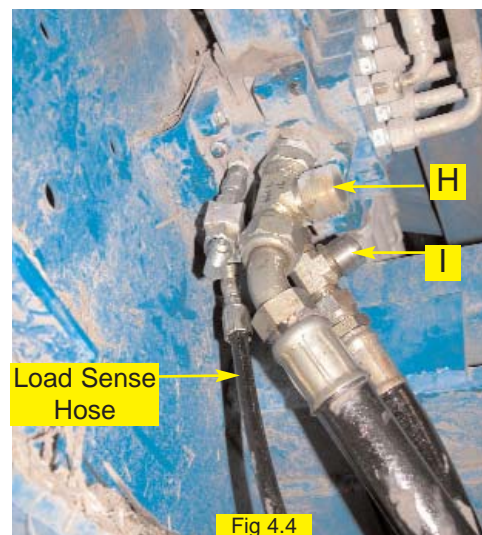
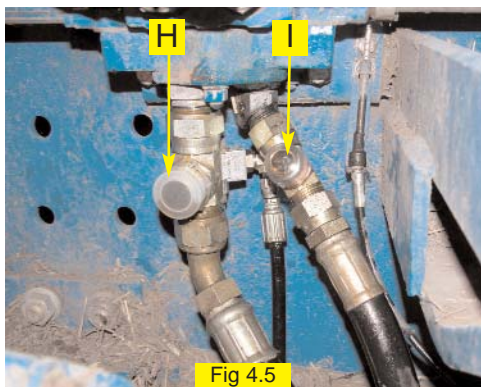
The pressure, tank, and load sense ports on the tractor hydraulics can be accessed from under the tractor on the left side near the rear axle. (Figure 4.2) Locate the pressure, tank and load sense ports on the lower end of the hydraulic valve stack. Remove the pressure, tank and load sense lines from the end of the hydraulic valve stack. (Figure 4.3)



Install the assembled load sense shuttle to the load sense port of the hydraulic valve stack using the provided expander fitting (M). Reinstall the load sense hose to the center position (Q) of the load sense shuttle (N). (Figure 4.4)



Install the provided run-tees (I and H) onto the pressure and tank ports of the hydraulic valve stack and reinstall the pressure and tank hoses to the ends of the run-tees. (Figure 4.4 and 4.5)



#### 4. Install Pressure, Tank, and Load Sense Hoses:

Install the provided pressure and tank hoses (**T**), using reducer fittings (**K** for the tank and **J** for the pressure), to the branches of the run-tees attached at the tractor hydraulic valve stack. (Figure 5.1) Install the provided hydraulic load sense hose (**U**) to the open end of the load sense shuttle installed at the tractor hydraulic valve stack. (Figure 5.2)

Route the pressure, tank, and load sense hoses up to the hydraulic control block as shown. Attach the pressure hose to the **P** port of the hydraulic control block. Attach the tank hose to the **T** port and the load sense hose to the **LS** port. (Figure 5.3)

The hoses should be secured with heavy tie straps (provided) to prevent rubbing and entanglement with moving parts.

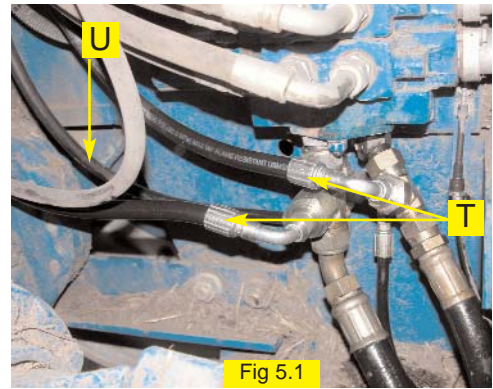


Fig 5.1

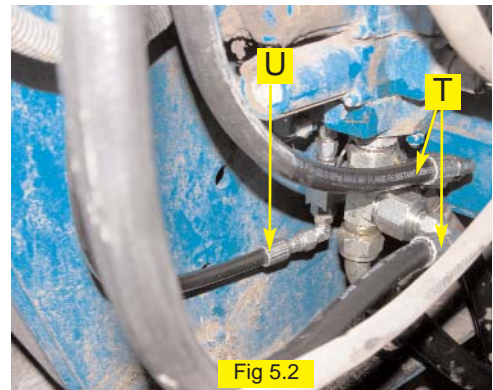


Fig 5.2

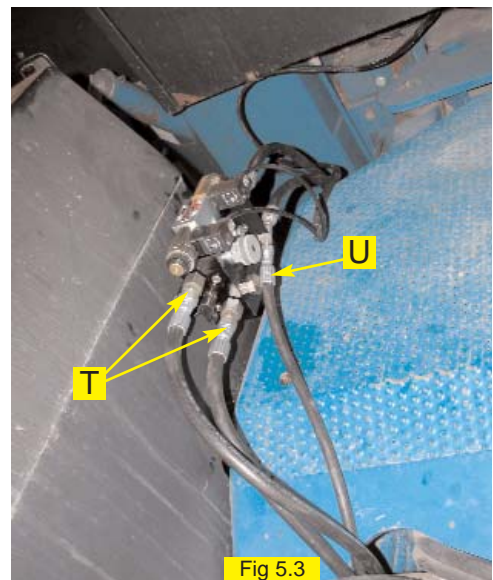
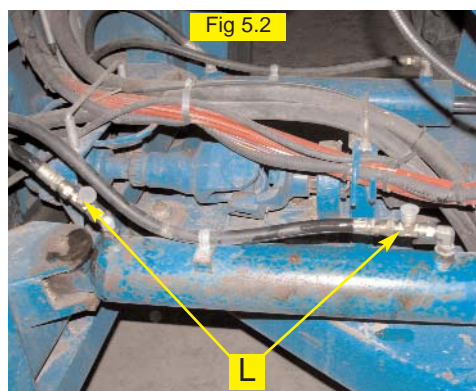
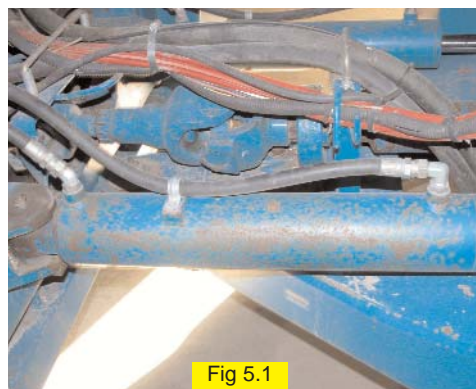


Fig 5.3

## 5. Install Steering Output Fittings:

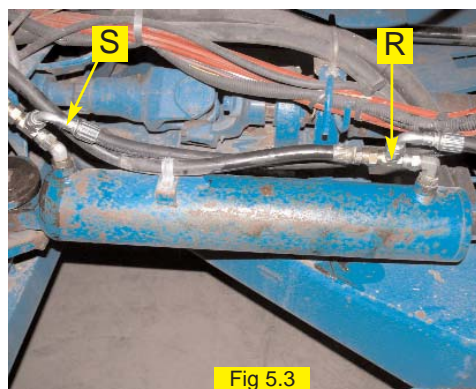
Locate the tractor steering lines on the left steering cylinder at the center of the tractor. (Figure 5.1) Install provided run-tees (**L**) into the lines attached to the rod and head ends of the left steering cylinder. (Figure 5.2)



## 6. Install Steering Output Hoses:

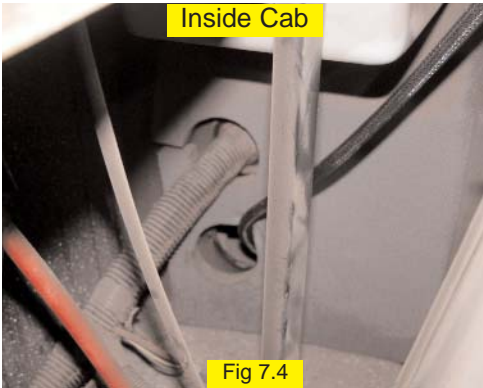
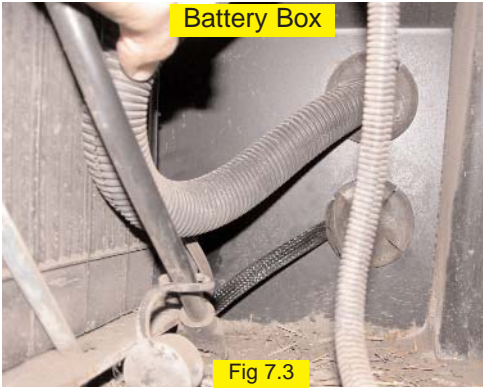
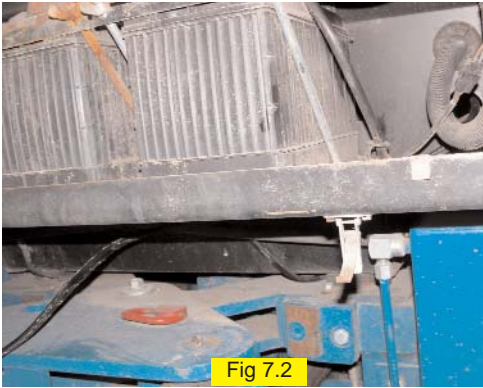
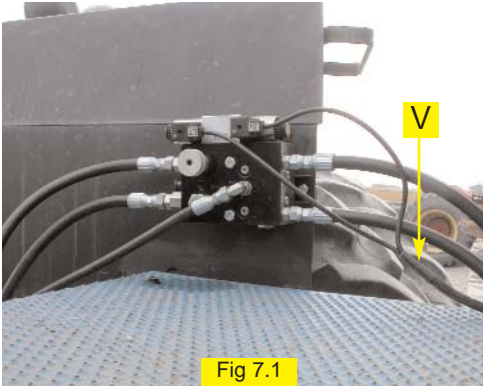
Install the provided steering output hoses (**R** and **S**) to the branches of the run-tees installed at the steering cylinder. (Figure 5.3) Route the output hoses back and up to attach to the **A** and **B** ports of the hydraulic control block. (Figure 5.4)

The hoses should be secured with heavy tie straps (provided) to prevent rubbing and entanglement with moving parts.



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

Connect the hydraulic valve control cable (V) to the hydraulic block and route into the cab. (Figure 7.1) The cable can be routed through the bottom of the battery box and into the cab through a cable grommet in the back, right, cab corner. (Figure 7.2, 7.3 and 7.4) Secure enough slack in the valve cable to allow for tractor articulation, use tie straps as needed.



## 8. Verify Operation and Set Steering Control Rate:

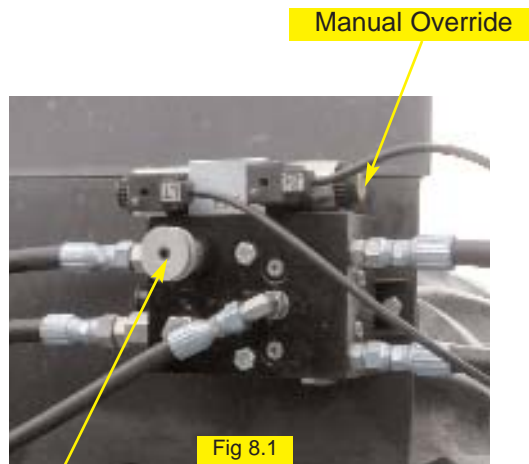
Cleanup the installation area around the machine and make certain that it is safe to operate. Start the machine and check hydraulic connections for any leaks. Rotate the steering wheel from one extreme to the other, and back.

Adjust the hydraulic oil flow control knob to a starting position of **2 1/2** turns from completely closed. (Figure 8.1) To adjust the knob, turn clockwise to reduce flow, counter-clockwise to increase flow. The knurled locking nut should be tightened against the cartridge face to maintain the desired setting.

The coils on the control block have manual push button overrides. Push either manual override to move the tractor wheels all the way to one extreme. Count the number of seconds for the tractor wheels to move all the way in the opposite direction while pressing the manual override of the other coil.

Adjust the hydraulic oil flow control to achieve an end to end steering cycle time of approximately **18** seconds.

**9. Complete Electronic Installation and Setup:** Refer to the owner's manual supplied with your automated steering system to complete the electronic installation and setup.



Flow Control

***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.*



**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.