Automated Steering Hydraulic Installation Kit

P/N: ED-VS5

Fits Versatile Tractor Models:

825	***925***
835	***935***
855	***945***
875	***955***
895	***975***

Overview

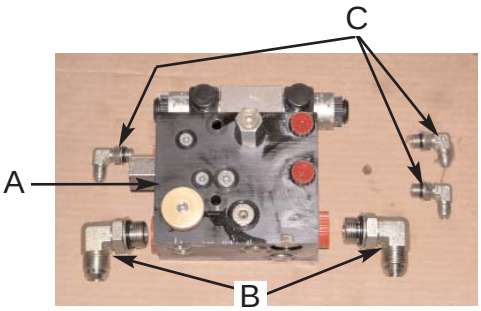
A series of equipment specific hydraulic installation kits have been developed to work in conjunction with your automated steering system. This kit contains the necessary components and instructions to install automated steering hydraulics on the Versatile tractor models listed above. Please read this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

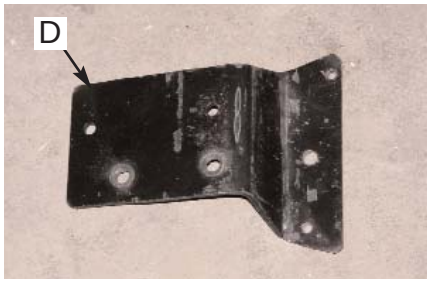
Tractor Preparation

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

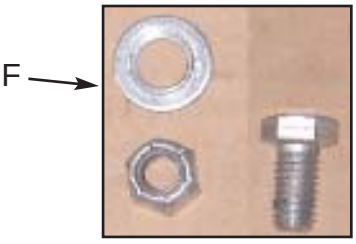
Kit Contents

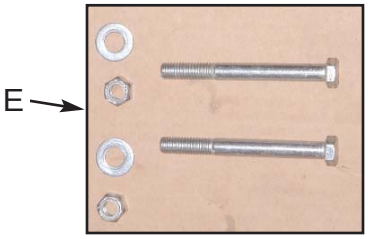
Unpack the installation kit and identify the required parts as shown.





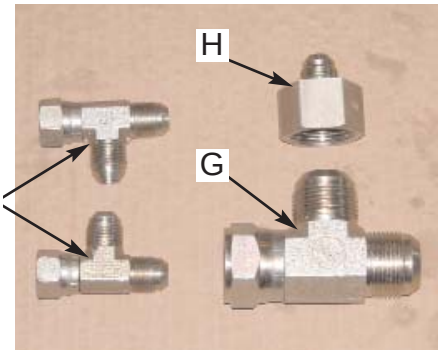
REF	P/N	QTY	DESCRIPTION
A	760-0007	1	Assy, Hyd. Valve Block - OC HF Low Range
	Bag #1 of 3 includes B & C		
B	760-2019	2	Adapter, Hyd. 90 El - #12mJIC x #12mORB
C	760-2058	3	Adapter, Hyd. 90 Elbow - #6maleJIC x #6maleORB
D	640-0042	1	Hyd. Block Mnt-Versatile Series 5
	Bag #2 of 3 includes E & F		
E	675-2006	2	Bolt - 3/8NC x 3-3/4" Gr5, ZP
	678-1054	2	Washer, Narrow Flat - 3/8" ZP
	676-1035	2	Nut, NyLock - 3/8NC ZP
F	675-2007	1	Bolt, 3/8NC x 3/4 Gr5 ZP
	678-1054	1	Washer, Narrow Flat - 3/4"OD x 13/32”ID x 1/16”thk ZP
	676-1035	1	Nut, NyLock - 3/8NC ZP

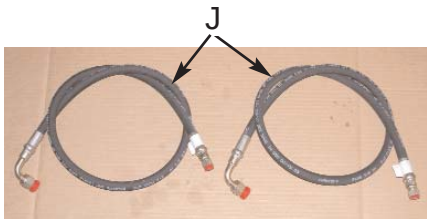




Kit Contents (cont.)

REF	P/N	QTY	DESCRIPTION
	Bag #3 of 3 includes G, H, & I		
G	760-2027	1	Adapter, Hyd. Run Tee - #16 JIC
H	760-2026	1	Adapter, Hyd. - #16femJIC x #8maleJIC
I	760-2077	2	Adapter, Hyd. Run Tee - #8 JIC
J	760-1179	2	Hose, Hyd. - 3/8x55”, #6fJIC x #8fJIC90
K	760-1181	1	Hose, Hyd. - 3/4x39”, #12fJIC x #12fJIC90
L	760-1180	1	Hose, Hyd. - 3/8x27”, #6fJIC x #8fJIC90
M	760-1182	1	Hose, Hyd. - 3/4x31”, #12fJIC x #16mJIC
N	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





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 elbow adapters **(C)** in the **T**, **A** and **B** ports. Install the larger elbows **(B)** in the **P** and **EF** ports of the hydraulic control block. (Figure 3.1)

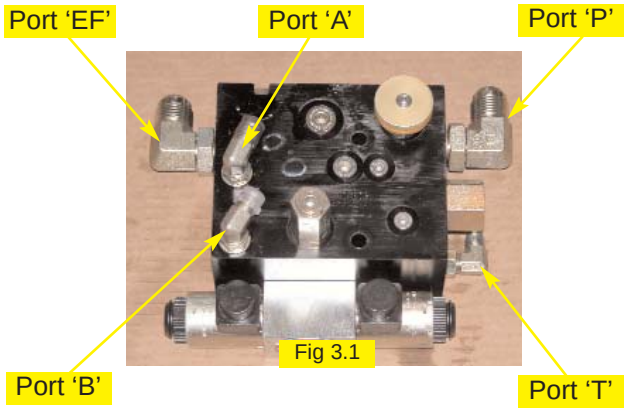


Fig 3.1

2. Mount Hydraulic Control Block:

Install the mounting bracket **(D)**, using the existing bolts, on the right rear corner of the cab. (Figure 3.2) After the bracket is installed, drill out the center hole of the bracket using a 7/16" drill bit. Secure the bracket using the hardware in group **(F)**. (Figure 3.3)

Use the provided mounting hardware in group **(E)** to attach the prepared hydraulic control block to the mounting bracket in the orientation shown. (Figure 3.4)

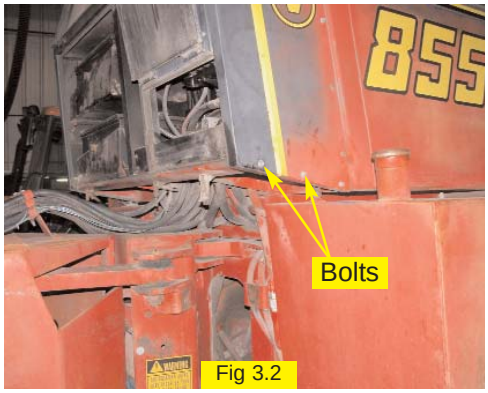


Fig 3.2

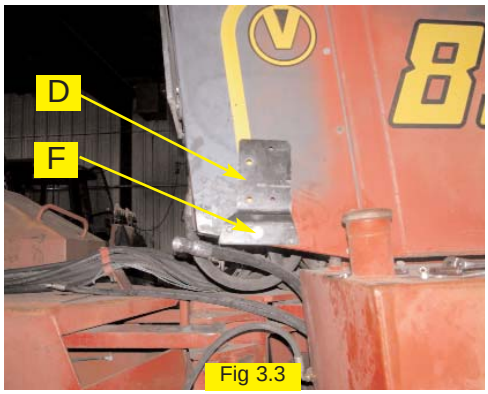


Fig 3.3

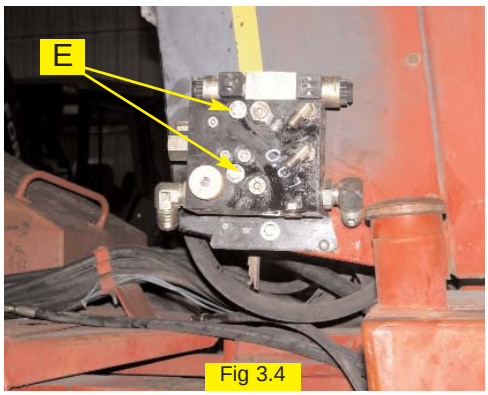


Fig 3.4

3. Pressure, Tank, and Excess Flow Connection Locations:

The hydraulic control block will be plumbed in series with the return line from hydraulic valve stack. Remove the rubber hydraulic line (this line will be replaced) that connects the valve stack to the oil cooler line. (Figure 4.1) Pressure will be supplied to the hydraulic block by the return flow from the tractor hydraulic valve stack. (Figure 4.2)

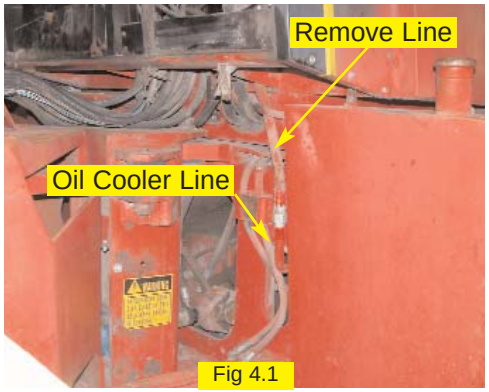


Fig 4.1

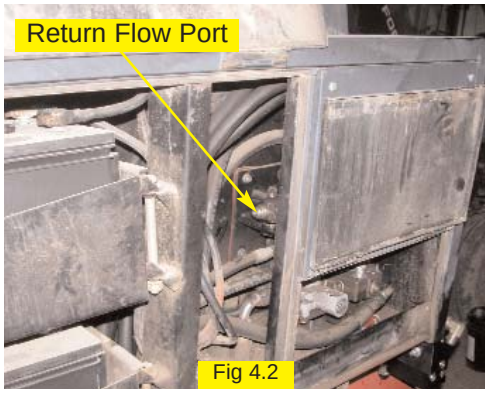


Fig 4.2

Excess flow and tank flow from the hydraulic control block will be returned to the oil cooler line. Install the provided run-tee **(G)** on the oil cooler line to allow for excess flow and tank flow connections. Install the reducer fitting **(H)** on the branch of the run-tee, as shown, to allow for the tank hose connection. (Figure 4.3)

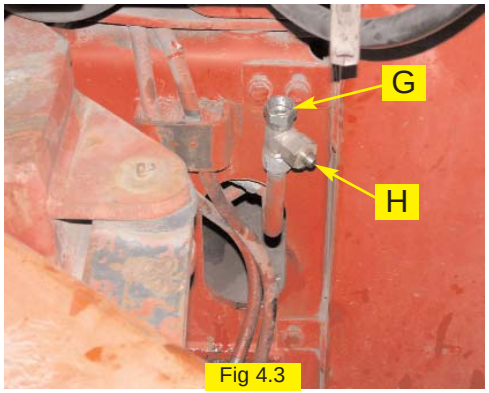


Fig 4.3

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

Install tank hose **(L)** between the **T** port of the hydraulic control block and the branch of the run-tee **(G** and **H)** installed in step **3**. (Figure 5.1and 5.2)

Connect the pressure hose **(K)** to the **P** port of the hydraulic control block and the hydraulic valve stack return port. (Figure 5.1 and 5.3) Route the pressure hose from the hydraulic control block to the valve stack through the original hole. (Figure 5.4)

Install the excess-flow hose **(M)** between the **EF** port of the hydraulic control block and the top of the run-tee **(G)** on the oil cooler line. (Figure 5.2)

Use heavy tie-straps, provided, to secure the hoses to the machine frame and away from moving parts. Tighten all hydraulic connections securely to prevent leaks. (Figure 5.4)

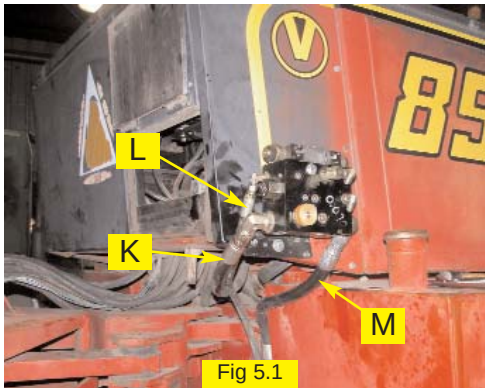


Fig 5.1

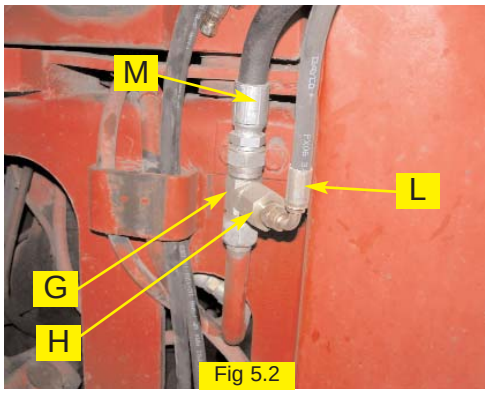


Fig 5.2

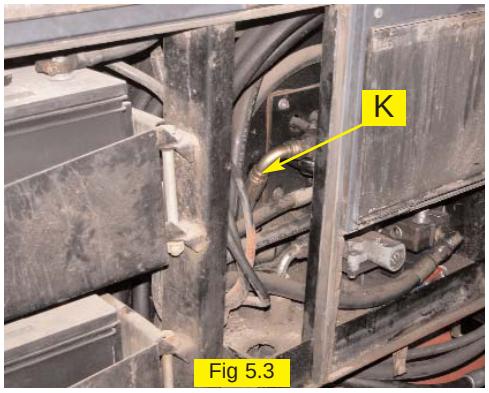


Fig 5.3

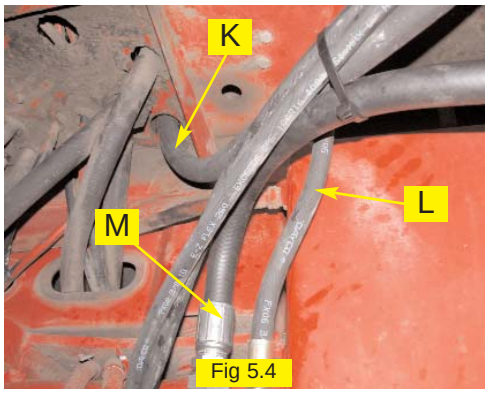


Fig 5.4

5. Install Steering Output Fittings:

Locate the steering lines on the right steering cylinder. (Figure 6.1) Install the provided run-tees **(I)** in the steering lines as shown. (Figure 6.2) Use plastic caps to prevent excess leakage from the open run-tee ports.

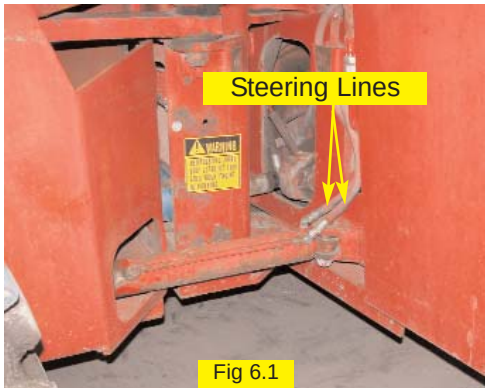


Fig 6.1

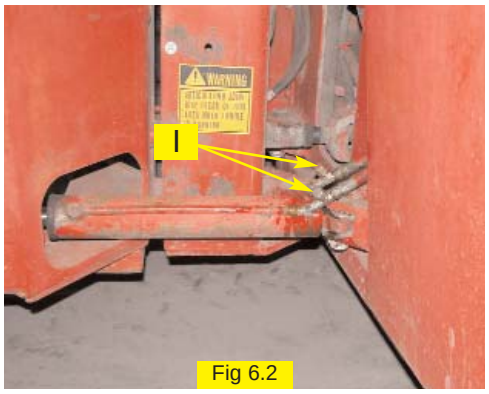


Fig 6.2

6. Install Steering Output Hoses:

Install the provided steering output hoses **(J)** between the run-tees installed in step **5** and the **A** and **B** ports of the hydraulic control block. (Figure 6.3) Attach hose ends equipped with 90-degree elbows to the run-tees and attach the straight hose ends to the hydraulic control block. Route hoses with existing steering lines as shown. (Figure 6.4) Use the heavy tie-straps provided to secure the hoses away from moving parts.

Note: *Make sure all hoses clear the articulation joint when the tractor steering is cycled completely in both directions.*

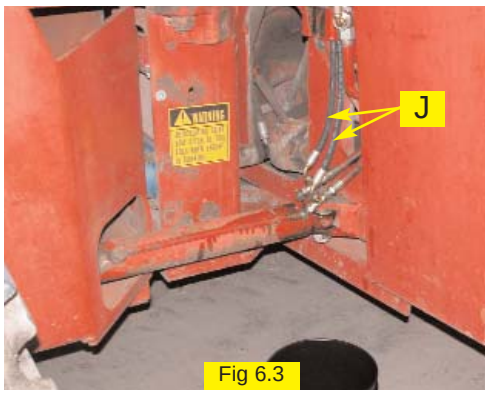


Fig 6.3

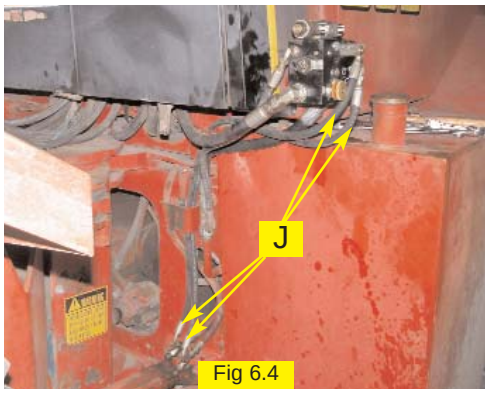


Fig 6.4

7. Install the Valve Control Cable:

Install the hydraulic valve control cable **(N)** at the hydraulic block by attaching the DIN connectors to the coils. (Figure 7.1)

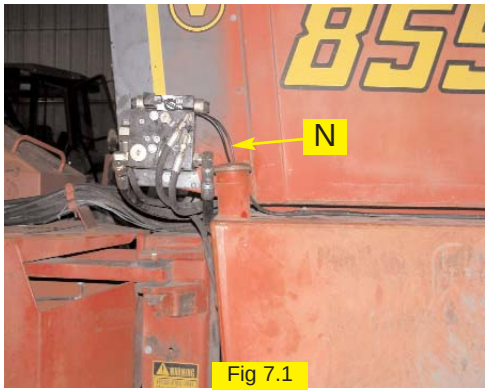


Fig 7.1

Route the cable on top of the fuel tank then through the right side window. (Figure 7.2) Secure the cable using the provided tie straps as necessary.

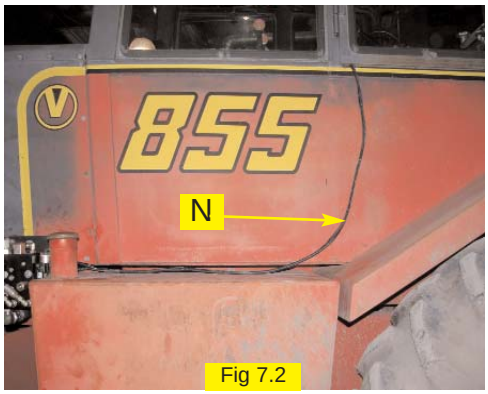
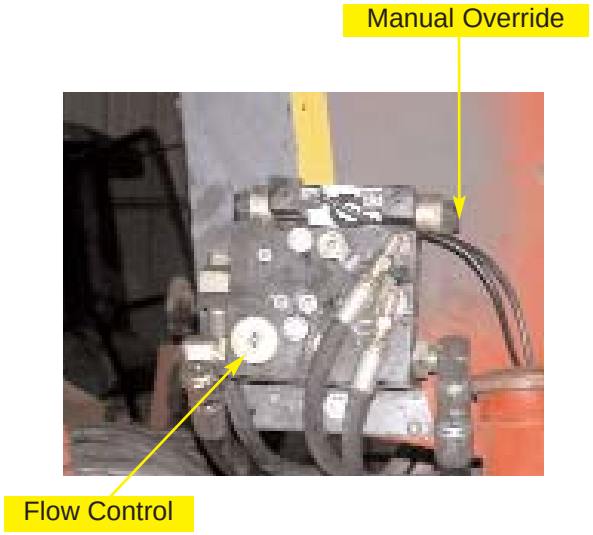


Fig 7.2

9. Verify Operation and Set Steering Control Rate:

Cleanup the installation area around the tractor and make certain that it is safe to operate. Start the tractor 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 **2.5 turns** from completely closed. To adjust the knob, turn clockwise to reduce flow, counter-clockwise to increase flow. (Figure 8.1)



Your automated steering electronic system is equipped with a **Steering Adjust** (Valve Test) function. Use the **Steering Adjust** (Valve Test) function in your automated steering system 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 using the **Steering Adjust** (Valve Test).

Adjust the hydraulic oil flow control to achieve an end to end steering cycle time of approximately **22 seconds**. Use the knurled locking nut to secure the final flow control setting.

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.

10. Complete Electronic Installation and Setup:

Refer to the owner's manual supplied with your automated steering system to complete the electronic installation and setup.