

Automated Steering Hydraulic Installation Kit

P/N: ED-AP780

Fits Apache Sprayer Models:

760

780

790

850

(2001-2003)

(2004)



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 automated steering on the Apache sprayer models listed above. Please read this manual thoroughly before beginning the installation.

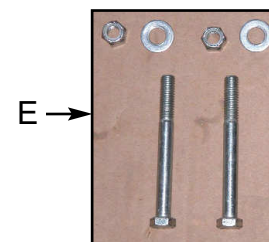
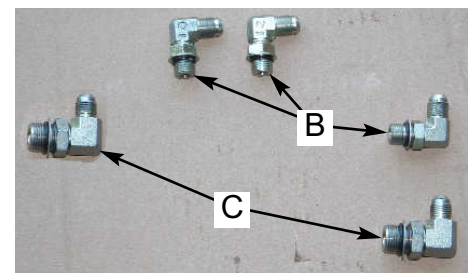
Machine Preparation

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

Kit Contents

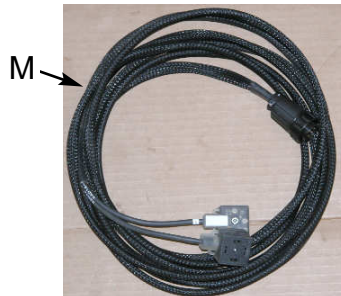
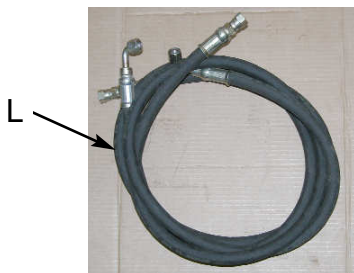
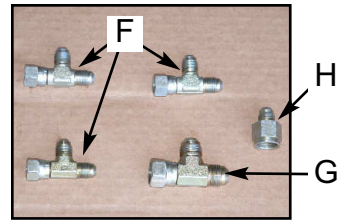
Unpack the installation kit and identify the required parts as shown.

REF	P/N	QTY	DESCRIPTION
A	760-0005	1	Assy, Hyd. Valve Block - OC (Low Flow)
Bag #1 of 3 includes B & C			
B	760-2058	3	Adapter, Hyd. 90 Elbow - #6maleJIC x #6maleORB
C	760-2061	2	Adapter, Hyd. 90 Elbow - #6maleJIC x #8maleORB
D	640-0005	1	Hyd. Block Mnt, CMX/AP780
Bag #2 of 3 includes E			
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



Kit Contents (cont.)

REF	P/N	QTY	DESCRIPTION
Bag #3 of 3 includes F, G, & H			
F	760-2054	3	Adapter, Hyd. Run Tee - #6 JIC
G	760-2077	1	Adapter, Hyd. Run Tee - #8 JIC
H	760-2065	1	Adapter, Hyd. - #8 femJIC x #6 maleJIC
I	760-1093	1	Hose, Hyd. - 3/8" x 38", #6femJICswivel both ends
J	760-1094	1	Hose, Hyd. - 3/8" x 15", #6femJICswiv x #6maleJIC
K	760-1095	1	Hose, Hyd. - 3/8" x 111", #6femJICswiv x #6femJICswiv90EL
L	760-1096	2	Hose, Hyd. - 1/4" X 70", #6femJICswiv x #6femJICswiv90EL
M	051-0144	1	Cable, Hyd. Valve 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:

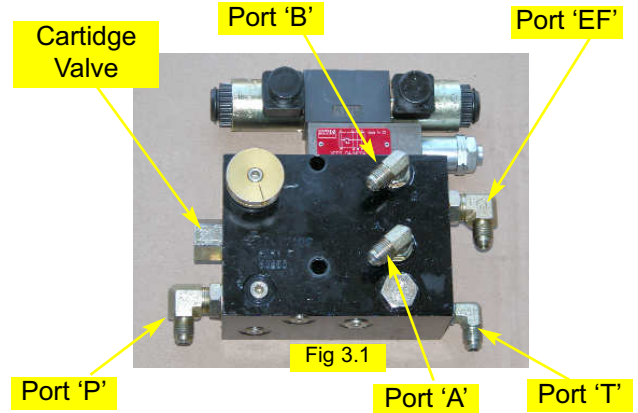
PREVENT HYDRAULIC SYSTEM CONTAMINATION. It is essential to thoroughly clean hydraulic system fittings and hose connections prior to disconnecting or removing. Use a spray cleaner such as 'Brake Clean' to prevent hydraulic system contamination. Note that o-rings used on ORB and ORFF type fittings may 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. Install elbows (**B**) into the **T**, **A**, and **B** ports of the hydraulic control block. Install elbow-fitting (**C**) into the **P** and **EF** ports of the hydraulic control block. (Figure 3.1)

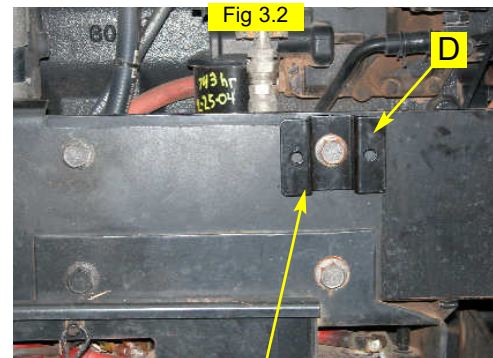
Note: To install the elbow fitting into the **P** port of the hydraulic block, the cartridge valve must be removed from the end of the block. Remove the cartridge, install the elbow, and reinstall the cartridge.



2. Mount Hydraulic Control Block:

Locate the four bolts above the battery box on the right side of the machine frame. Remove the top right bolt and install the mounting bracket (**D**) as shown. (Figure 3.2)

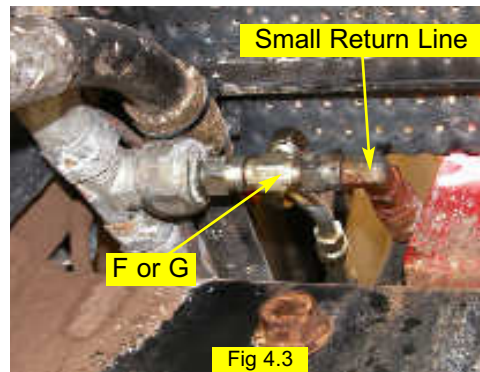
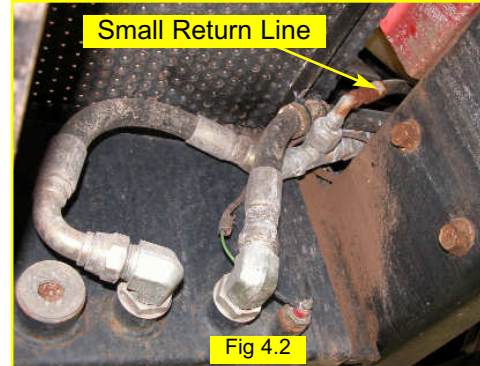
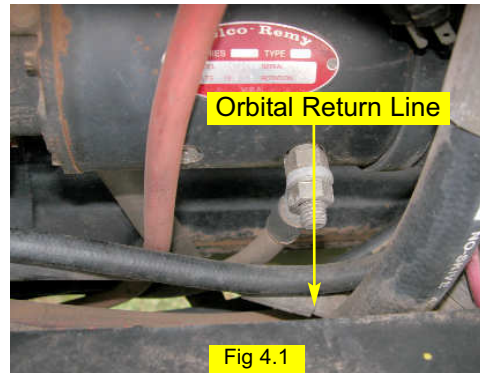
Using the provided mounting hardware in group (**E**) attach the prepared hydraulic block to the mounting bracket in the orientation shown. (Figure 3.3)



3. Install Pressure, Tank, and Excess Flow Fittings and Note Connection Locations:

The hydraulic control block will receive pressure from the return line coming from the steering orbital. This line will be disconnected from the run-tee in the oil cooler line below the starter and connected to the **P** port of the hydraulic control block via a jumper hose. (Figure 4.1)
Excess flow, port **EF**, from the hydraulic control block will be returned to the run-tee in the oil cooler line below the starter.

The hydraulic return oil flow, port **T**, will be returned to the hydraulic tank on the left side of the machine. Remove the small return line from run-tee on the backside of the hydraulic tank and install the provided run-tee (**F**). Reattach the return line to the end of the run-tee. Use plastic caps to prevent excess leakage. Some machines will require the larger run-tee (**G**) and reducer fitting (**H**) to attach the hydraulic return line. (Figure 4.2 and 4.3)

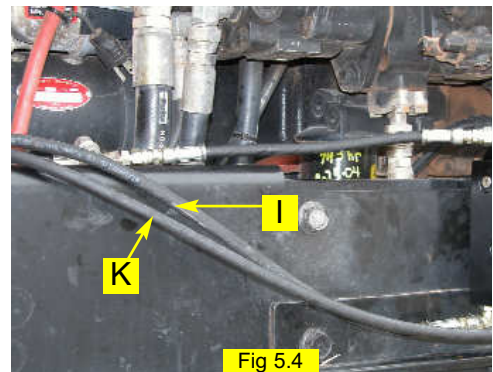
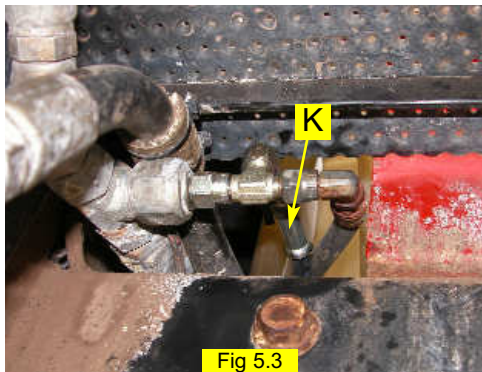
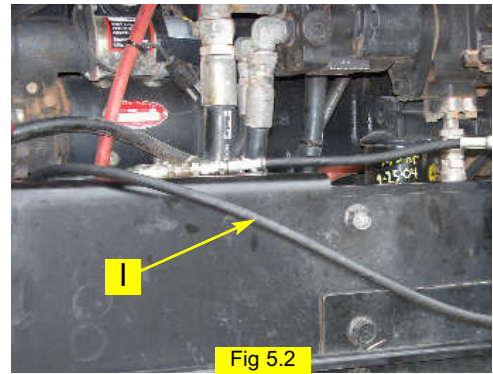
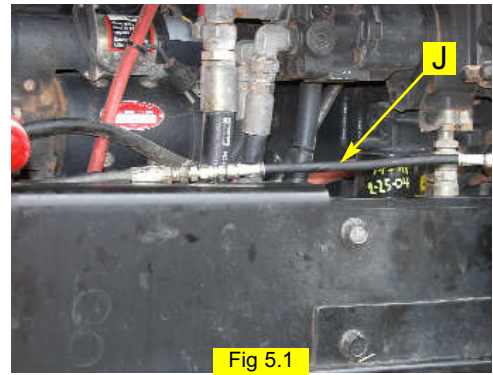


4. Install Pressure, Tank, and Excess Flow Hoses:

Disconnect the steering orbital return line from the run-tee below the starter. Connect the provided pressure hose (**J**) between the **P** port of the hydraulic block and the orbital return line. (Figure 5.1) Install the provided excess flow hose (**I**) between the **EF** port of the hydraulic block and the run-tee in the oil cooler line, below the starter. (Figure 5.2)

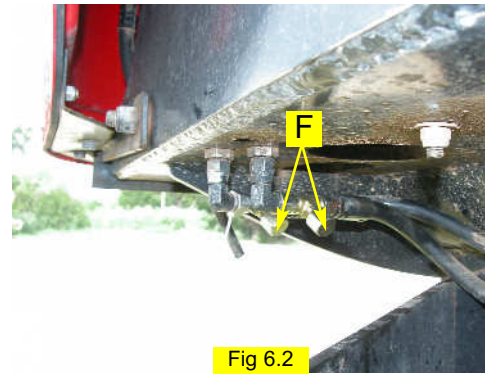
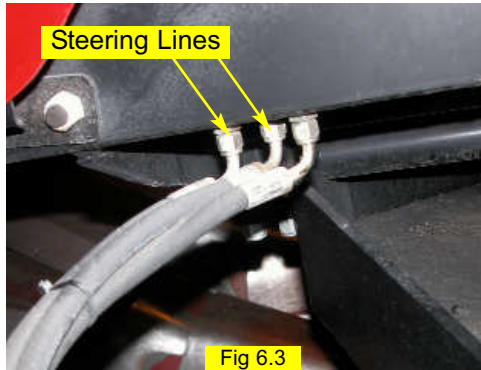
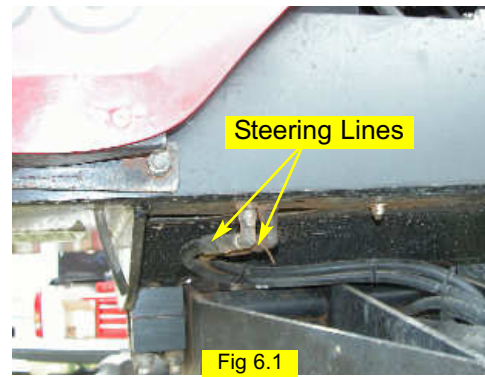
Route the tank hose (**K**) along with other machine plumbing back along the right side of the frame and across to the hydraulic tank. (Figure 5.3) Connect the hydraulic tank hose (**K**) between the **T** port of the hydraulic control block and the branch of the run-tee installed at the hydraulic tank in step 3. (Figure 5.3 and 5.4)

Be sure all hoses are routed for problem free operation and clear from moving parts. Secure hoses with the provided heavy tie straps.



5. Install Steering Output Fittings:

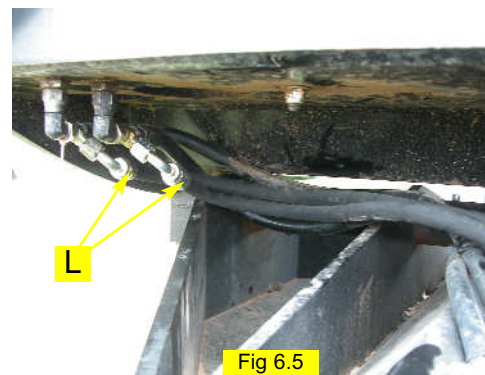
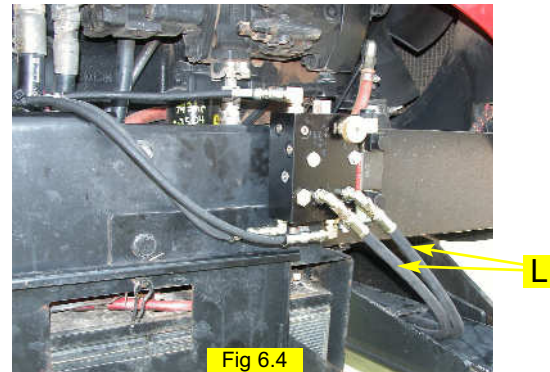
Locate the machine steering lines coming from underneath the frame on the left side near the front axle. (Figure 6.1) Install the provided run-tee fittings (**F**) in both right and left steering lines as shown. (Figure 6.2) Use plastic caps to prevent excess leakage from the open run-tees. Be sure run-tees (**F**) are installed in the two front lines on machines equipped with 3 lines in the shown location (Figure 6.3).



6. Install Steering Output Hoses:

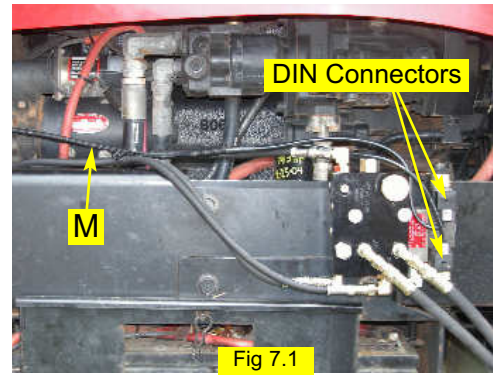
Install the provided steering output hoses (**L**) between the run-tees at the steering lines and the **A** and **B** ports of the hydraulic control block. Hoses should be routed with other machine plumbing across the front axle. Leave enough slack in the hoses to allow for suspension articulation. (Figure 6.4 and 6.5)

Be sure all hoses are routed for problem free operation and clear from moving parts. Secure hoses with the provided heavy tie straps.



7. Install the Valve Control Cable:

Install the hydraulic valve control cable (**M**) at the hydraulic block by attaching the DIN connectors to the coil. (Figure 7.1) Route the cable back to the cab and up into the right side window seal. (Figure 7.2) Secure the cable using the provided tie straps as necessary.



8. Verify Operation and Set Steering Control Rate:

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

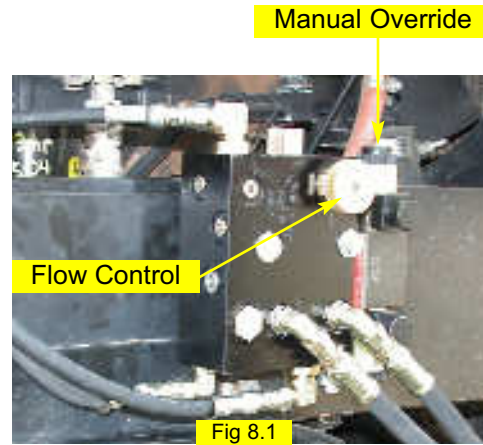
Adjust the hydraulic oil flow control knob to a starting position of **3 turns** from completely closed. To adjust the knob, turn clockwise to reduce flow, counter-clockwise to increase flow. The knurled locking nut should be tightened against the cartridge face to maintain desired setting.

The coils on the control block have manual push button overrides. Push either manual override to move the sprayer steering linkage all the way to one extreme. Count the number of seconds for the sprayer steering linkage to move all the way in the opposite direction while pressing the manual override of the other coil. (Figure 8.1)

Adjust the hydraulic oil flow control knob to achieve an end to end steering cycle time of approximately **14 seconds**.

11. Complete Electronic Installation and Setup:

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



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.