

# FIELDPILOT<sup>®</sup>

## USER MANUAL

Assisted Steering Hydraulic Installation Manual for  
Vehicle Kit Number 91-02272, 91-02294  
Fits Only John Deere 6x10, 6x20, 7x10, and 7x20 SF



A Subsidiary of  Spraying Systems Co.<sup>®</sup>

## FIELDPILOT®

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## PREPARATION

1. Before beginning the installation, thoroughly clean the vehicle to remove dirt and contaminants that might get into the hydraulic circuit.
2. Park the vehicle on a clean, level floor with adequate clearance to work around.
3. Do not attempt to loosen any hydraulic fittings while the engine is running.
4. Allow the motor and the hydraulics to cool until it is no more than warm to the touch before proceeding.
5. Prior to loosening any hydraulic fittings, be sure to have the appropriate plugs and caps available in order to limit loss of hydraulic fluid from the open fittings.



**PREVENT HYDRAULIC SYSTEM CONTAMINATION.** It is essential to thoroughly clean hydraulic system fittings and hose connections prior to disconnecting or removing them. 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.

### **IMPORTANT!**

**TO AVOID EXCESS LEAKAGE, DO NOT TURN THE STEERING WHEEL WHILE THE FITTINGS ON THE MANUAL STEERING VALVE ARE DISCONNECTED.**



**WARNING: HOT, HIGH PRESSURE FLUID HAZARD.** Hydraulic oil may be hot and under extreme pressure. To prevent serious injury or death, relieve system pressure and allow the system 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 practice while manually operating hydraulic steering circuits. Keep others away and stay clear of mechanical steering linkages.



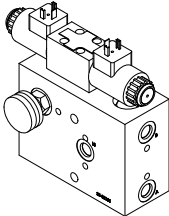
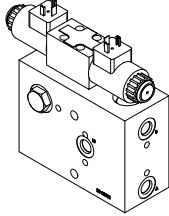






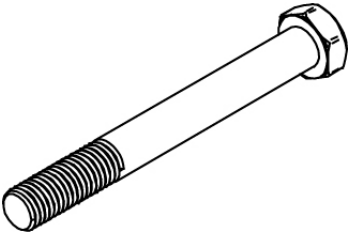


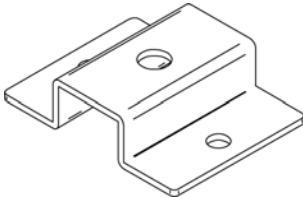
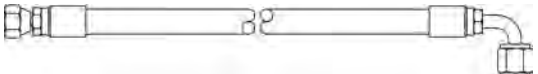

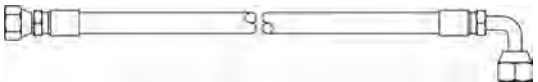
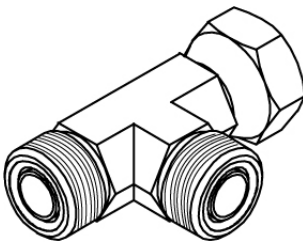
## KIT CONTENTS

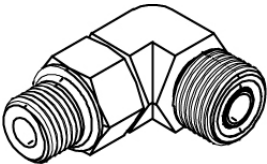
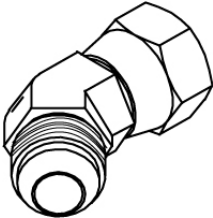

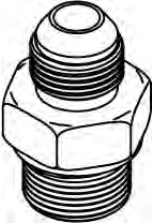
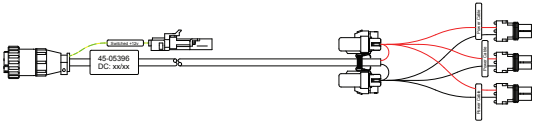
Unpack the installation kit and identify the required parts.

Item	Part Number	Description	Quantity
A	32-04040	Switch, Engage/Disengage.....	1
B	350-0037	Washer, Flat, 3/8" SST.....	2
C*	35-02151	Valve, FieldPilot, CC LS.....	1
C*	35-02180	Valve, FieldPilot, CC LS, PWM.....	1
D	45-05690	Cable, Sensor EXT. 5'.....	2
E	45-07703	Harness, SCM.....	1
F	45-10103	Harness, Valve.....	1
G	60-01018	Washer, Flat, 1/2" SST.....	1
H	60-04087	Bolt, Hex- 3/8-16 x 3-1/4" SST.....	2
I	60-04114	Bolt, Hex, M12 -1.75 x 45mm SST.....	1
J	60-07027	Nut, NyLock 3/8-16, SST.....	2
K	65-05162	Bracket, Hyd Block Mnt.....	1
L	68-01217	Hose, Hyd - 3/8" x 100, #6FORF x #8FJIC 90°.....	2
M	68-01218	Hose, Hyd - 3/8" x 22", #6FORF x #8FORF 90°.....	2
N	68-01219	Hose, Hyd - 1/4" x 80", #6FORF x #6FORF 90°.....	1
O	68-02026	Adapter, Hyd Run Tee - #8 ORF.....	2
P	68-02074	Adapter, Hyd 90° - #6MORF x #6MORB.....	5
Q	68-02092	Adapter, Hyd 45° - #8MJIC x #8FJIC.....	1
R	68-02118	Adapter, Hyd - 14mmMORB to #6MORF.....	1
S	68-02133	Adapter, Hyd - #8MJIC x M22 x 1.5 Male x 15mm tube.....	2
T	90-50013	Cable Tie Kit, 15.....	1
U	91-07011	Steering Wheel Switch Kit.....	1
V	98-05189	Installation Manual, JD 6x20, 7x20 SF.....	1
W	45-05396	Power Cable, 3 POS AMP.....	1

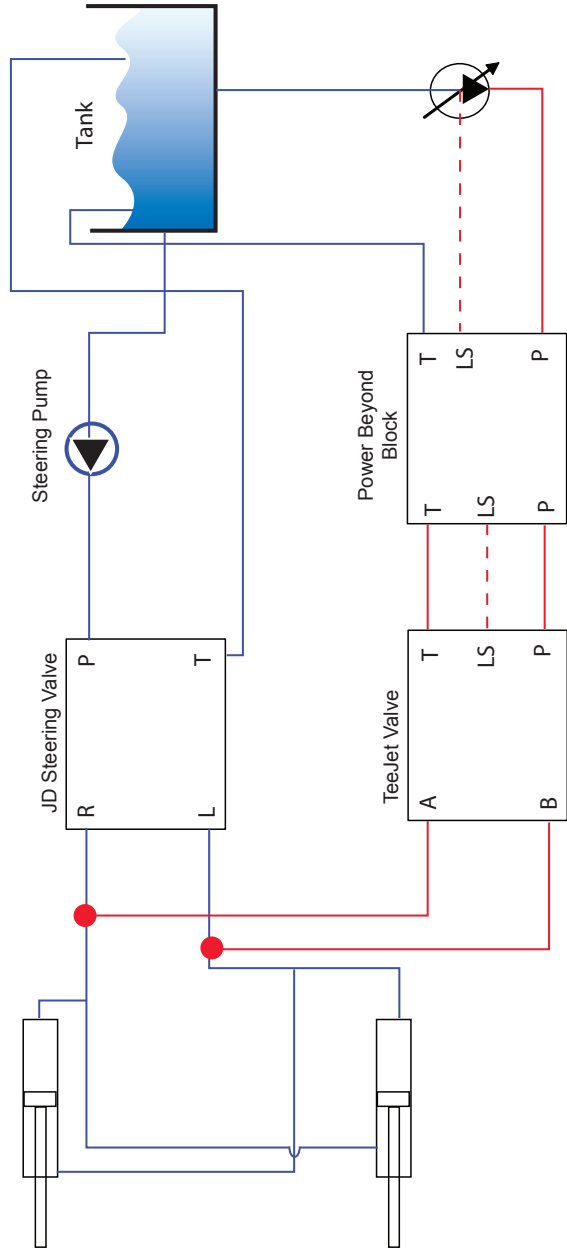
\* The valve included depends upon which vehicle kit was ordered. Item Illustrations

Item	Part #	Description	Illustration
A	32-04040	Switch, Engage/Disengage	
B	350-0037	Washer, Flat, 3/8" SST	
C*	35-02151	Valve, FieldPilot, CC LS	
C*	35-02180	Valve, FieldPilot, CC LS PWM	
D	45-05690	Cable, Sensor EXT. 5'	
E	45-07703	Harness, SCM	
F	45-10103	Harness, Valve	
G	60-01018	Washer, Flat, 1/2" SST	

Item	Part #	Description	Illustration
H	60-04087	Bolt, Hex- 3/8-16 x 3-1/4" SST	
I	60-04114	Bolt, Hex, M12 -1.75 x 45mm SST	
J	60-07027	Nut, NyLock 3/8-16, SST	
K	65-05162	Bracket, Hyd Block Mnt	
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M	68-01218	Hose, Hyd - 3/8" x 22", #6FORF x #8FORF 90°	
N	68-01219	Hose, Hyd - 1/4" x 80", #6FORF x #6FORF 90°	
O	68-02026	Adapter, Hyd Run Tee - #8 ORF	

Item	Part #	Description	Illustration
P	68-02074	Adapter, Hyd 90° - #6MORF x #6MORB	
Q	68-02092	Adapter, Hyd 45° - #8MJIC x #8FJIC	
R	68-02118	Adapter, Hyd - 14mmMORB to #6MORF	
S	68-02133	Adapter, Hyd - #8MJIC x M22 x 1.5 Male x 15mm tube	
T	90-50013	Cable Tie Kit, 15	
U	91-07011	Steering Wheel Switch Kit	
V	98-05189	Installation Manual, JD 6x20, 7x20 SF	
W	45-05396	Power Cable, 3 POS AMP	

\* The valve included depends upon which vehicle kit was ordered. Hydraulic Diagram





## INSTALLATION



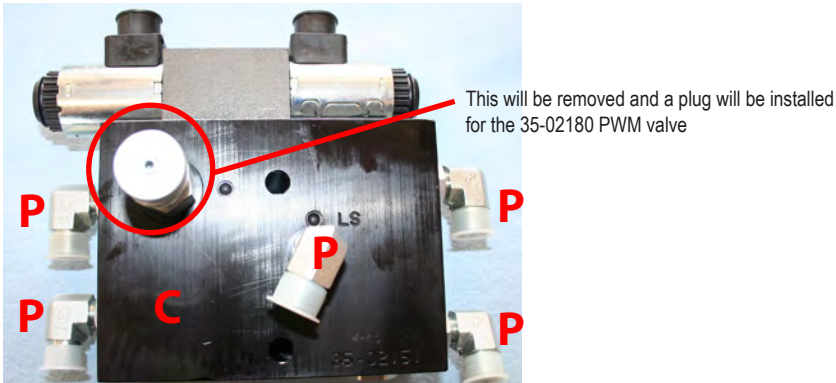
If there are questions concerning the installation of the FieldPilot system on this vehicle, or due to the changes in component specifications the parts supplied in the kit are not exactly as presented in this document, please contact your dealer or TeeJet Customer service representative for clarification before installation. TeeJet Technologies is not responsible for misuse or incorrect installation of the system.

**NOTE: BE VERY CAREFUL TO ABSOLUTELY SECURE ALL CABLES AND HOSES SO THAT THEY DON'T INTERFERE WITH THE MANY MOVING PARTS OF THE MACHINE!**

### 1. PREPARE THE FIELDPILOT VALVE

Install adapter (P) in the P, T, A, B and LS ports of the FieldPilot valve (C).

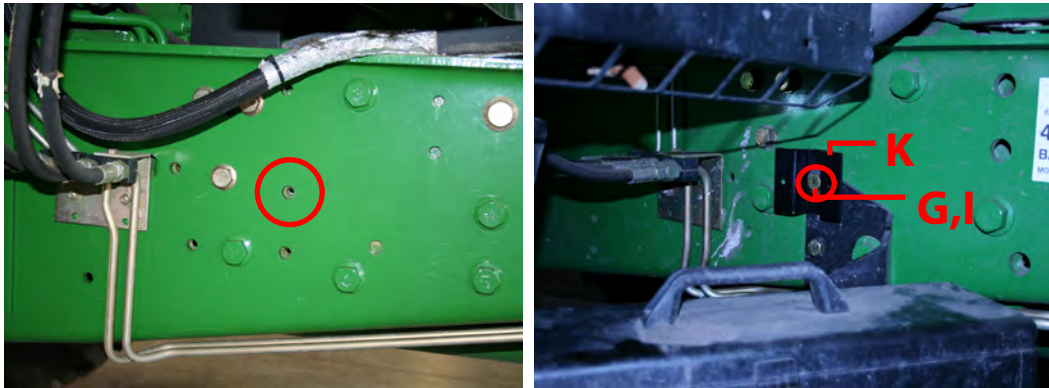
*Figure 1-1: Prepare FieldPilot Valve*



## 2. INSTALL FIELDPILOT VALVE MOUNTING BRACKET

Locate the hole with the threaded insert located on the right side of the machine below the front of the cab. On some models this threaded insert is used to mount the tool box bracket. Use either the existing bolt or the included hardware (**G and I**) to mount the bracket (**K**) as shown.

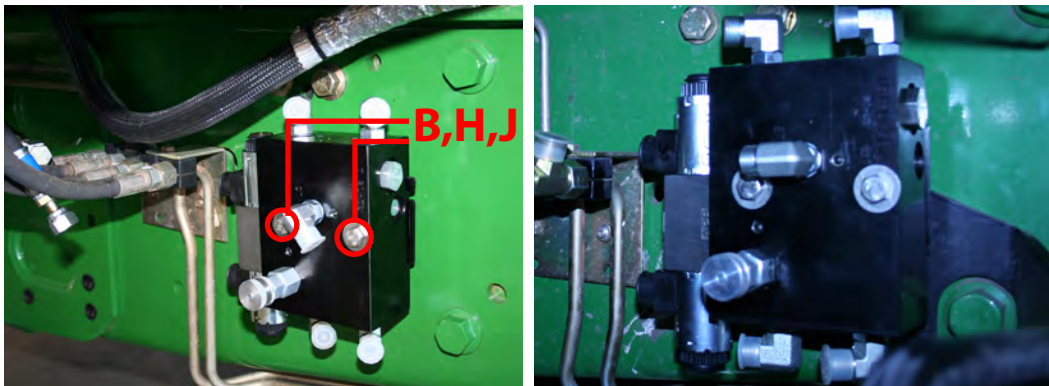
Figure 1-2: Install FieldPilot Valve Mounting Bracket



## 3. INSTALL FIELDPILOT VALVE

Using hardware (**B, H, and J**) to mount the FieldPilot valve (**C**) to the bracket (**K**).

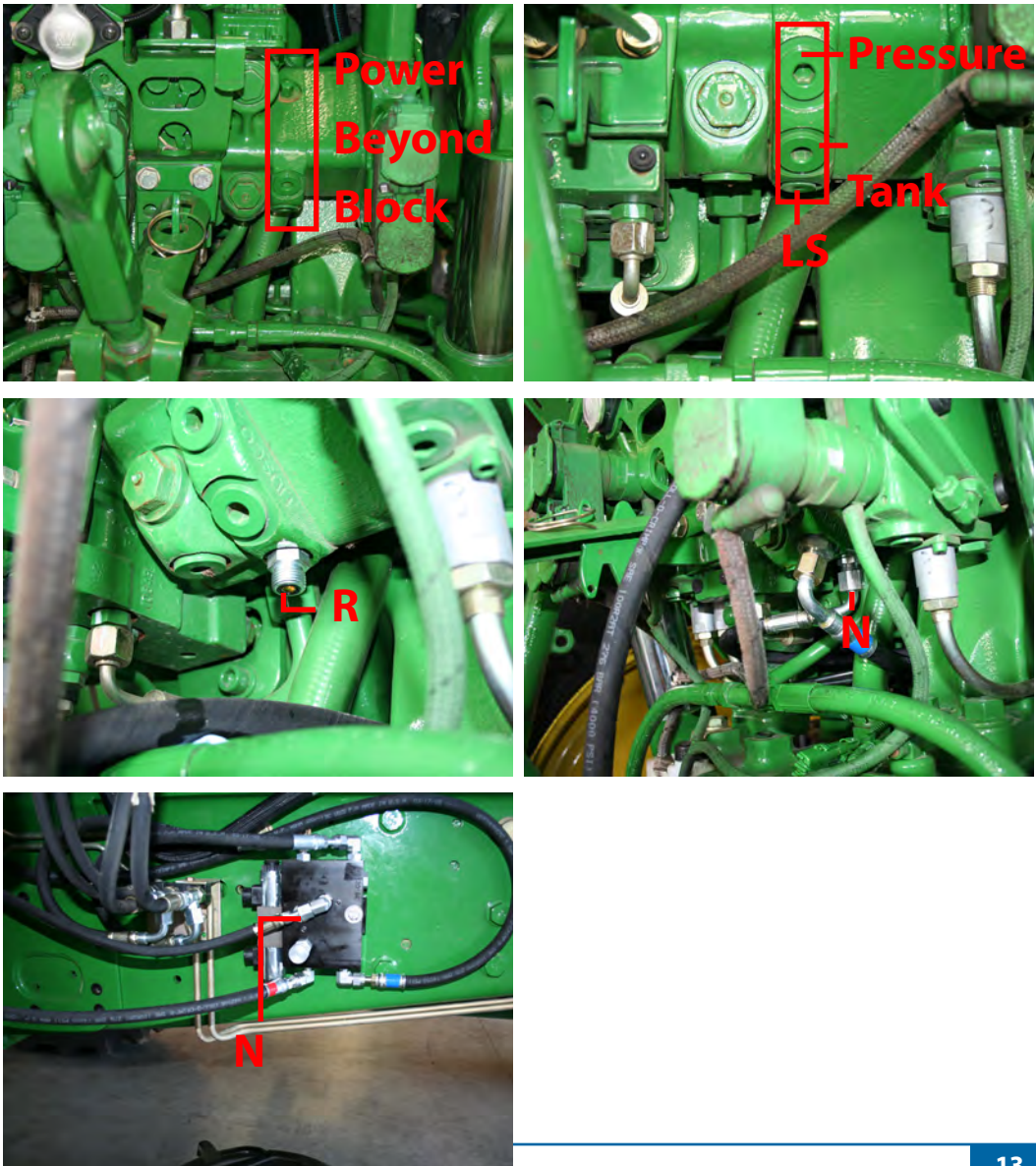
Figure 1-3: Install FieldPilot Valve



#### 4. INSTALL LOAD SENSE HOSE AND ADAPTER

Locate the Power Beyond block on the rear of the machine and then locate the smaller plug on the bottom of this block. This is the LS port. Remove the plug and install adapter (R). Then install and route hose (N) from adapter (R) to the LS port on the FieldPilot valve.

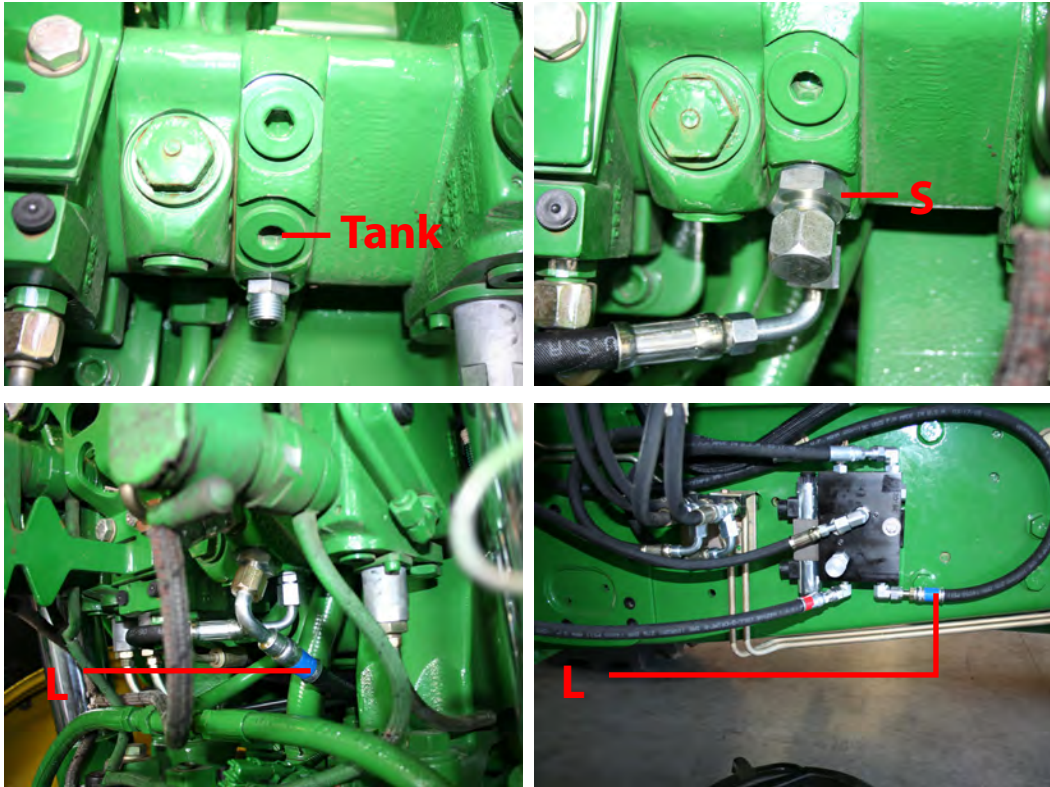
Figure 1-4: Install Load Sense Hose and Adapter



## 5. INSTALL TANK HOSE AND ADAPTER

Locate the larger plug just above the LS port from step 4. Remove the plug and install adapter (S). Then install and route hose (L) from adapter (S) to the T port on the FieldPilot valve.

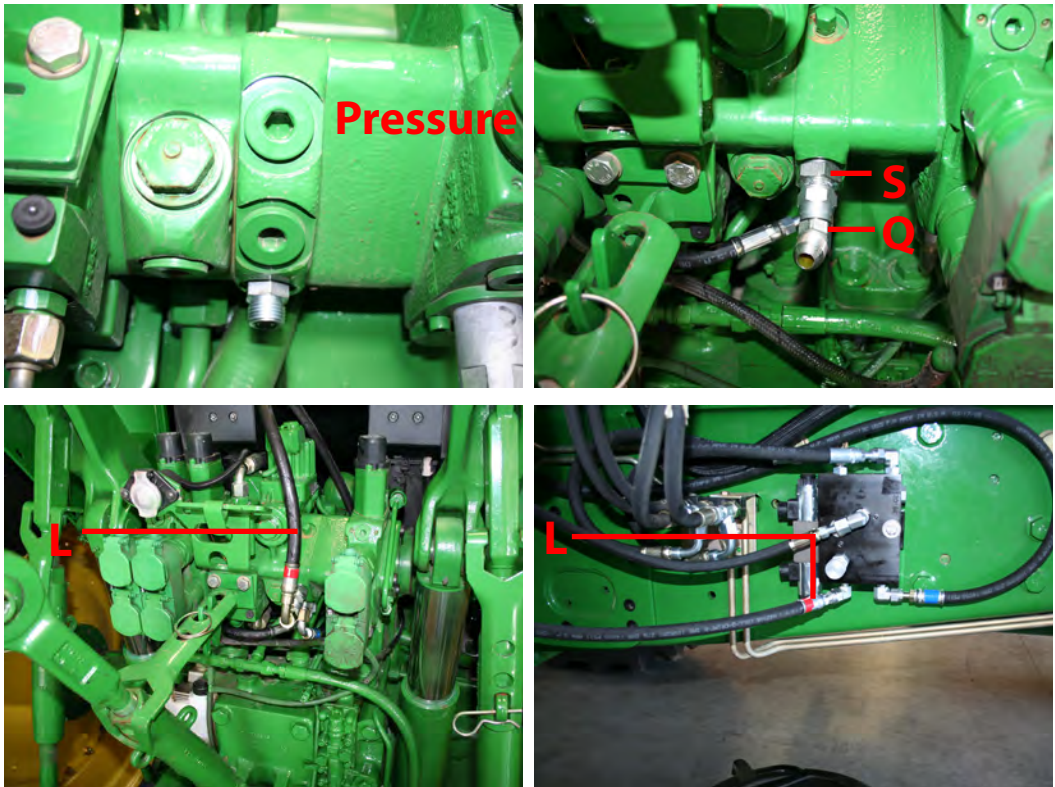
Figure 1-5: Install Tank Hose and Adapter



## 6. INSTALL PRESSURE HOSE AND ADAPTERS

Locate the plug above the Tank plug from step 5. Remove the plug and install adapter (S), and then install adapter (Q) onto adapter (S). Then install and route hose (L) from adapter (Q) to the P port on the FieldPilot valve.

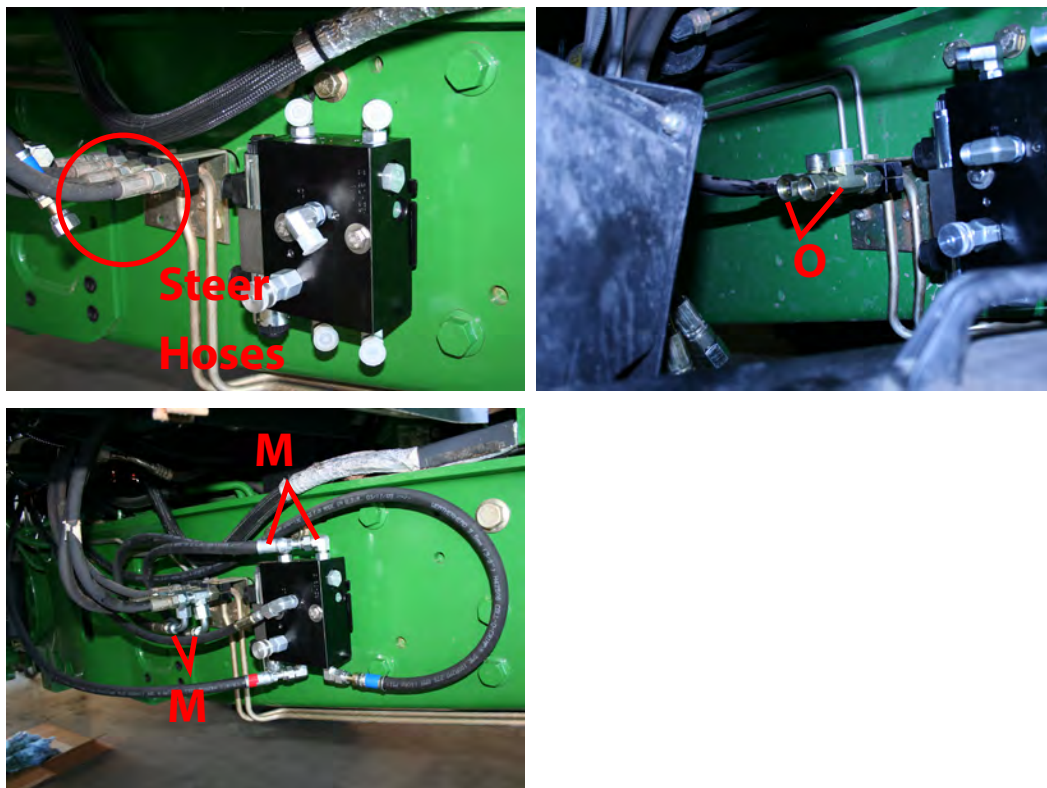
Figure 1-6: Install Pressure Hose and Adapters



## 7. INSTALL STEER HOSES AND ADAPTERS

Just rearward from the FieldPilot valve machine steering hoses connect to steering lines. Disconnect the hoses (label them first) from the lines and install run tees (O). Then reconnect the original hoses to the run of the tees (O). Then install hoses (M) from the branch of the tees to the A and B ports of the FieldPilot valve.

Figure 1-7: Install Steer Hoses and Adapters



## 8. INSTALL STEERING DISENGAGE SENSOR

The steering disengage kit (**U**) is used to automatically disengage FieldPilot when the steering wheel is turned. The magnets mount on the steering shaft or other rotating part of the steering wheel and the sensor mounts so that there is a 1/8" clearance between the sensor and magnet.

*Figure 1-8: Install Steering Disengage Sensor*



## 9. INSTALL STEERING ENGAGE/DISENGAGE SWITCH

Connect item (A) to the connector on the SCM harness labeled Remote Engage/Disengage. Install the push button switch in a location that is easily accessible during operation of the machine. Optional foot switch 32-04020 can be used in place of switch (A) if desired.

*Figure 1-9: Install Steering Engage/Disengage Switch*

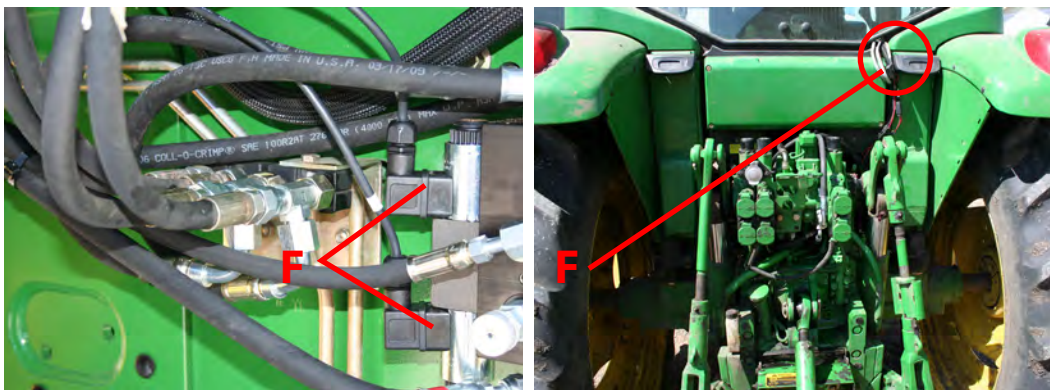
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## 10. INSTALL VALVE CONTROL CABLE

The valve control cable (F) will connect to the solenoids on the FieldPilot valve and will route into the rear of the cab.

*Figure 1-10: Installation Valve Control Cable*



## 11. RECOMMENDED ELECTRONICS INSTALLATION

The Steering Control Module (SCM) should be mounted securely to the floor of the cab. The control console can be mounted to the operator's preference. The GPS antenna should be mounted as far forward as possible on top of the cab on a metal surface of at least 4" square.

Figure 1-11: Figure 1-13: Recommended Electronics Installation



## 12. VERIFY OPERATION OF HYDRAULICS AND SET THE STEERING CONTROL RATE

Clean and pick up the area around the vehicle and make certain that it is safe to operate. Start the engine and check hydraulic connections for leaks. Rotate the steering wheel from one extreme to the other and back to center, check for leaks. While steering through the extremes of movement, check the cables and hoses for wear points and strain, adjust as necessary.

**If using a Matrix™ series console and PWM control, then the oil flow adjustment is accomplished through the console. Refer to the Matrix user guide for further instructions.**

**Adjust the hydraulic oil flow control knob on the FieldPilot valve to a starting position of 2½ turns from completely closed.** Adjust the oil flow by turning the knob clockwise to reduce flow (increase seconds) and counter-clockwise to increase flow (decrease seconds).

Use the electronic steering control console to perform the left to right steering test, counting the seconds to move the wheels from full left to full right and also in the opposite direction. It is a good idea to have the vehicle moving forward very slowly during these tests so there is not excessive side pressure on the tires. If you find that the machine steers in the opposite direction from that being commanded in this steering test sequence, switch the valve connectors at the FieldPilot valve coils.

Do this a number of times, adjusting the oil flow between tests, until a lock to lock steering response of approximately 16 seconds is observed using a CenterLine® 220. Adjust to 12 seconds when using a CenterLine® 230BP. Use the locking nut to secure this flow setting. The coils on the FieldPilot valve also have manual push button overrides.

*Note: To activate the manual overrides, a tool such as a small screwdriver 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 practice while manually operating hydraulic steering circuits. Keep others away and stay clear of mechanical steering linkages.

## 13. COMPLETE ELECTRONIC INSTALLATION

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

# FIELDPILOT®

## USER MANUAL

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A series of equipment-specific hydraulic installation kits have been developed to work in conjunction with your assisted steering system. This kit contains the necessary components and instructions to install assisted steering hydraulics on the John Deere 6x10, 6x20, 7x10, and 7x20 SF tractors. Please review this manual thoroughly before beginning the installation process.



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