

FIELDPILOT[®]

INSTALLATION MANUAL

Assisted Steering Hydraulic Installation Manual for
Vehicle Kit Number 91-02286

Fits Only Case 7110/7210/8910, 7120/7220/8920,
7130/7230/8930, 7140/7240/8940, and
7150/7250/8950



A Subsidiary of  Spraying Systems Co.[®]

FIELDPILOT®

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Safety Information

TeeJet Technologies is not responsible for damage or physical harm caused by failure to adhere to the following safety requirements.

As the operator of the vehicle, you are responsible for its safe operation.

The FieldPilot is not designed to replace the vehicle's operator.

Do not leave a vehicle while the FieldPilot is engaged.

Be sure that the area around the vehicle is clear of people and obstacles before and during engagement.

The FieldPilot is designed to support and improve efficiency while working in the field. The driver has full responsibility for the quality and work related results.

Disengage FieldPilot before operating on public roads or when not in use to prevent loss of vehicle control.

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.

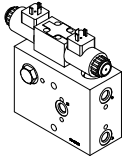
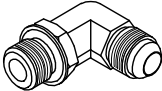
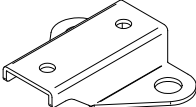
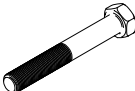

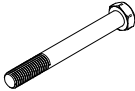


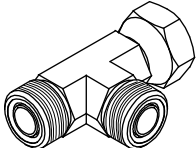
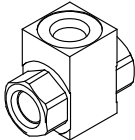


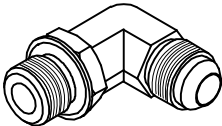
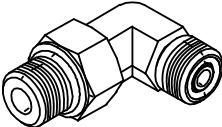
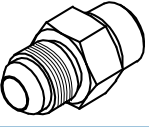
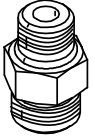
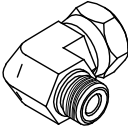
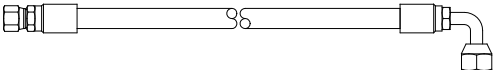

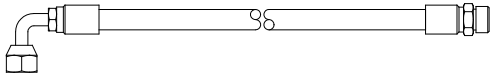
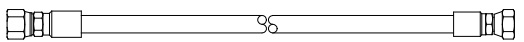
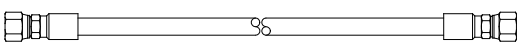
WARNING: PINCH POINT HAZARD! To prevent serious injury or death, avoid unsafe practice while manually operating hydraulic steering circuits. Keep others away and stay clear of mechanical steering linkages.

KIT CONTENTS

Unpack the installation kit and identify the required parts.

Item	Part Number	Description	Quantity
A	35-02180	Valve FieldPilot, CC, LS, PWM	1
B	68-02080	Adapter, Hydraulic 90° - #6MJIC x #6MORB.....	5
C	65-05164	Bracket, Hydraulic Block Mount - Case 89-x0	1
D	60-04093	Bolt, 5/8NC x 4-1/2" SST	2
	60-07028	Nut, Lock - 5/8NC SST	2
E	60-04087	Bolt, 3/8NC x 3-1/4" SST	2
	350-0037	Washer, Narrow Flat, 3/8" SST	2
	60-07027	Nut, NyLock - 3/8 SST	2
F	68-02026	Adapter, Hydraulic Run Tee # 8 ORF.....	4
G	68-02012	Hydraulic Load Shuttle - #6FORB	1
H	68-02080	Adapter, Hydraulic 90 ° - #6MJICx #6MORB.....	1
I	68-02062	Adapter, Hydraulic 90 ° - #4MORF x #6MORB	1
J	68-02019	Adapter, Hydraulic - #6MJIC x #6MORB	2
K	68-02073	Adapter, Hydraulic - #6MORF x #6MORB	1
L	68-02060	Adapter, Hydraulic - 90° - #4MORF x #6FORF	1
M	68-01027	Hose, Hydraulic - 3/8" x 58" #6FJIC x #8FORF90°	3
N	68-01028	Hose, Hydraulic- 3/8" x 52" #6FJIC x #8FORF90°	1
O	68-01093	Hose, Hydraulic, 3/8" x 13" #8FORF90° x #8MORF	1
P	68-01094	Hose, Hydraulic, 1/4" x 14", #6FJIC x #4FORF	1
Q	68-01030	Hose, Hydraulic, 1/4" x 43", #6FJIC both ends.....	1
R	45-10103	Cable, Hydraulic Interface	1
S	98-50013	Zip ties	2
T	91-07011	Steering Wheel Switch Kit	1
U	45-07703	Harness, SCM	1
V	98-05107	Installation Manual, Case 7110/7210/8910, 7120/7220/8920,7130/7230/8930, 7140/7240/8940, and 7150/7250/8950.....	1
W	32-04040	Switch, Engage/Disengage.....	1

Item	Part #	Description	Illustration
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Q	68-01030	Hose, Hydraulic, 1/4" x 43", #6FJIC both ends	

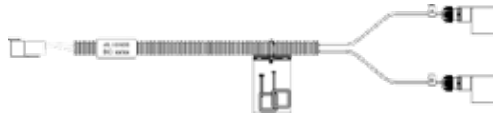
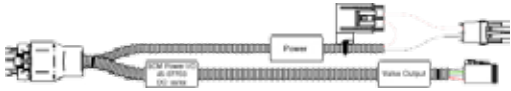
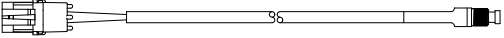
Item	Part #	Description	Illustration
R	45-10103	Cable, Hydraulic Interface	
S	98-50013	Zip ties	
T	91-07011	Steering Wheel Switch Kit	
U	45-07703	Harness, SCM	
V	98-05107	Installation Manual, Case 7110/7210/8910, 7120/7220/8920, 7130/7230/8930, 7140/7240/8940, and 7150/7250/8950	
W	32-04040	Switch, Engage/Disengage	

Figure 1-1: Hydraulic Diagram

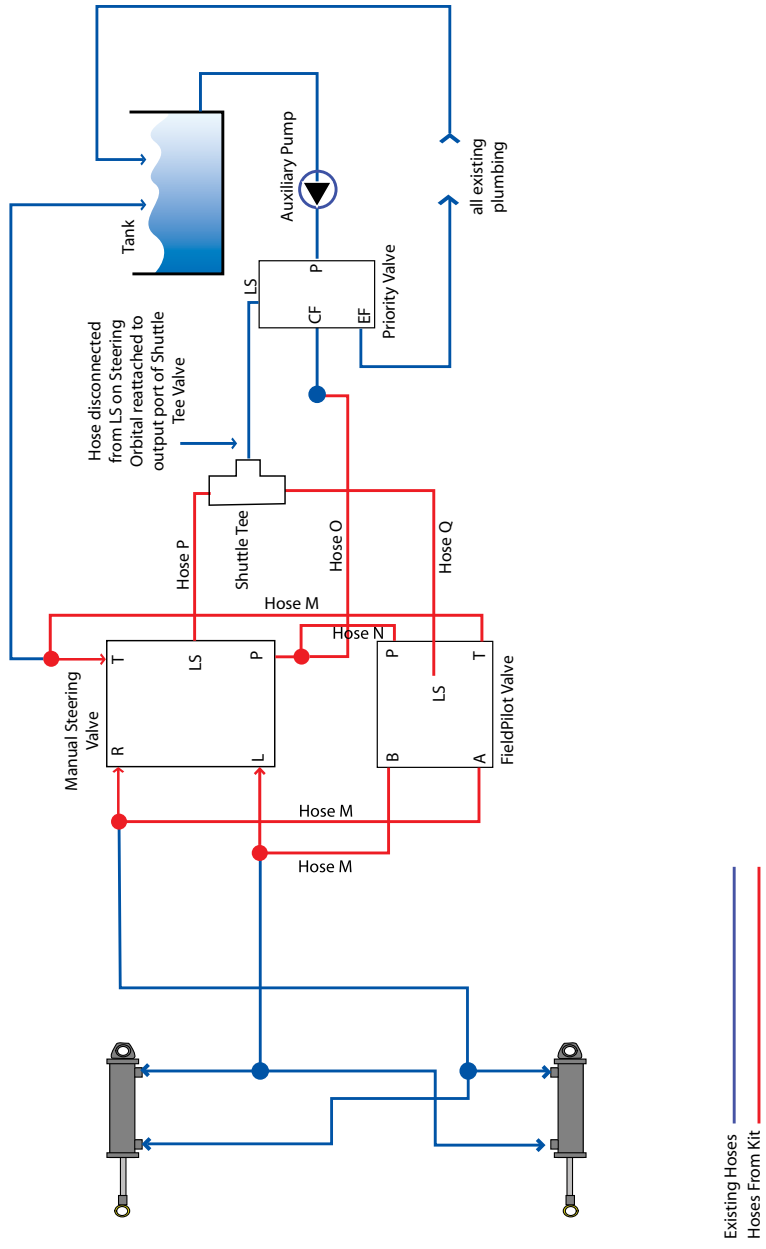
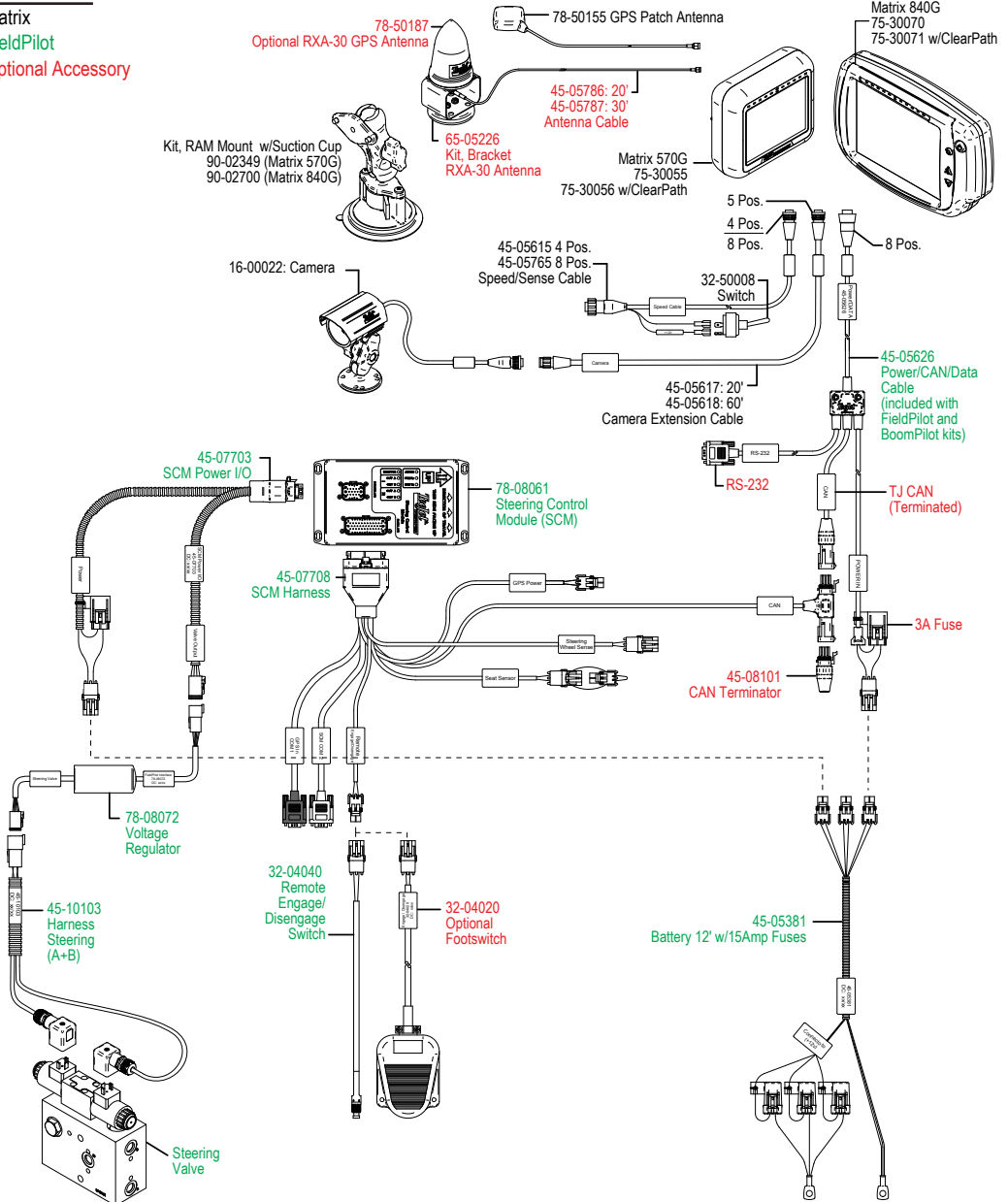


Figure 1-18: Wiring Diagram

Matrix
FieldPilot
Optional Accessory



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!

Overview of the Machine

- The FieldPilot valve will mount on the left side of the machine.
- All hydraulic connections will be made at the orbital
- The GPS antenna will mount on the cab.
- The cables will enter the rear of the cab.

NOTE: All references to left and right are stated as if the user is seated in the driver's seat.

Figure 1-2: Overview of the Machine

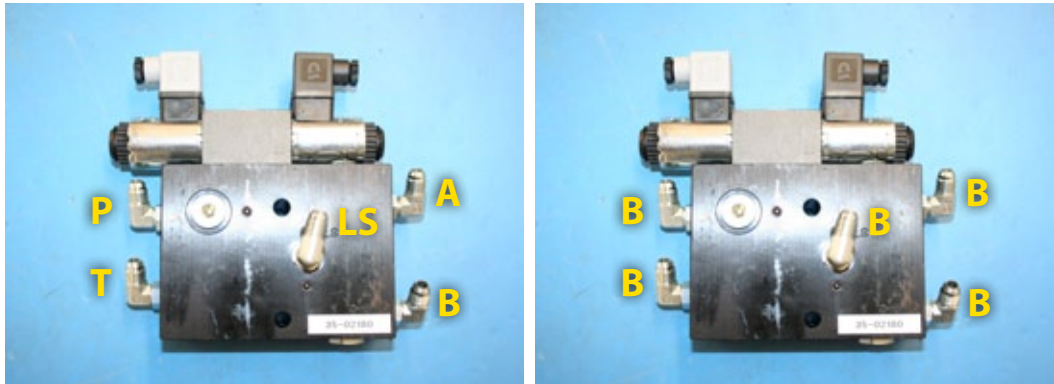


**FieldPilot
Valve**

1. PREPARE THE FIELDPILOT VALVE

Make sure the FieldPilot valve is clean and dust free. Remove the plastic plugs and install adapters (B) in the P, T, LS, A and B ports and orient as shown.

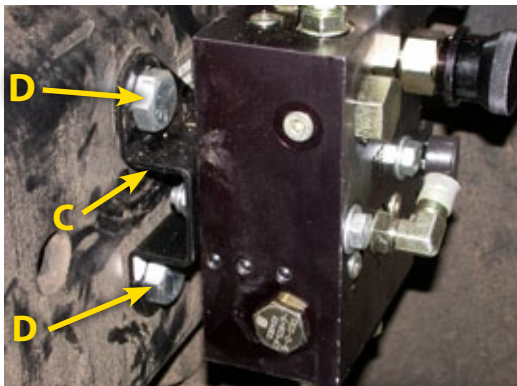
Figure 1-3: Prepare the FieldPilot Valve



2. INSTALL MOUNTING BRACKET

Locate the holes in the left side of the tractor frame in front of the cab. If the tractor is equipped with a toolbox in this location, it must be removed. Install the mounting bracket (C) as illustrated using the mounting hardware (D). Tighten mounting bolts securely.

Figure 1-4: Installing the Mounting Bracket



3. INSTALL FIELDPILOT VALVE

Install the FieldPilot valve as prepared in Step 1 to the mounting bracket using the mounting hardware in Group **(E)**. Tighten the mounting bolts securely.

Figure 1-5: Installing the FieldPilot Valve



4. INSTALL STEERING OUTPUT FITTINGS

Locate the tractor steering orbital in front of the cab just below the windshield. The two lines coming out of the left side of the steering orbital are the steering output lines and are stamped R and L on the casting. Remove the steel line fittings from the steering orbital and install the run-tee fittings **(F)** as illustrated. Reattach the steel line fittings. Leave the run-tee fittings **(F)** loose to allow for alignment when attaching hoses. Plastic caps placed on the open ends of the fittings will prevent excessive leakage prior to hose installation.

Figure 1-6: Installing the Steering Output Fittings



5. INSTALL STEERING OUTPUT HOSES

Install the steering output hoses (**M**) onto the run-tees (**F**) and route adjacent to the tractor firewall down toward the FieldPilot valve as illustrated. Attach the straight ends of the steering output hoses (**M**) to the A and B ports of the FieldPilot valve. Carefully check the hose routing for clearance of sharp edges and securely tighten all steering output hose fittings both at the run-tees and at the FieldPilot valve.

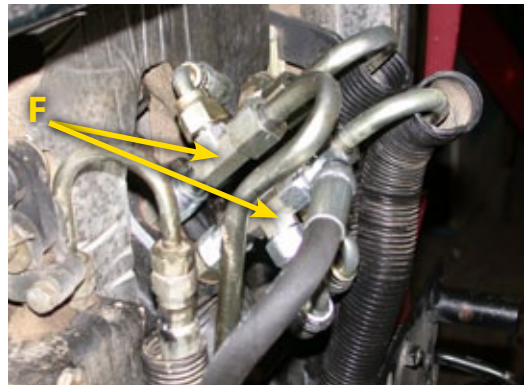
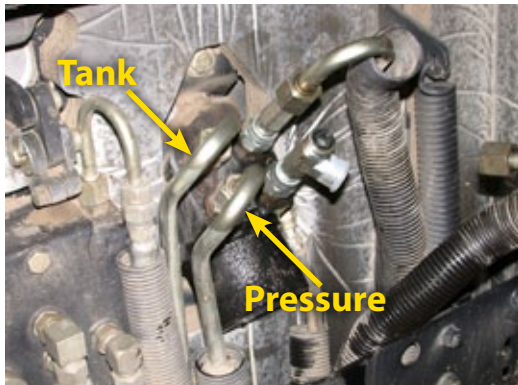
Figure 1-7: Installing the Steering Output Hose



6. INSTALL TRACTOR PRESSURE AND TANK FITTINGS

The two lines emerging from the right side of the steering orbital are the tractor pressure and tank line, stamped P and T on the castings. Remove the steel line fittings from the steering orbital and install the run-tees (**F**) as illustrated. Reattach the steel Tank line fitting. The steel Pressure line will be replaced in Step 7. Leave the run-tees (**F**) loose to allow for alignment when attaching hoses. Plastic caps placed on the open ends of the adapters will prevent excessive leakage prior to hose installation.

Figure 1-8: Installing the Tractor Pressure and Tank Fittings



7. REPLACE STEEL PRESSURE LINE ON ORBITAL

Remove the short steel portion of the steering orbital pressure line and replace it with hydraulic hose (O).

Figure 1-9: Replacing the Steel Pressure Line on Orbital



8. INSTALL TRACTOR LOAD SENSE SHUTTLE/ADAPTERS

The load sense port on the steering orbital will be located on the left side, the front, or the top of the steering orbital depending on tractor model. If the load sense port is located on the left side refer to Step A. If the load sense port is located on the front or the top of the steering orbital, refer to Steps B or C, respectively.

Figure 1-10: Installing the Tractor Load Sense Shuttle/Adapters

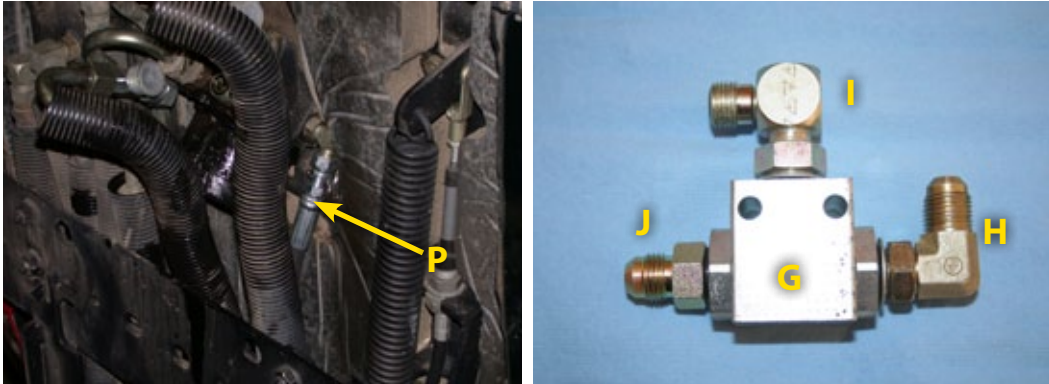


A. Steering Orbital on the Left Side

Pre-assemble the load sense shuttle (G) with the fittings provided (H), (I), and (J) as illustrated. Locate the tractor load sense hydraulic hose on the left side of the steering orbital as illustrated. Remove the tractor load sense hose from the steering orbital and connect it to the center elbow fitting (I) of the load sense shuttle

assembly. Connect the short hydraulic hose (P) between the top elbow fitting (H) on the load sense shuttle assembly and the steering orbital load sense fitting.

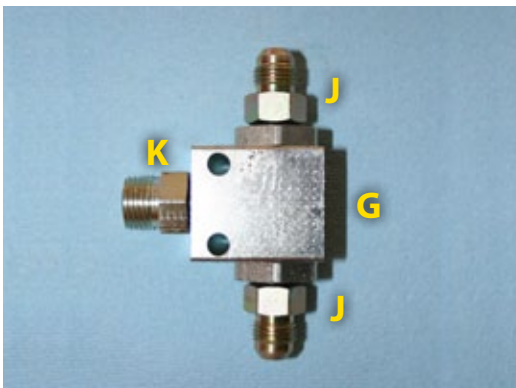
Figure 1-11: Installing the Tractor Load Sense Shuttle Adapters



B. Steering Orbital on the Front Side

Pre-assemble the load sense shuttle (G) with the adapters provided (J) and (K) as illustrated in Figure 1-12. Locate the tractor load sense hydraulic hose on the front of the steering orbital as illustrated. Remove the tractor load sense hydraulic hose from the steering orbital and install the elbow adapter (L) to the load sense port on the steering orbital as illustrated. Attach the center position (K) of the assembled load sense shuttle to the tractor load sense hose. Install hose (P) to the elbow adapter (L) installed at the orbital and to the end of the load sense shuttle (J).

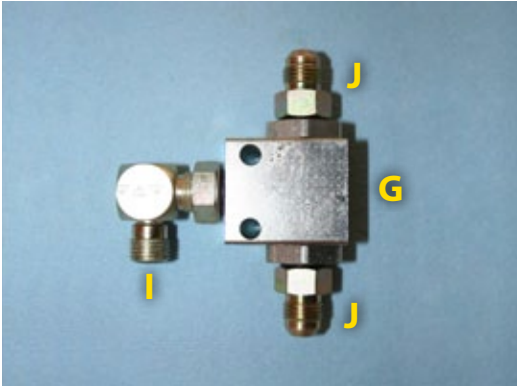
Figure 1-12: Installing the Tractor Load Sense Shuttle Adapters



C. Steering Orbital on the Top Side

Pre-assemble the load sense shuttle (**G**) with the adapters provided (**J**) and (**I**) as illustrated. Locate the tractor load sense hydraulic hose on the top of the steering orbital as illustrated. Remove the tractor load sense hydraulic hose from the steering orbital and connect hose (**P**) to the load sense port on the steering orbital and to the end of the load sense shuttle (**J**) as illustrated. Attach the center position (**I**) of the assembled load sense shuttle to the tractor load sense hose.

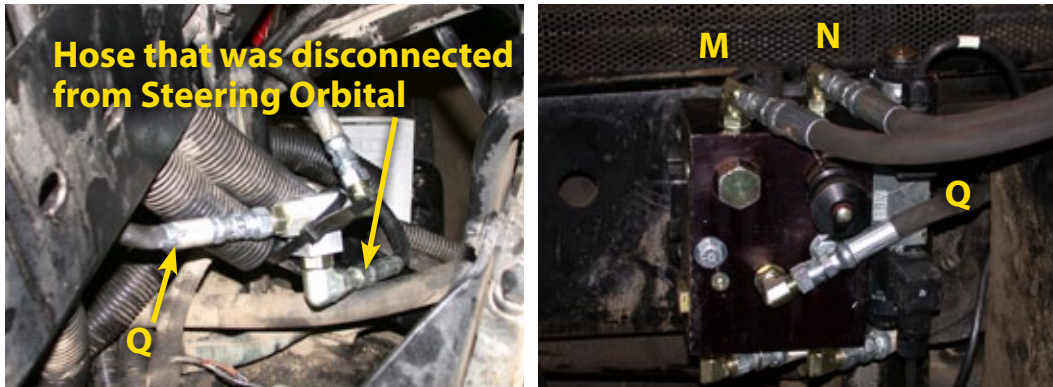
Figure 1-13: Installing the Tractor Load Sense Shuttle Adapter



9. INSTALL PRESSURE, TANK AND LOAD SENSE HOSE

Install the hydraulic hose (**Q**) between the LS port of the FieldPilot valve and the open end of the load sense shuttle assembly installed in Steps 8. Use a heavy tie strap (included) to secure the load shuttle assembly to the tractor framework as illustrated. Install the pressure (**N**) and tank (**M**) hydraulic hoses between the P and T ports of the FieldPilot valve and the corresponding run-tees installed in Step 6. Double check to ensure that the connections are not reversed. Ensure all hoses are properly routed and free from entanglement. Use heavy tie straps (included) as needed. Securely tighten all hydraulic hose fittings and adapters.

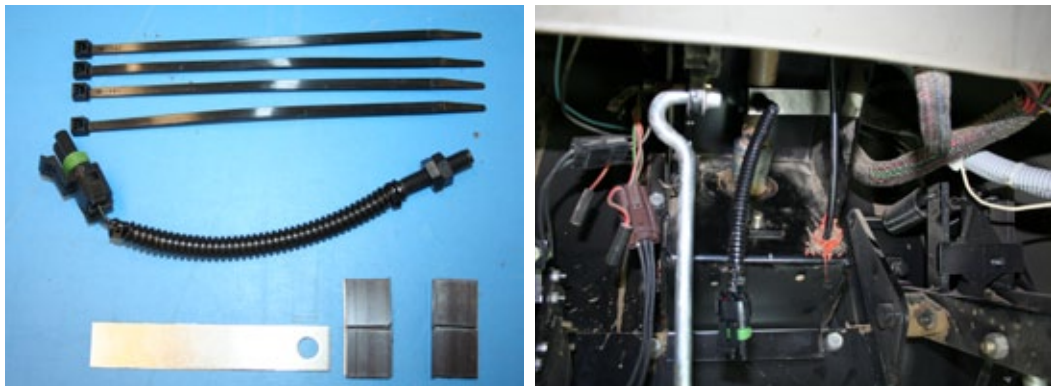
Figure 1-14: Install Pressure, Tank and Load Sense Hose



10. INSTALL STEERING DISENGAGE SWITCH

The steering disengage kit (**T**) 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 1-15: Installing the Steering Disengage Switch



11. INSTALL STEERING ENGAGE/DISENGAGE SWITCH

Connect item **(W)** 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 **(W)** if desired.

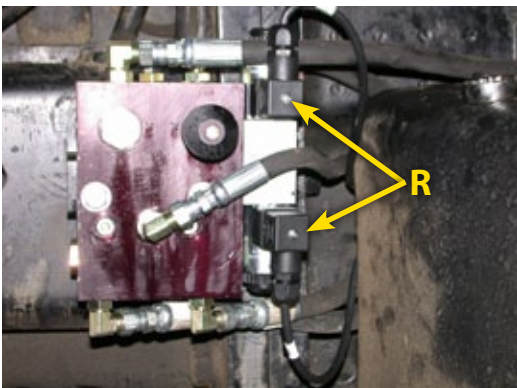
Figure 1-16: Install Steering Engage/Disengage Switch



12. INSTALL VALVE CONTROL CABLE

Route the valve control cable **(R)** from the FieldPilot valve toward the rear and under the cab. Connect the DIN connectors to the valves as illustrated. Secure the valve cable with tie-straps as required. Remove the left hand lower door seal plate to allow for cable routing. Bring the cable up from under the cab and through the door seal. Lift the floor mat and route the cable toward the front right corner of the cab. Lay the floor mat back down over the cable and reinstall the lower door seal plate.

Figure 1-17: Installing the Valve Control Cable



13. RECOMMENDED ELECTRONIC 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.

14. 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.

The final oil flow rate adjustment is accomplished through the Matrix console. The target lock to lock time is 5 seconds and the valve frequency is 110. Refer to the Matrix manual for further instructions.

NOTE: To activate the manual overrides, a tool such as a small screwdriver 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.

15. COMPLETE ELECTRONIC INSTALLATION

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


FIELDPILOT®

INSTALLATION MANUAL

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 Case 7110/7210/8910, 7120/7220/8920, 7130/7230/8930, 7140/7240/8940, and 7150/7250/8950. Please review this manual thoroughly before beginning the installation process.



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