



Planter Drive Troubleshooting Flowchart

Drive Will Not Turn



Ground Drive or Hydraulic Drive?



Ground Drive  
See Chart #1



DICKEY-john IntelliAg  
See Chart #2



DICKEY-john IntelliAg  
or Veris  
Hydraulic Drive?



Veris  
See Chart #3



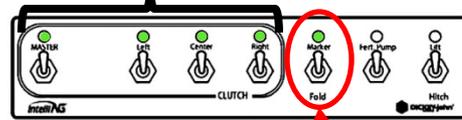
# Chart #1 Ground Drive

No **When clutch switches are turned on, do the lights on the control box light up, and do the clutches “click” or become magnetized?**

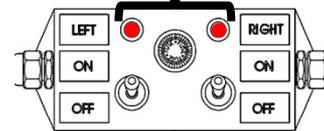
Yes

**Problem is likely mechanical.  
See Chart #1C**

Clutch lights



IntelliAg



Without Intelli-Ag

On 2009 and newer planters, the marker/fold switch must be placed in the “marker” position for the clutches to operate.

**Problem is likely an electrical or programming issue.  
Does the planter have a DICKEY-john Seed Manager SE, or an IntelliAg monitor in the cab?**

Seed Manager SE

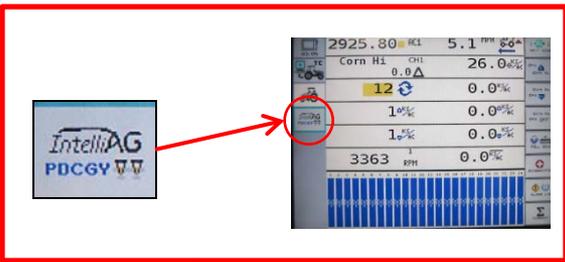


See Chart #1B

IntelliAg



See Chart #1A



## Chart #1A Ground Drive Issues Electrical with IntelliAg



Check voltage at clutch harness.  
Do not use the frame for a ground.  
Always measure voltage across the two pins of the clutch harness.  
Need at least 11VDC. Is there adequate voltage present in the clutch harness?

Yes

Replace clutch after verifying torque load on drive is not excessive. Refer to Service Bulletin **SIB-08-XX6** titled **Pre-Season Planter Performance Checks**.

No

Is the monitor powered up and is the IntelliAg soft key visible on the screen?

Yes

Follow quick start guide supplied with the unit to verify correct programming of rows and clutch assignments.

No

Check fuses, relays, and CAN terminators. Verify that power supply is at the battery and that the implement is plugged into the tractor harness. Convenience ports or power strips in the tractor cab do not supply a sufficient ground source for these electronic components. Refer to page 18 for harness layout.

Clutches can be mechanically locked with the three bolts provided in the clutch bracket. If the bolts are not present, use only M8X1.25X14 GR8.8 (GP part# 802-782C) bolts to lock up the clutch. Longer bolts will make contact with the rear of the clutch housing and could damage the drive. Ensure that the three threaded holes in the face of the clutch are centered over the three slots in the clutch plate. If not, the bolts will only contact the face of the clutch plate and will slip.



**Chart #1B**  
Ground Drive Issues  
Electrical with Seed Manager SE



Check voltage at clutch harness.  
Do not use the frame for a ground.  
Always measure voltage across the  
two pins of the clutch harness.  
Need at least 11VDC. Is there  
adequate voltage present in the  
clutch harness?

No

Yes

Check fuses and connections.

Replace clutch after verifying torque load  
on drive is not excessive. Refer to Service  
Bulletin **SIB-08-XX6** titled **Pre-Season  
Planter Performance Checks** .

Replace clutch. Clutches can be mechanically locked with the three bolts provided in the clutch bracket. If the bolts are not present, use only M8X1.25X14 GR8.8 (GP part# 802-782C) bolts to lock up the clutch. Longer bolts will make contact with the rear of the clutch housing and could damage the drive. Ensure that the three threaded holes in the face of the clutch are centered over the three slots in the clutch plate. If not, the bolts will only contact the face of the clutch plate and will slip.



No slot visible



Half of the slot visible



Threaded hole  
centered over slot.

**Chart #1C**  
Ground Drive  
Mechanical Issues



Is the drive tire lowering down and making good contact with transport tire or ground when planter is lowered?

No

Yes

On pull type planters, check adjustment of linkage on drive assembly. Adjust wheel with planter raised to 1.5" clearance to transport tire. The pressure can then be adjusted by shortening the linkage spring. **DO NOT ADJUST SPRING SO TIGHT THAT IT CAN BOTTOM OUT.**

On 3PYP planters, ensure that the unit is being lowered to the recommended toolbar height. Check tractor three point settings and hitch operation.

**Check tire pressures.**

**YP1225 – YP1625**

Tire Size	Pressure
14.9R46 8 Star Radial R-1 (380/90R46) w/82bu or PROBOX, and no fertilizer	30 psi (205 kPa)
14.9R46 8 Star Radial R-1 (380/90R46) w/150bu hopper or fertilizer system	60 psi (415 kPa)
18.4R42 3 Star R1 (480/80R42) w/82bu or PROBOX, and no fertilizer	18 psi (125 kPa)
18.4R42 3 Star R1 (480/80R42) w/150bu hopper or fertilizer system	30 psi (205 kPa)
33x15.5x16.5 12 Ply Skid Steer NHS (395/55B16.5)	60 psi (415 kPa)
20x8.00-10 Turf NHS (Contact Drive Tire)	16 psi (110 kPa)

**3PYP**

7.6-145 6 Ply Lug	35 psi (241 kPa)
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OK

Check torque load on drive. Refer to Service Bulletin **SIB-08-XX6** titled **Pre-Season Planter Performance Checks**.

# Chart #2 DICKEY-john IntelliAg Hydraulic Drive

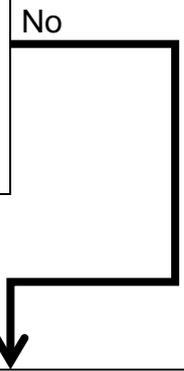


•With tractor running, reduce flow on the remote that operates the drive motor to 2-3 gpm. Engage the remote and lock in constant flow.

**•MAKE SURE THAT NO ONE IS NEAR ANY MOVING PARTS!**

•Press the red button located at the end of the hydraulic control valve next to the motor. Refer to page 15 for component locations.

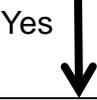
•Does the drive turn?



Refer to the Operators' manual for the planter you are working on and reset the oil flow as recommended.

Run a valve calibration on the IntelliAg system.

Does the drive turn in the valve calibration?



Complete the valve calibration and retry operation in the field. If drive will still not turn in the field position, the problem is likely electrical or programming. Refer to Chart #2A for further troubleshooting.



Problem is likely due to excess mechanical torque. Refer to Chart #2C for further troubleshooting.

Problem is likely electrical or programming. Refer to Chart #2A for further troubleshooting.

Remove the chain from the drive motor sprocket, and push the red button again. Does the drive turn?



Problem is likely due to a hydraulic problem. Refer to Chart #2B for further troubleshooting.

# Chart #2A IntelliAg Hydraulic Drive Electrical



Is the master switch turned on?

Yes

Is the master switch assigned properly?

No

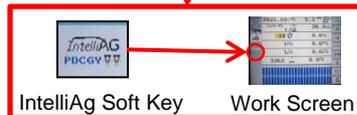
Yes

Yes

No

Is the monitor powered up and the IntelliAg soft key visible on the screen?

Check fuses, relays and CAN terminators. Verify that implement is plugged into the tractor. Power harness must be connected directly to the battery. The ground circuit of tractor convenience ports is not sufficient. Refer to page 18 for harness layout.



Check assignment of master switch. It can be a soft key on the monitor or the supplied external switch. Refer to DICKEY-john operators manual for instructions on assigning master switch.

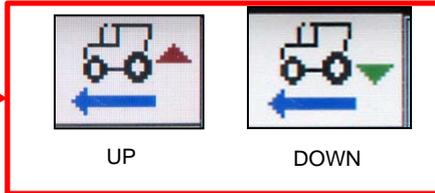
Verify correct programming of channel, rows, and clutch assignments.  
*Note: On 2009 and newer planters, the fold/marker switch on the CFM must be in the "marker" position for the clutches to function.*

OK

Verify operation of implement lift switch using the icon on the screen. Observe the triangle symbol behind the small tractor at the upper right hand side of the screen. When the implement is raised, it should be red and pointing up. When down, the triangle will turn green and point down.

Switch Not Working

Check adjustment of switch. Check connection at switch. If icon indicates the planter is up when physically lowered, switch the green and red wires. Black always goes to black.



Switch Working

Will the drive turn in calibration mode?

Yes

No

Verify proportional valve solenoid and application rate sensor are plugged into the correct leads on the harness: PWM1 for the solenoid, FB1 for the application rate sensor. Verify that the application rate sensor is securely attached to the shaft.

Is the monitor registering ground speed when moving?

No

OK

Verify that the source for ground speed is set correctly. Digital frequency for radar or three wire wheel speed sensors, reluctance for two wire sensors.

# Chart #2B IntelliAg Hydraulic Drive Hydraulic



With the drive chain removed from the motor and the red button is pushed on the control valve, the drive will not turn.

Did the button move in when pressed by hand?  
(do not use excessive force to press button)

Yes

No

Verify that the hoses are plugged into the correct remote, and remote is operating in the proper direction.

Make sure remote is staying in constant flow.

Verify that pressure hose has not come unplugged from the tractor.

Check hydraulic oil level in the tractor.

Try a different remote on the tractor.



Check flow setting on remote in tractor. Excess flow can create backpressure making the valve work harder to open. Refer to the Operators' manual for the planter you are working on and reset the oil flow as recommended.

Verify that return hose has not come unplugged from the tractor.

If the remote is operated in the reverse direction, the return hose can become locked with pressure oil due to the check valve located in the return port of the motor. To remedy this, you must open the return hose at either end to relieve the pressure. The check valve must also be loosened to relieve any trapped pressure oil, and then retightened. Refer to page 15 of this guide for location of check valve.

Try pushing the button with no oil flow to the circuit. If button will still not push in, remove the valve cartridge from the block and try pushing in on the button. If it is still not moving, replace the cartridge.

# Chart #2C IntelliAg Hydraulic Drive Mechanical



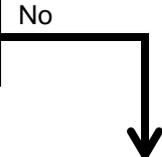
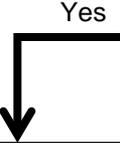
Drive will turn with red button depressed after drive chain is removed.



Reinstall drive chain on motor sprocket.



Remove all drive chains from the main drive shaft to each section, and push the red button. Does the drive turn?



Problem is likely a bearing or chain on the main shaft that passes through the front of the row units.

Problem is likely a bearing or chain between the motor and the drive sections.

Reinstall one drive chain from the main shaft to one section only and push the red button. Does the drive turn?



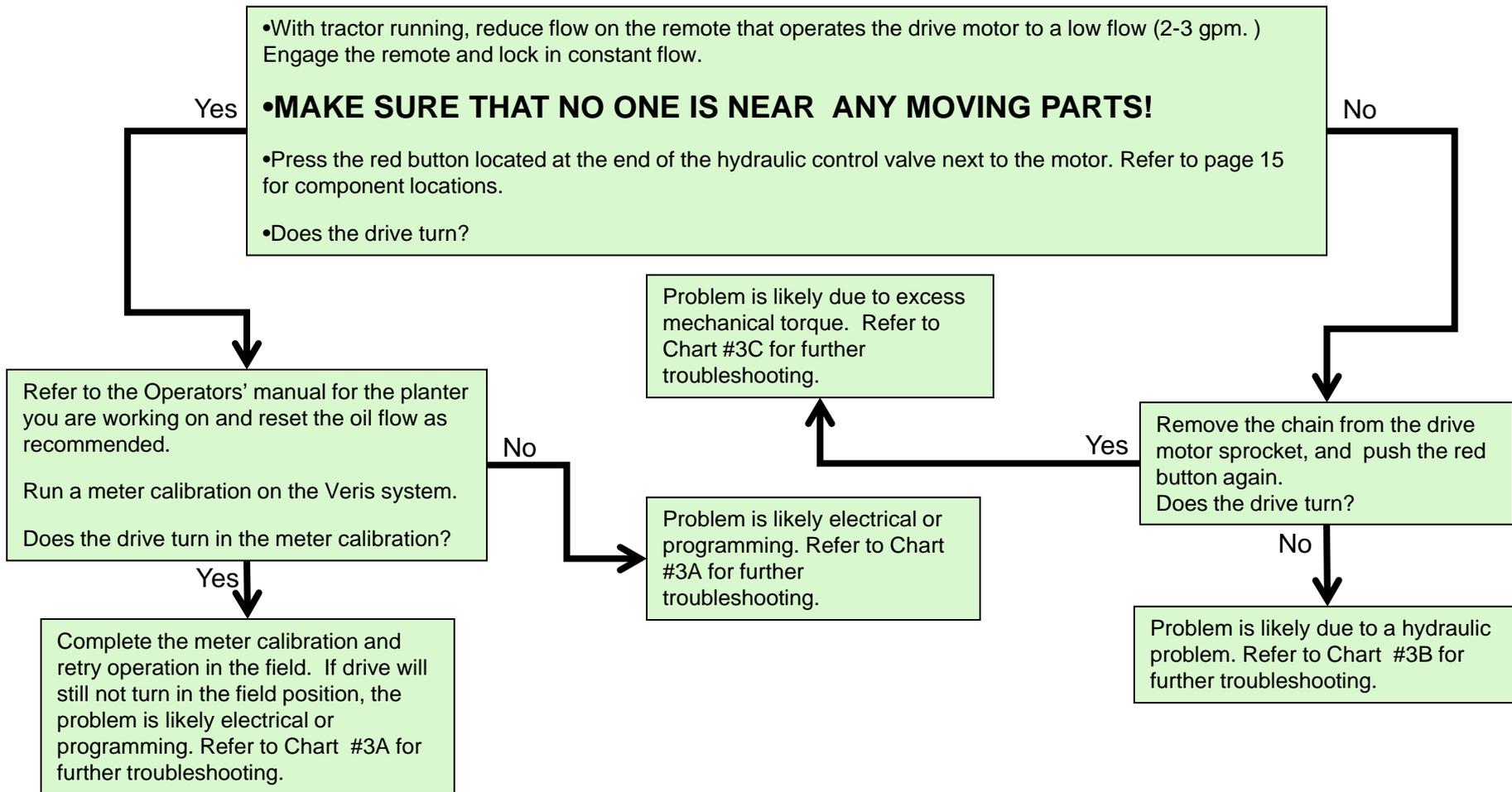
Repeat previous procedure for each section to isolate source of high torque.



Once the section or sections with high torque are identified, begin by inspecting the meter clutches for failed or stiff bearings. Inspect the meter drive chains, and finally the meters themselves. Check the torque load on the drive shaft of each section with a dial torque wrench. No one section of any planter should exceed 75 ft-lbs of rolling torque.

Refer to Service Bulletin **SIB-08-XX6** titled **Pre-Season Planter Performance Checks** in the dealer access web page for more details on minimizing torque load on the drive

# Chart #3 Veris Hydraulic Drive





### Chart #3A

#### Veris Hydraulic Drive Issues

#### Electrical With Test Kit.

Reference pages 16-17 for additional information.  
**If you do not have the test kit, proceed to the chart on the following page**



Upper line on cab console's LCD?

No

Yes

Lower line on cab console's LCD?

Yes

No

Press the engage button and retry operation.

Is the green LED lamp above the "Engage" button illuminated?

No

Yes

Drive rotates during calibration?

No

Yes

Disconnect Hall effect sensor and replace with diagnostic kit part #27858 (speed simulator). Depress speed cutoff switch. Replace speed sensor if speed appears on LCD.

If speed does not appear on LCD, disconnect speed sensor harness from hall effect module and replace with speed simulator. Remove speed jumper wire located between module and external controller. Replace speed harness if speed appears on LCD.

If speed never appears, replace chip in external controller.

If chip does not fix the problem, replace the external controller.

Check harness and connections.

Make sure cab console is powered on.

Use diagnostic kit part #27857 to check power from the cab console?

Check 1A and 10A fuses. Make sure battery connections are clean and secure. See page 17 for harness layout.

Power from cab console OK?

Replace cab console.

Use diagnostic kit part #27859 to check continuity through Power/Comm cable (FOLLOW INSTRUCTIONS TO PREVENT DAMAGE).

Replace Power/Comm cable.

If new chip does not fix problem, replace external controller.

If drive does not turn in calibration mode, an error message will appear on the cab console. Use this table to identify the cause of the failure and a solution.

Message	Cause	Solution
COMM TIMEOUT	Power to or communication with the external controller was interrupted during calibration	Check power and communication connections from the cab console to the external controller and re-run calibration.
USER TERMINATED	The engage key was pressed during calibration	Re-run calibration
CALIBRATE ERROR	The drive did not turn when calibration began	Check encoder cable and connection.

If all possible causes and solutions in the table have been checked and drive will still not turn, continue with the flow chart

Power/Comm cable ok?

No

Yes

Use diagnostic part #27860 to check output from the relay inside the external controller. Replace the external controller if the test fails.

Replace external controller chip.

Replace Solenoid.

Power solenoid directly by unplugging the two pin connector from the lead going into the external controller, and plugging it directly to the solenoid lead. Reduce hydraulic flow and engage the remote. Does the drive turn?

Yes

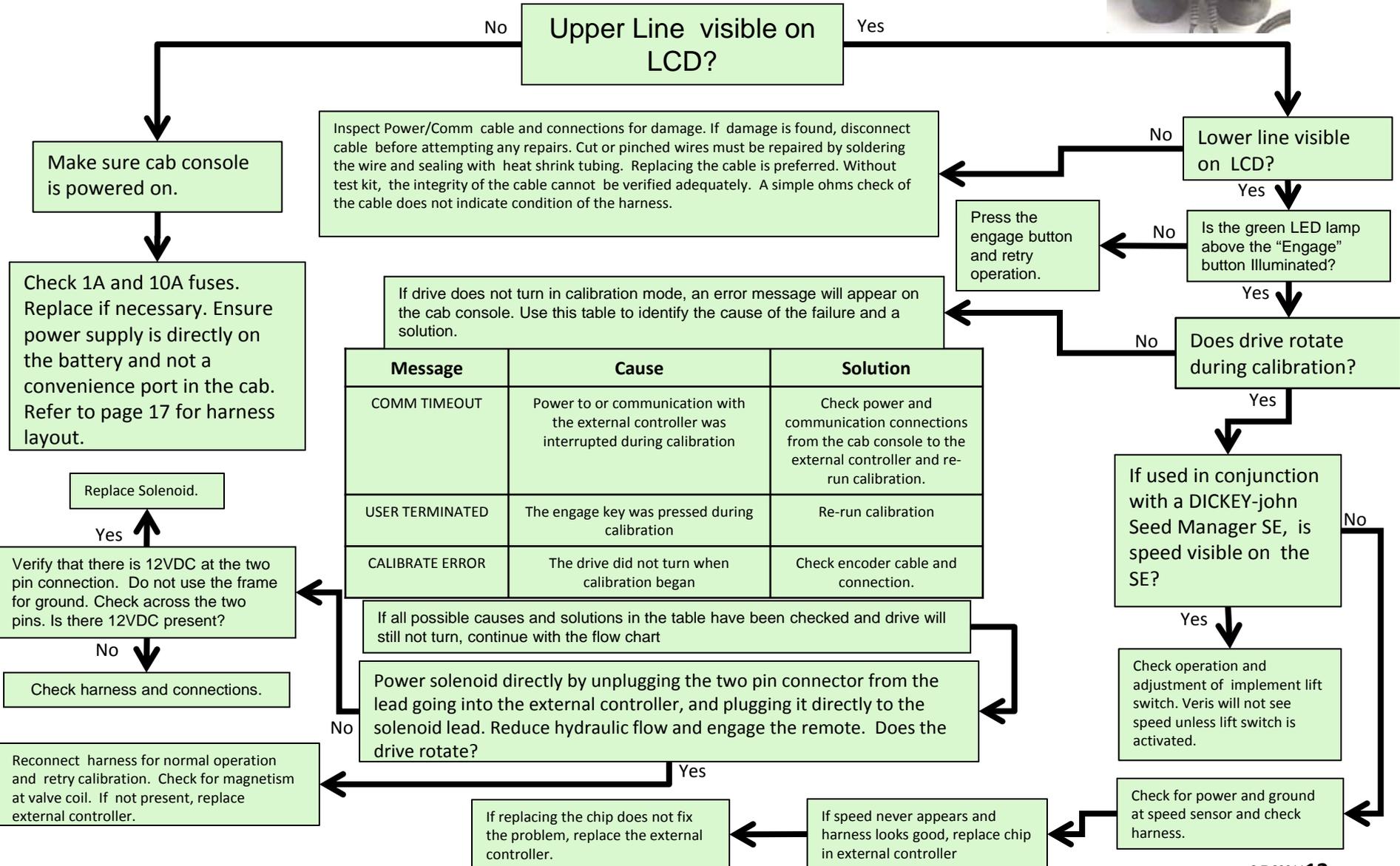
No

Verify that there is 12VDC at the two pin harness. Do not use the frame for ground. Check across the pins. Is there 12VDC present?

Yes

No

# Chart#3A Veris Hydraulic Drive Issues Electrical without test kit.



Inspect Power/Comm cable and connections for damage. If damage is found, disconnect cable before attempting any repairs. Cut or pinched wires must be repaired by soldering the wire and sealing with heat shrink tubing. Replacing the cable is preferred. Without test kit, the integrity of the cable cannot be verified adequately. A simple ohms check of the cable does not indicate condition of the harness.

If drive does not turn in calibration mode, an error message will appear on the cab console. Use this table to identify the cause of the failure and a solution.

Message	Cause	Solution
COMM TIMEOUT	Power to or communication with the external controller was interrupted during calibration	Check power and communication connections from the cab console to the external controller and re-run calibration.
USER TERMINATED	The engage key was pressed during calibration	Re-run calibration
CALIBRATE ERROR	The drive did not turn when calibration began	Check encoder cable and connection.

If all possible causes and solutions in the table have been checked and drive will still not turn, continue with the flow chart

Power solenoid directly by unplugging the two pin connector from the lead going into the external controller, and plugging it directly to the solenoid lead. Reduce hydraulic flow and engage the remote. Does the drive rotate?

# Chart #3B Veris Hydraulic Drive Issues Hydraulic



With the drive chain removed from the motor and the red button is pushed on the control valve, the drive will not turn.

Did the button move in when pressed by hand?  
(do not use excessive force to press button)

Yes

No

Verify that the hoses are plugged into the correct remote, and remote is operating in the proper direction.

Make sure remote is staying in constant flow.

Verify pressure hose has not come unplugged from the tractor.

Check hydraulic oil level in the tractor.

Try a different remote on the tractor.



Check flow setting on remote in tractor. Excess flow can create backpressure making the valve work harder to open. Refer to the Operators' manual for the planter you are working on and reset the oil flow as recommended.

Verify that return hose has not come unplugged from the tractor.

If the remote is operated in the reverse direction, the return hose can become locked with pressure oil due to the check valve located in the return port of the motor. To remedy this, you must open the return hose at either end to relieve the pressure. The check valve must also be loosened to relieve any trapped pressure oil, and then retightened. Refer to page 15 of this guide for location of check valve.

Try pushing the button with no oil flow to the circuit. If button will still not push in, remove the valve cartridge from the block and try pushing in on the button. If it is still not moving, replace the cartridge.

**Chart #3C**  
Veris Hydraulic Drive Issues  
Mechanical



Drive will turn with red button depressed after drive chain is removed.

Re-install drive chain on motor sprocket.

Remove all drive chains from the main drive shaft to each section, and push the red button. Does the drive turn?

Problem is likely a bearing or chain on the main shaft that passes through the front of the row units.

Problem is likely a bearing or chain between the motor and the drive sections.

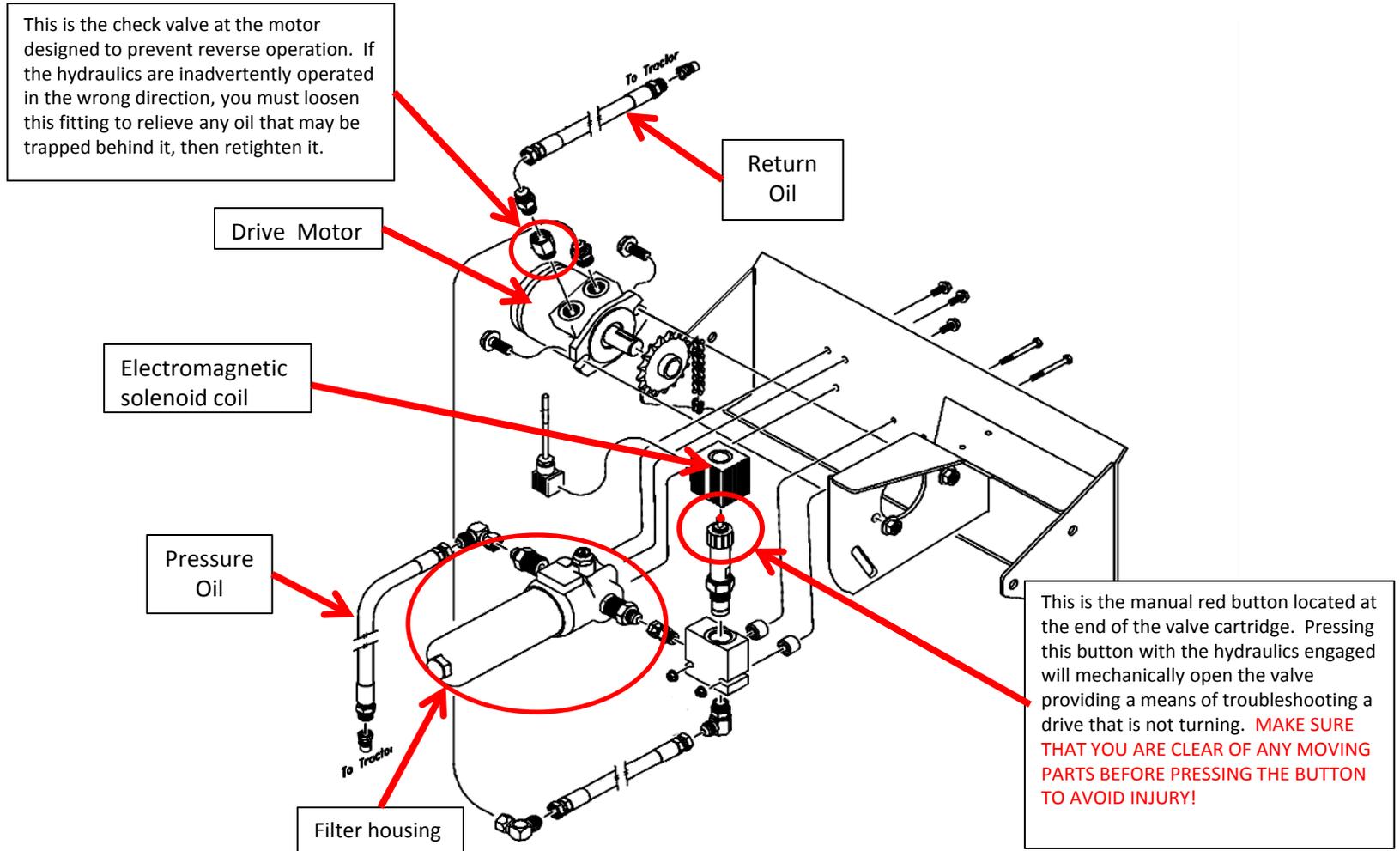
Reinstall one drive chain from the main shaft to one section only and push the red button. Does the drive turn?

Repeat previous procedure for each section to isolate source of high torque.

Once the section or sections with high torque are identified, begin by inspecting the meter clutches for failed or stiff bearings. Inspect the meter drive chains, and finally the meters themselves. Check the torque load on the drive shaft of each section with a dial torque wrench. No one section of any planter should exceed 75 ft/lbs of rolling torque.

Refer to Service Bulletin **SIB-08-XX6** titled **Pre-Season Planter Performance Checks** in the dealer access web page for more details on minimizing torque load on the drive.

Hydraulic Drive Components.  
These are the same for DICKEY-john, or Veris

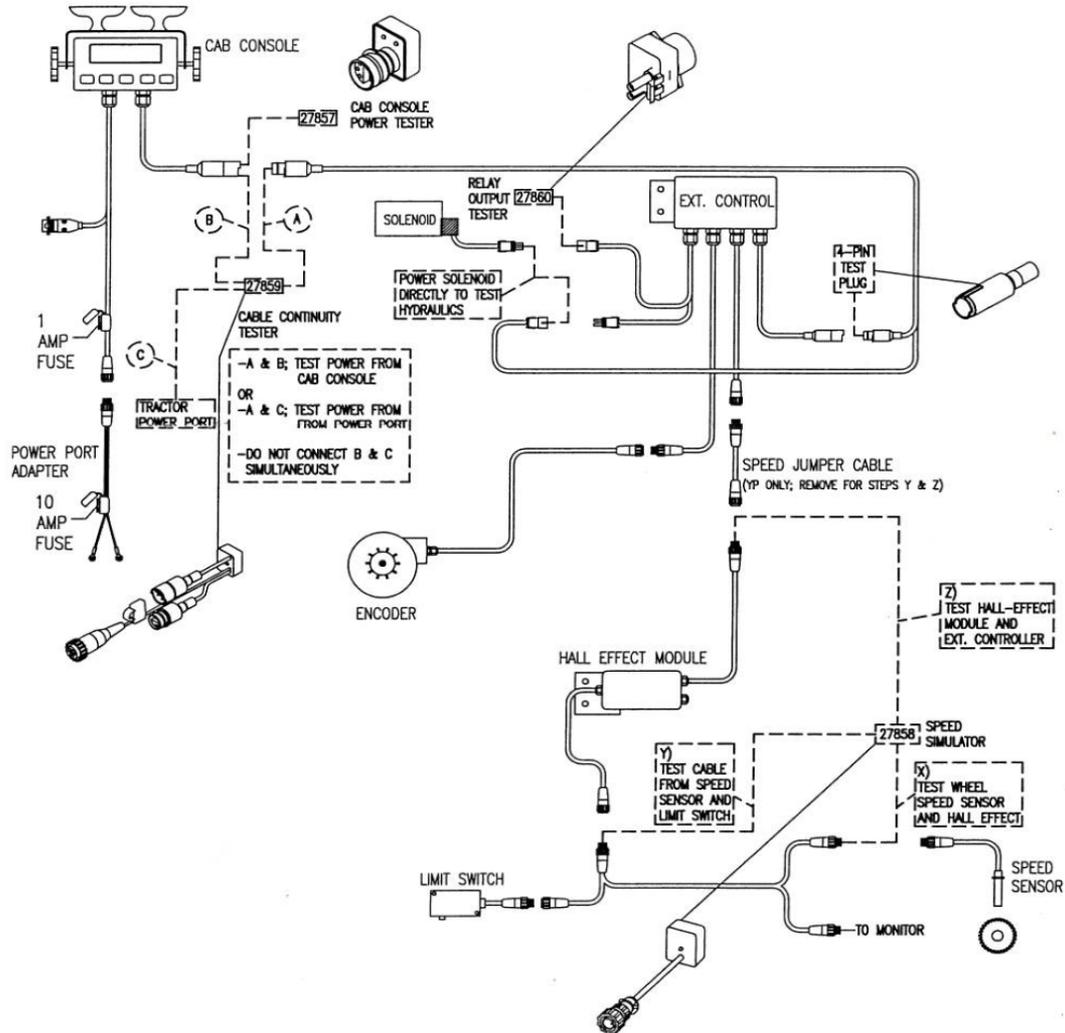


# Veris Hydraulic Drive Electronic Troubleshooting Overview.

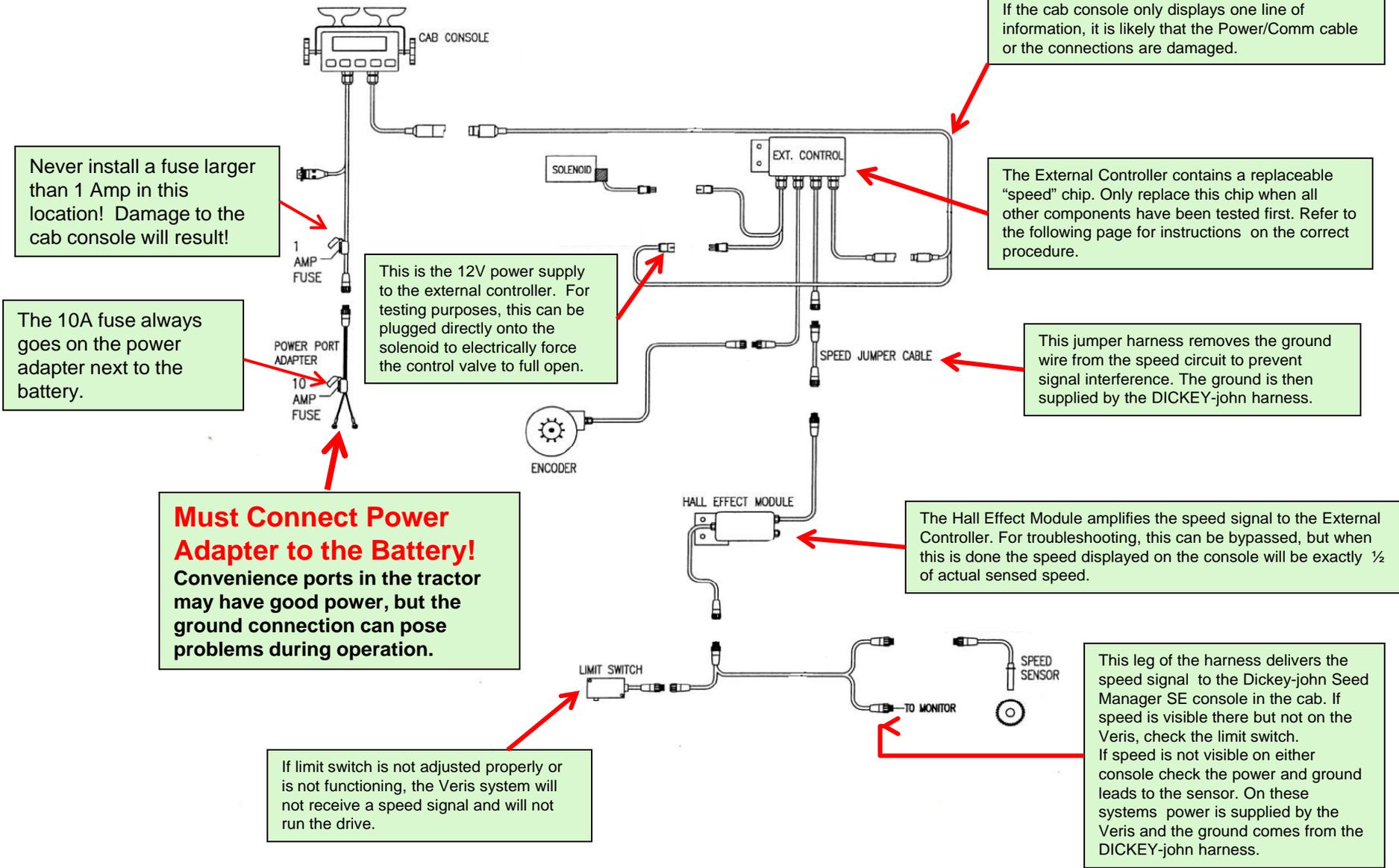
To be used with Veris Diagnostic Kit – Part # VER-28597

## KEY:

SOLID LINES -- DRIVE ELECTRONICS CABLES  
 DASHED LINES -- TROUBLESHOOTING ITEMS



# Veris Troubleshooting Tips



Never install a fuse larger than 1 Amp in this location! Damage to the cab console will result!

The 10A fuse always goes on the power adapter next to the battery.

This is the 12V power supply to the external controller. For testing purposes, this can be plugged directly onto the solenoid to electrically force the control valve to full open.

**Must Connect Power Adapter to the Battery!**  
Convenience ports in the tractor may have good power, but the ground connection can pose problems during operation.

If limit switch is not adjusted properly or is not functioning, the Veris system will not receive a speed signal and will not run the drive.

If the cab console only displays one line of information, it is likely that the Power/Comm cable or the connections are damaged.

The External Controller contains a replaceable "speed" chip. Only replace this chip when all other components have been tested first. Refer to the following page for instructions on the correct procedure.

This jumper harness removes the ground wire from the speed circuit to prevent signal interference. The ground is then supplied by the DICKEY-john harness.

The Hall Effect Module amplifies the speed signal to the External Controller. For troubleshooting, this can be bypassed, but when this is done the speed displayed on the console will be exactly 1/2 of actual sensed speed.

This leg of the harness delivers the speed signal to the Dickey-john Seed Manager SE console in the cab. If speed is visible there but not on the Veris, check the limit switch. If speed is not visible on either console check the power and ground leads to the sensor. On these systems power is supplied by the Veris and the ground comes from the DICKEY-john harness.

# IntelliAg Troubleshooting tips.

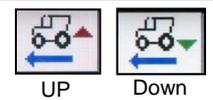
**NOTE:** This diagram does **NOT** depict a complete IntelliAg harness. The items shown here pertain strictly to the operation of a hydraulic drive system.

**Must Connect Power Harness to the Battery!**  
Convenience ports in the tractor may have good power, but the ground connection can pose problems during operation.

If the lights on the CFM continually flash on and off, this indicates that the Working Set Master is not communicating. Check for blown fuses or bad connections.

On 2009 and newer planters, the marker/fold switch must be set to the marker position for the clutches to operate.

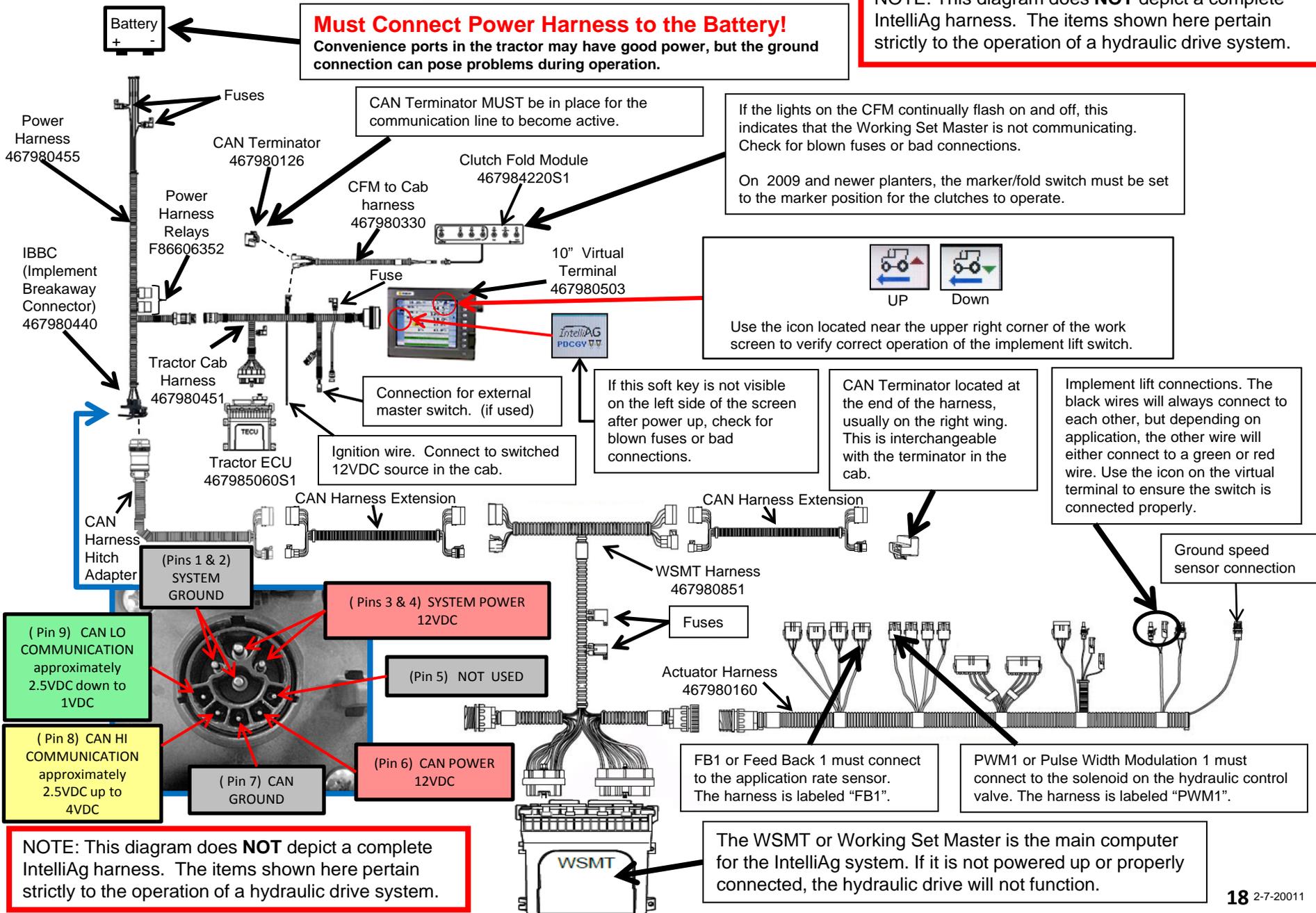
Use the icon located near the upper right corner of the work screen to verify correct operation of the implement lift switch.



If this soft key is not visible on the left side of the screen after power up, check for blown fuses or bad connections.

CAN Terminator located at the end of the harness, usually on the right wing. This is interchangeable with the terminator in the cab.

Implement lift connections. The black wires will always connect to each other, but depending on application, the other wire will either connect to a green or red wire. Use the icon on the virtual terminal to ensure the switch is connected properly.



( Pin 9 ) CAN LO COMMUNICATION approximately 2.5VDC down to 1VDC

( Pin 8 ) CAN HI COMMUNICATION approximately 2.5VDC up to 4VDC

( Pins 3 & 4 ) SYSTEM POWER 12VDC

( Pin 5 ) NOT USED

( Pin 6 ) CAN POWER 12VDC

**NOTE:** This diagram does **NOT** depict a complete IntelliAg harness. The items shown here pertain strictly to the operation of a hydraulic drive system.

The WSMT or Working Set Master is the main computer for the IntelliAg system. If it is not powered up or properly connected, the hydraulic drive will not function.