This guide will cover testing of the Ag Leader Hydraulic Seed Rate Control Module for correct operation.

1. Background

The Ag Leader Hydraulic Seed Rate module or HSCM is a seed drive control module that operates via CAN-bus with an Ag Leader touchscreen display. It will control up to 3 hydraulic drives for flat or variable rate planting. Supported drives include Dickey-John, John-Deere, Case and White.

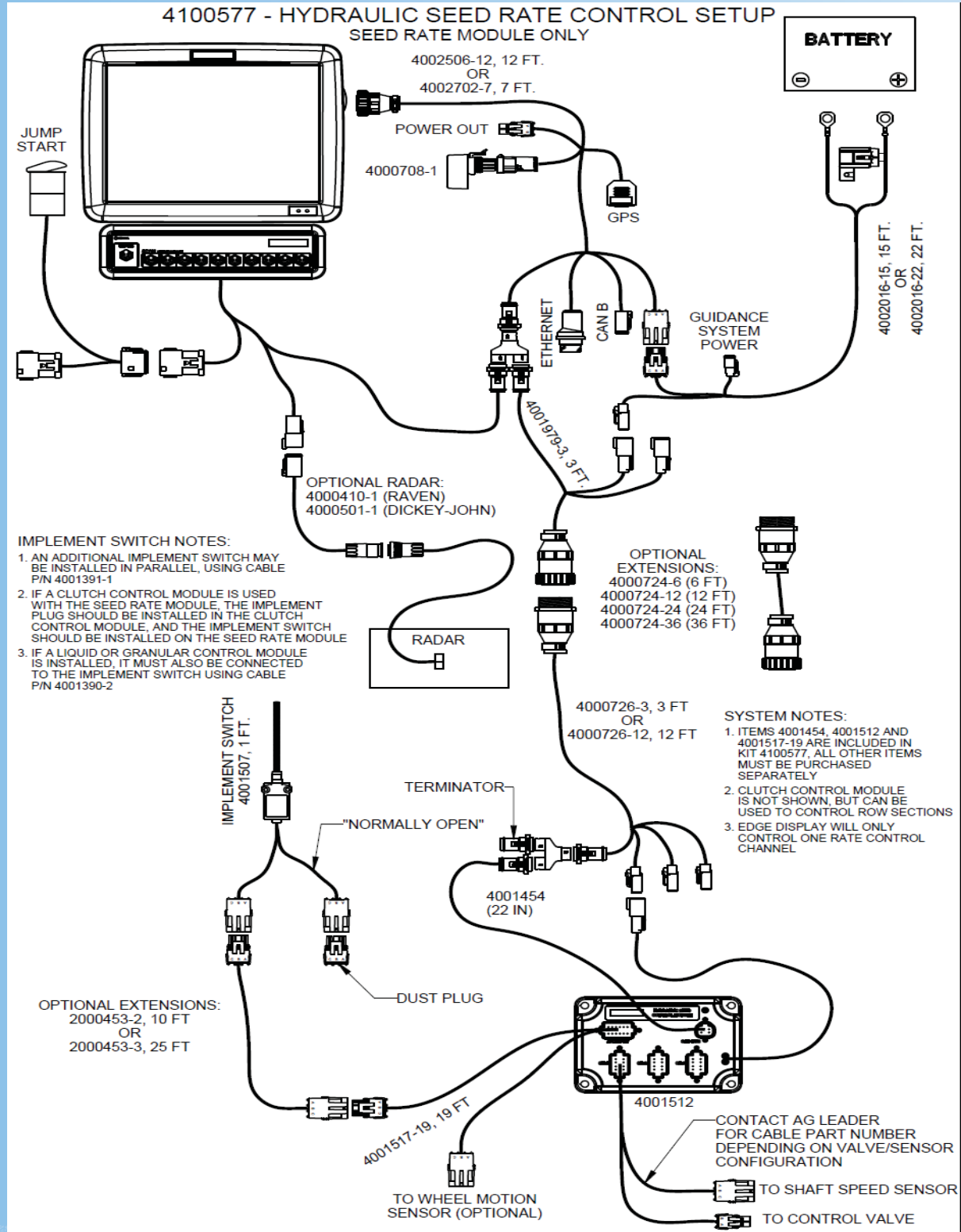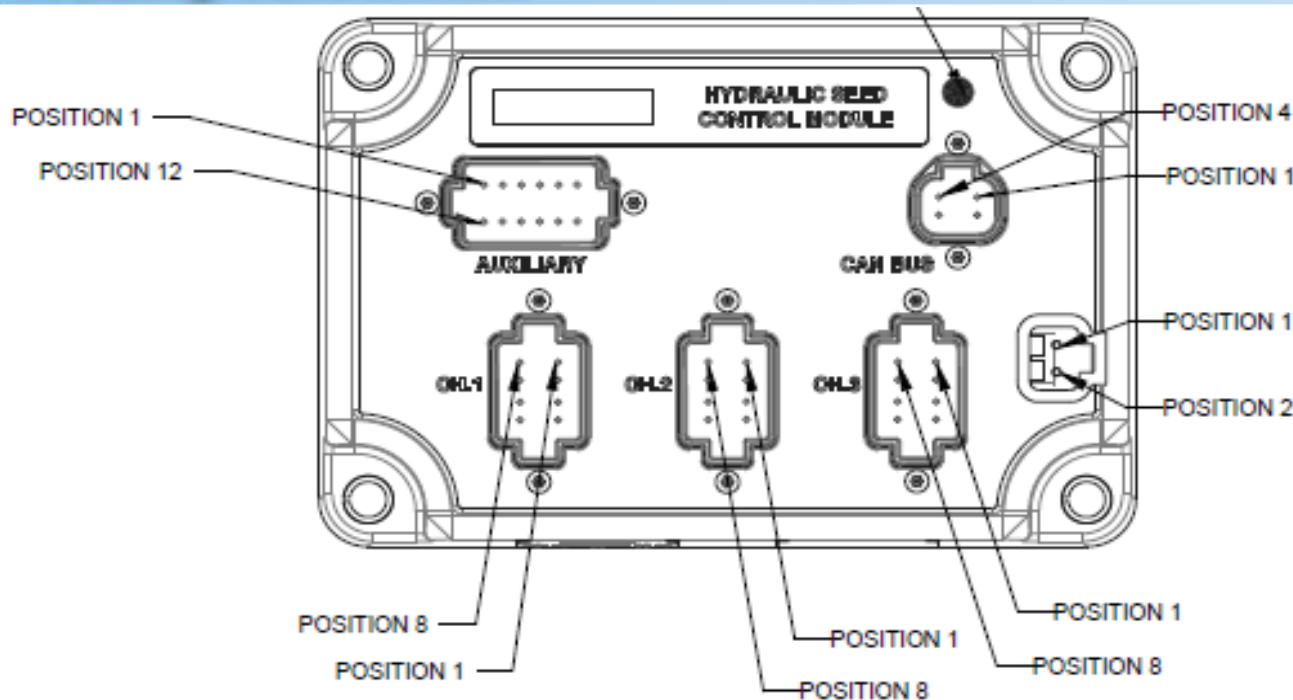**Quick Navigate (click to go to section)**

CAN	High Power	Channel Control	Channel Feedback

1. Background continued.

4100577 - HYDRAULIC SEED RATE CONTROL SETUP
SEED RATE MODULE ONLY

1. Background continued.

AUXILIARY
MATE: DEUTSCH P/N DT06-12SB-****

POSITION	SIGNAL
1	14V+ POWER
2	SERVO 1 OPEN
3	SPEED INPUT 2
4	SPEED INPUT 1
5	SERVO 1 CLOSE
6	GROUND
7	GROUND
8	SERVO 2 OPEN
9	SERVO 2 CLOSE
10	IMPLEMENT SWITCH INPUT
11	SPEED INPUT 3
12	14V+ POWER

CAN BUS
MATE: DEUTSCH P/N DT06-4S-****

POSITION	SIGNAL
1	12V+ POWER
2	CAN LOW
3	GROUND
4	CAN HIGH

HIGH CURRENT POWER
MATE: DEUTSCH P/N DTP06-2S-*

POSITION	SIGNAL
1	12V+ POWER
2	GROUND

CHANNEL 1
MATE: DEUTSCH P/N DT06-08SA-****

POSITION	SIGNAL
1	14V+ POWER
2	CONTROL VALVE SIGNAL
3	SHAFT SPEED SIGNAL
4	SHAFT SPEED GROUND
5	SENSOR 2 GROUND
6	SENSOR 2 SIGNAL
7	CONTROL VALVE GROUND
8	5V+ POWER

CHANNEL 2
MATE: DEUTSCH P/N DT06-08SA-****

POSITION	SIGNAL
1	14V+ POWER
2	CONTROL VALVE SIGNAL
3	SHAFT SPEED SIGNAL
4	SHAFT SPEED GROUND
5	SENSOR 2 GROUND
6	SENSOR 2 SIGNAL
7	CONTROL VALVE GROUND
8	5V+ POWER

CHANNEL 3
MATE: DEUTSCH P/N DT06-08SA-****

POSITION	SIGNAL
1	14V+ POWER
2	CONTROL VALVE SIGNAL
3	SHAFT SPEED SIGNAL
4	SHAFT SPEED GROUND
5	SENSOR 2 GROUND
6	SENSOR 2 SIGNAL
7	CONTROL VALVE GROUND
8	5V+ POWER

2. Checking CAN Communication

The Hydraulic Seed Control Module operates on CAN A. Check CAN communication on the display by pressing the devices button in the upper right corner of the display, as highlighted below. The HSCM will appear in the CAN list from the devices page as pictured below.

3. Troubleshooting CAN Communication

If the HSCM is not communicating with the display, try cycling power on the display. If that doesn't help, have a look at the color of the CAN status light on the module. A flashing green light indicates CAN communication with the display. An orange light represents no CAN communication and a red light indicates programming mode.

If the HSCM light is flashing red, try re-flashing firmware to the module and cycle power on the display. If the module light continues to flash red, try re-flashing firmware to the module 3 or 4 additional times.

3. Troubleshooting CAN Communication continued.

If the HCSM is blinking orange, unplug the CAN stub to see if cabling is the reason for the lack of communication with the display. Using a voltmeter, check across pins 1 and 3 (power and ground) for 12V. Also check across pins 2 and 4 with the ground probe on pin 3 for CAN traffic. There should be less than 5V on either of these pins. Lastly, if there are no   voltage readings on the CAN stub, move the module up to the CAN connector on the display cable to ensure the module can be read and to determine CAN cabling health.
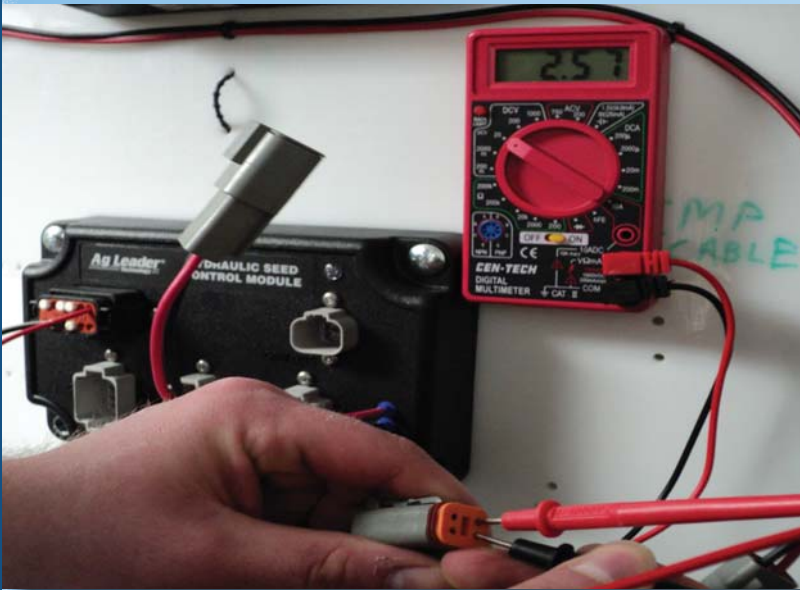
4. Checking/Troubleshooting High Power

High power comes into the HSCM via a 2 pin duetsch connector. There should be 12V+ at this connection with the tractor running. If not, head up to the battery cable on the tractor, there should be 12V+ on the grey duetsch connector. If there isn't power on that connector, inspect the 30 amp fuse and ensure the battery cable connections are clean and tight.

5. Checking Power on the HSCM

The HSCM will output voltage on the channel ports to open the hydraulic control valve to turn the drives. On the display, criteria has to be met for this command to occur:

1. The configuration will need to be put in "rate not responding"
2. The planter will need to be lowered or have an implement switch jumper in the auxiliary port.

Rate Not Responding

Rate not responding is can be used as a diagonstic tool on an Ag Leader system to verify operation. It is defined by the actual rate being off for more than 6 seconds. Follow the directions below to put the display into rate not responding.

1. Turn off AutoSwath

a. Press the AutoSwath button to deactivate AutoSwath. Grey is off, green is active.

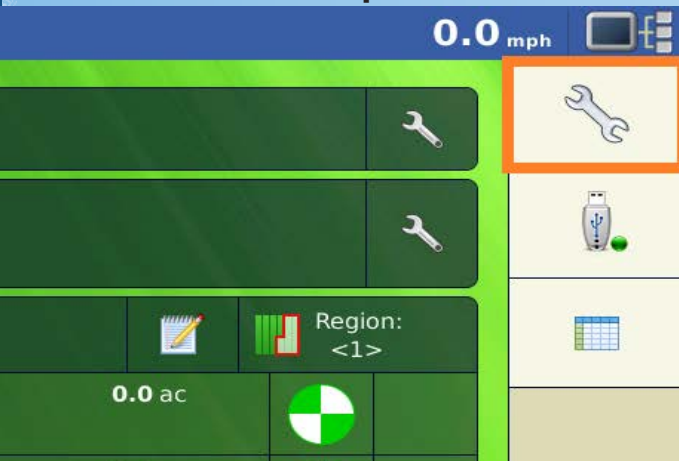# 5. Checking Power on the HSCM continued.

2. Enter a target rate

a. Expand the product control tab
Press the wrench on the product control tab to assign a rate.
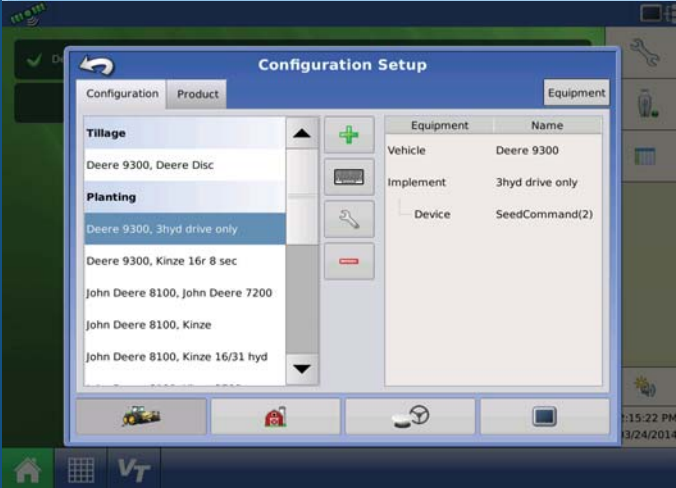

b. Press the rate 1 keypad to assign a target rate.
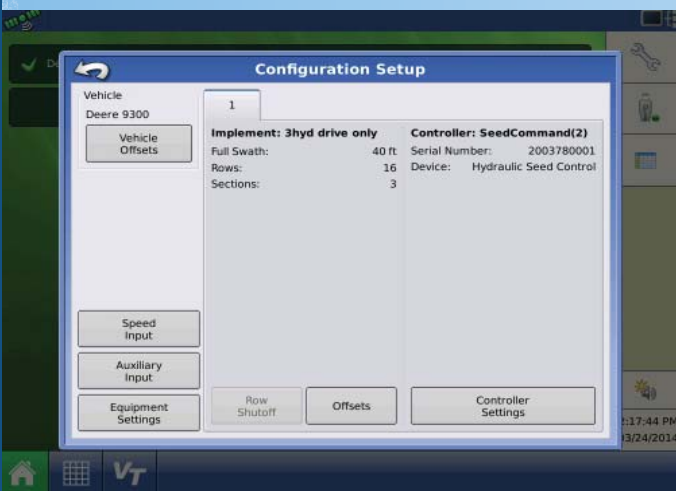
3. Enter a manual speed

a. Press the setup button.
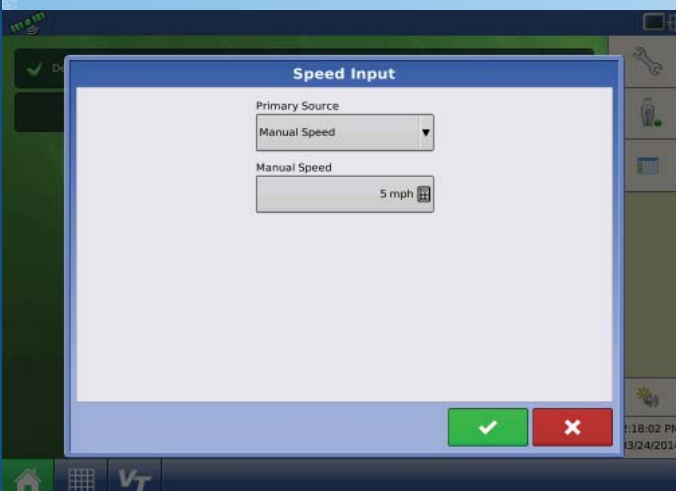
5. Checking Power on the HSCM continued.

3. Enter a manual speed continued

b. Highlight the configuration and press the wrench in the middle of configuration setup.
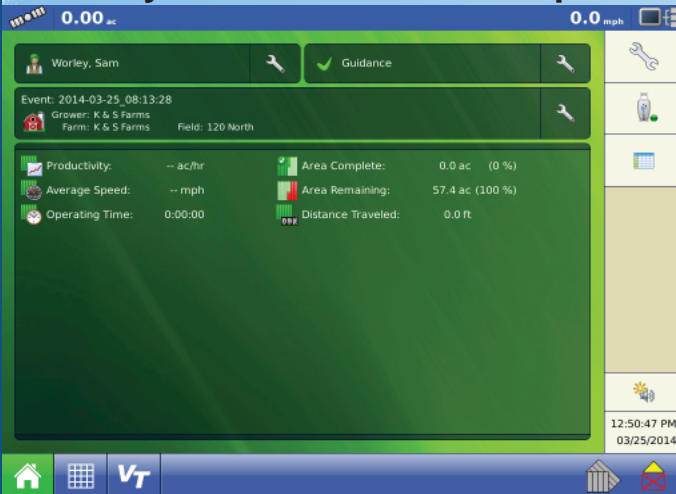

c. Press speed input.

d. Expand the drop down menu for primary source and select manual speed. Press the keypad to assign a manual speed value.
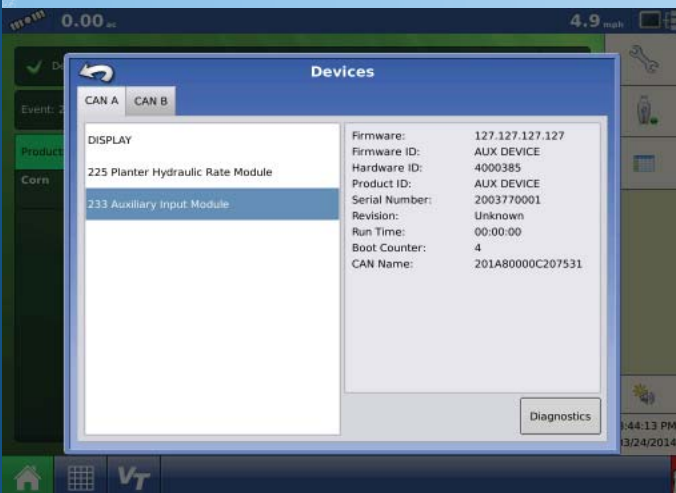
5. Checking Power on the HSCM continued.

4. Turn on Master Switch and Boom Switches

5. Verify switch detection in Input Diagnostics

a. Press the devices button.

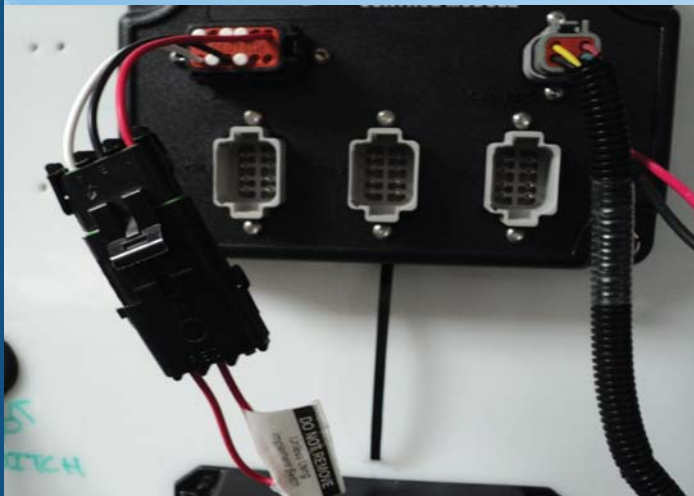**b. Select the Auxilary Input Module, press diagnostics.**

c. Verify that all switches in the on position are green.

Switches in the off position will be identified by a black box. Grey switches are unassigned.

5. Checking Power on the HSCM continued.

6. Implement Switch

a. Make sure the Implement Plug is in the auxiliary port on the HSCM or the planter is lowered, tripping the implement switch (es), if equipped.

7. Rate Not Responding Mode

a. At this point, the display should be in rate not responding mode and sending a voltage command out to the control valve to open it. If the display is flashing rate not responding but the control valve isn't opening, contine to step 8.
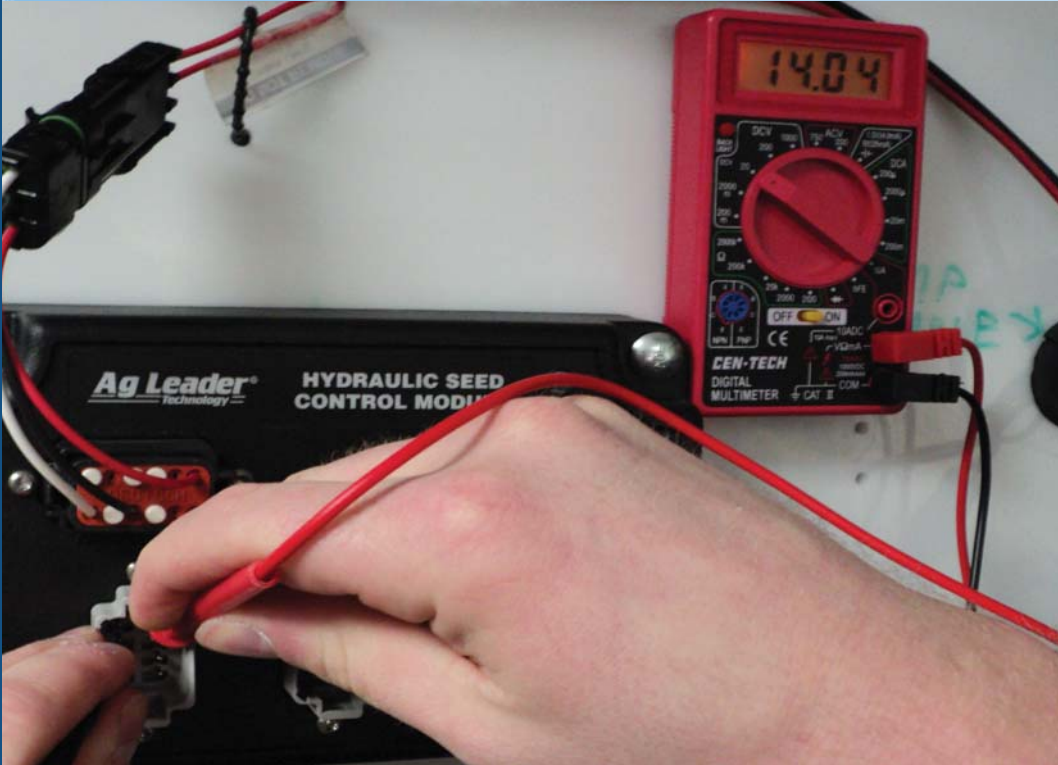
8. Unplug the control valve connection

a. Unplug the 2 pin connector from the control valve and test for power while the display is flashing rate not responding. There should be 12V+ at this connection assuming the valve response 1 setting is 100%. If there is power here and the valve won't respond, there likely is a problem with the valve. If there isn't power here, continue to step 9.

5. Checking Power on the HSCM continued.

## 9. Unplug the Channel Connection

a. Unplug the channel connection and test for 12V across pins 7 and 2. If you have power here, you have an issue with the control/ encoder channel cable. If you do not have power here, check the high power into the module and battery cable. Otherwise there is an issue with the HSCM.
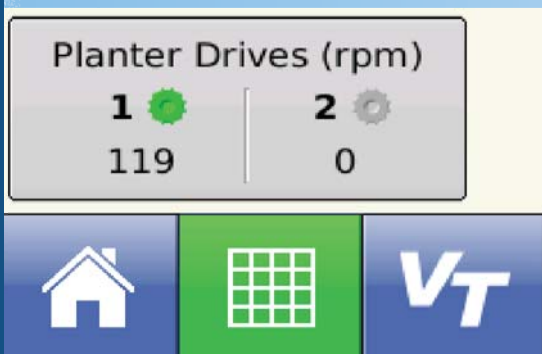
6. Checking the Encoder

SeedCommand requires a feedback device such as an encoder to know how it is controlling the valve. To simulate the encoder for troubleshooting purposes, the display will need to be in rate not responding mode, outlined on pages 8-12. A jumper wire will be needed to pulse a signal on the connection to the encoder and also on the channel port of the HSCM.

1. Unplug the Encoder Connection
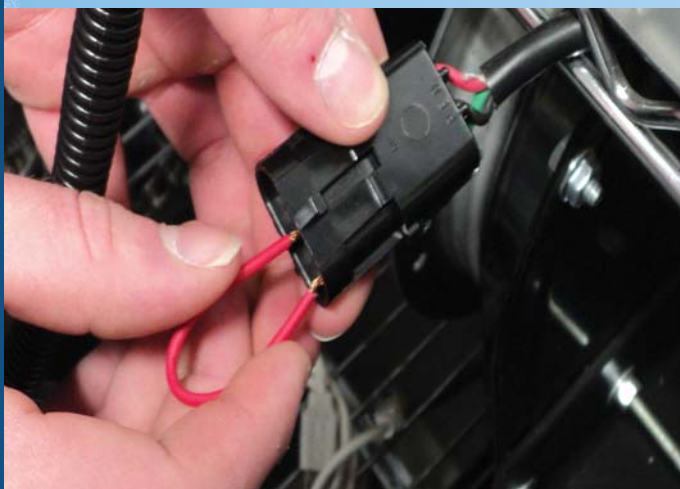
a. With the display in rate not responding, unplug the connection to the encoder. Hold the jumper wire on one pin and pulse the other pin of the connector to the encoder connection on the signal and ground pins. This will show up on the display in the meter RPM but ton of the run screen. If you do not see feed back on the run screen, proceed to step 2.

	Power	Ground	Signal
Case IH (4002142)	1	2	3
Dickey John (4001677)	A	B	C
John Deere (4001528)	A	B	C
White (4001677)	A	B	C

b. Also be sure to check power to the encoder if shaft speed is not reading. Probing across power and ground should yield 12V.

6. Checking the Encoder continued.

2. Unplug the Channel Connection

a. Use the jumper wire to make and break the connection between pins 3 and 4 on the channel port to see feedback on the run screen. If you get a reading on the display, there is an issue with the channel control cable. If jumping pins 3 and 4 does not yield any feedback, proceed to step 3.

3. Check High Current Power
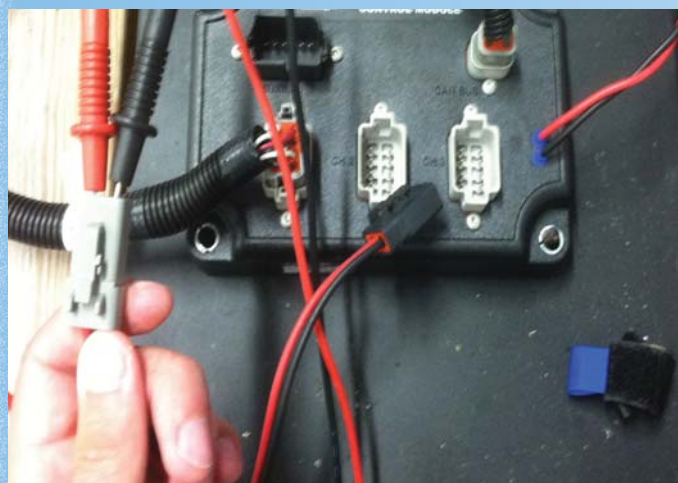
a. Test the high power connection to the module. There should be 12V+ at this connection with the tractor running. If the connector is properly mated, there is an issue with the module.

If there is not 12 volts at this connection, check fuses and cabling up to the battery.