The Following pages will help you to test the function of a Raven system that is controlled by a Bourgault Air-Seeder that is equipped with a Topcon X30.
For safety it would be best to complete these test without product!

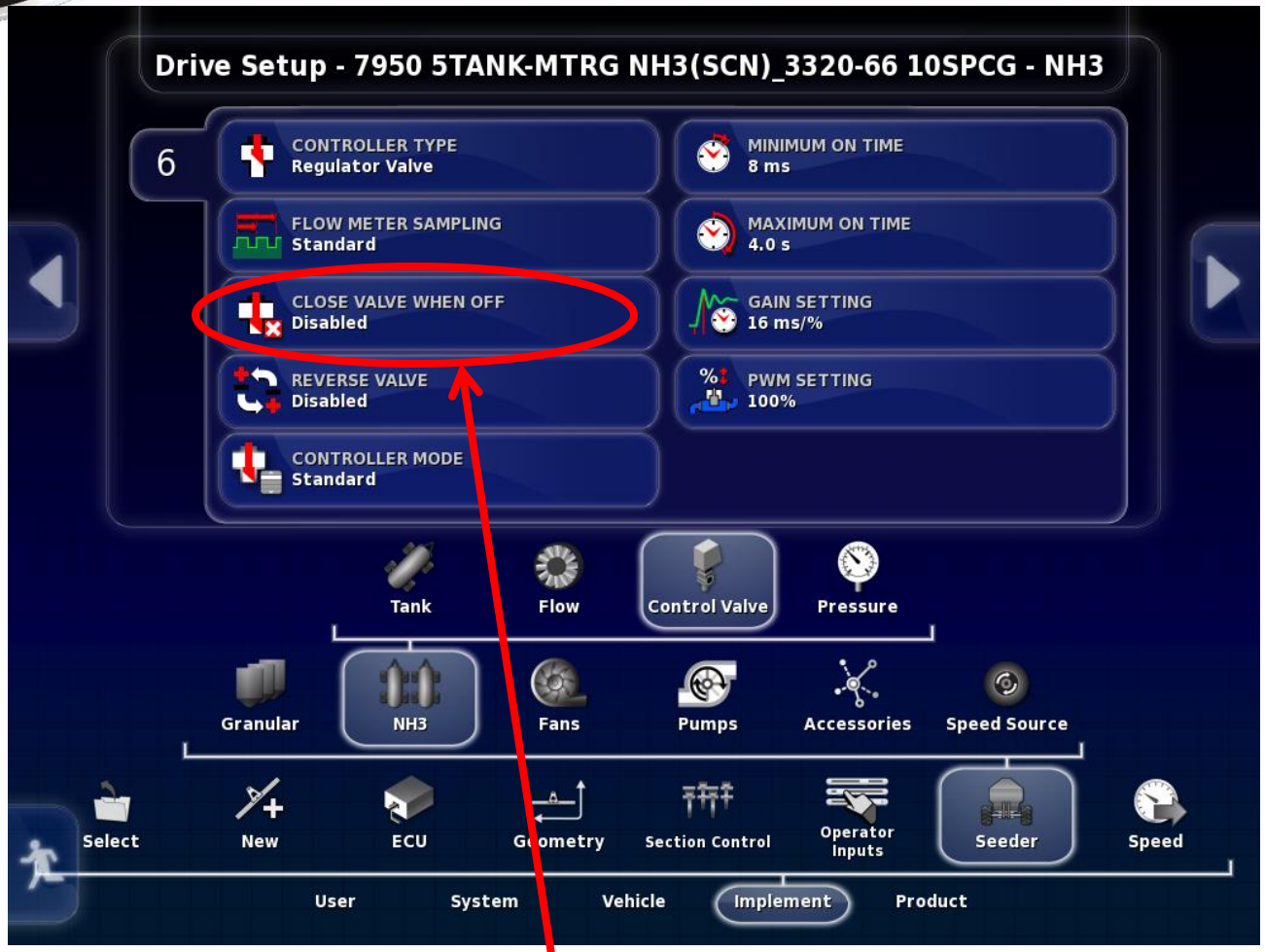
Locate the Bourgault test/fuse harness (3151-00) located on the LH side of the Air-Seeder. (The 3151-00 harness has a fully populated test lead to check power under load, the test lead is long enough to complete the testing out from underneath the tank.

3151-00 Test/Fuse Harness

You will be required to switch the X30 to Manual speed by touching the wrench symbol On the RH side of the operating screen and entering a Manual Speed

Enter Setup by touching the Wrench symbol in the lower LH corner

Select Implement/Seeder NH3 or Liquid/Control Valve then select Controller Type Regulator. If proportional was previously selected change to regulator then back to proportional after initial testing



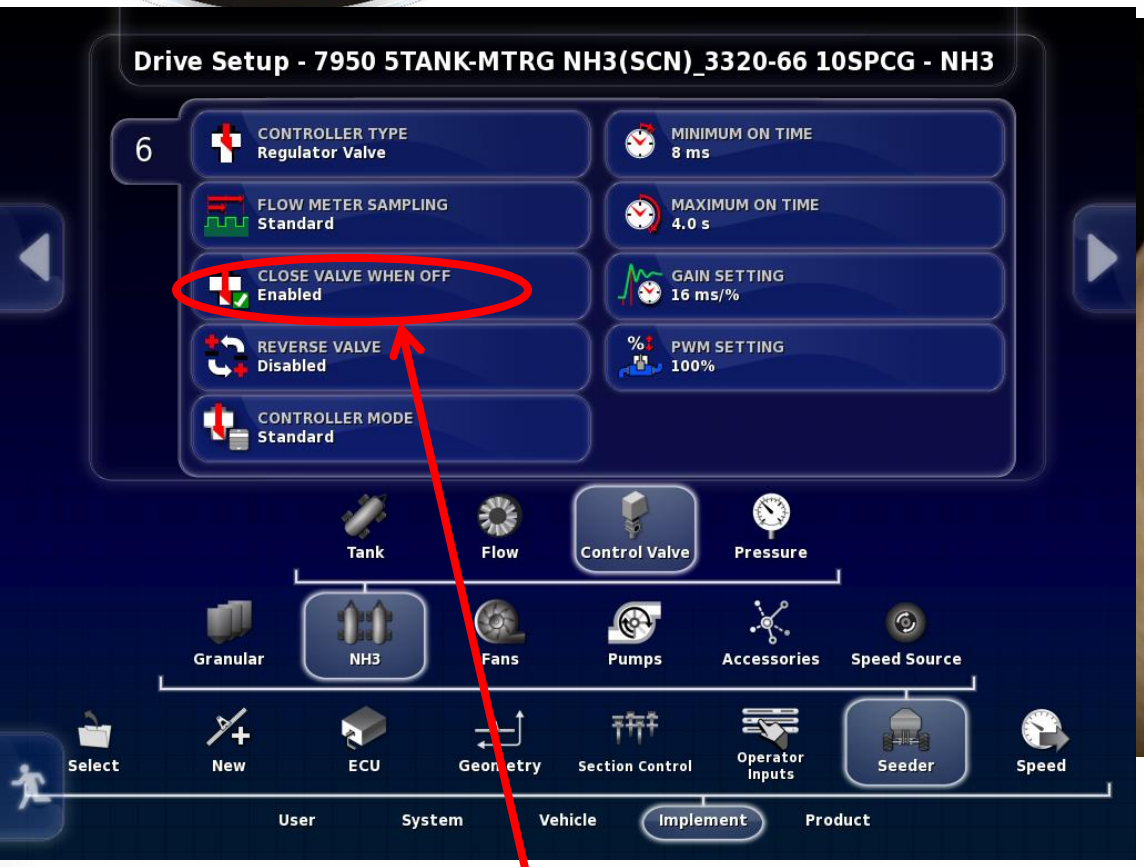
Close Valve if Tank is Off should be enabled if using a 4 wire Fast Valve and disabled if using a 2 Valve System (separate regulator and on/off valves).

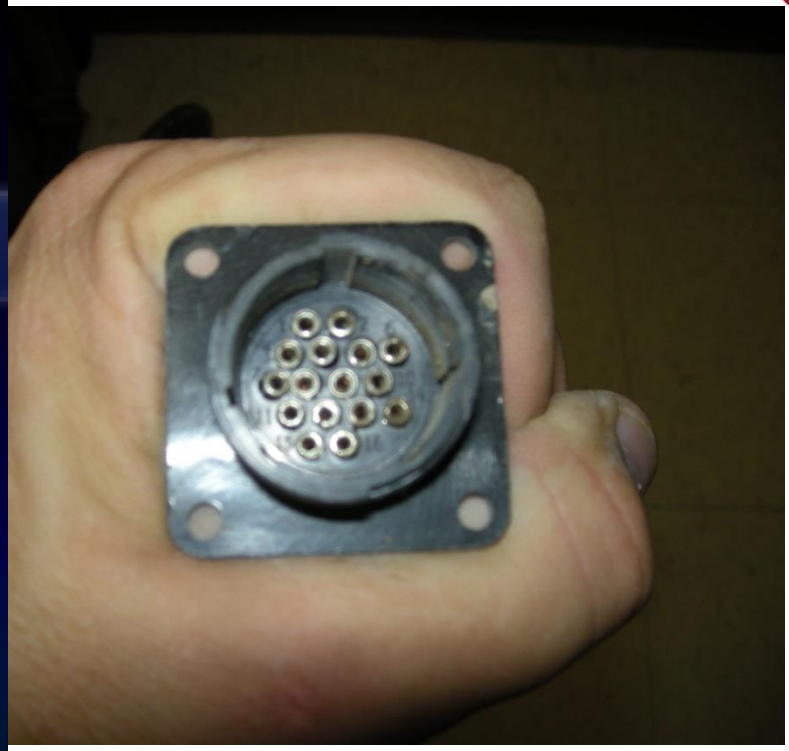
Reverse Valve should be disabled for this test. (after test are completed the valve direction should be verified)

Go to the Running screen by touching the symbol.

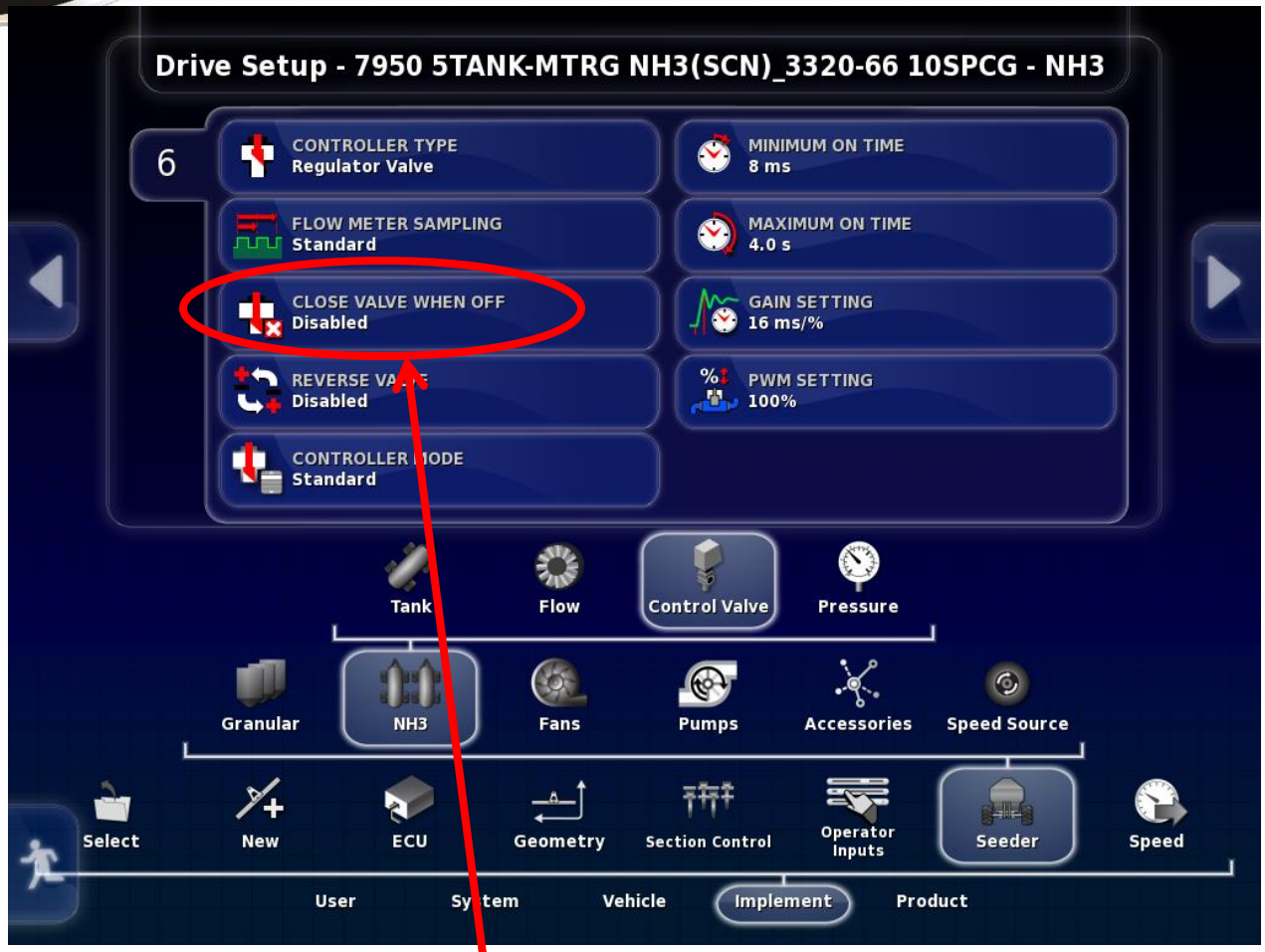
Select the NH3/Liquid tank and ensure there is a requested rate .

With a voltmeter set to read voltage put the negative lead on pin 4 and the positive lead on pin 3 of the 3151-00 harness. Have someone turn on the NH3/Liquid clutch and you should see +12 volts. (this will be the same for both 2 Valve systems and Fast Valve systems)





If the Close Valve When Off is selected the voltage will show -12Volts when the NH3/Liquid clutch is turned off and the Negative lead is on pin 4 and Positive lead on pin 3. (This is the normal configuration of a Fast Valve system)

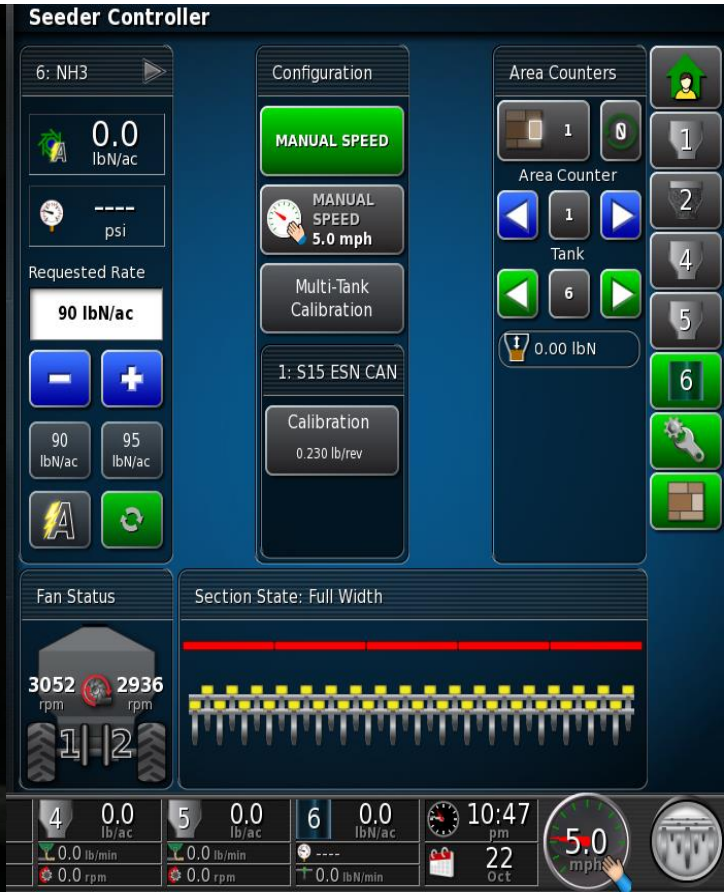


To test the 2 valve system you do not have the Close Valve When Off enabled so you will have to Enable Reverse Valve to see -12 volts when the negative lead is on pin 4 and the positive lead is on pin 3.

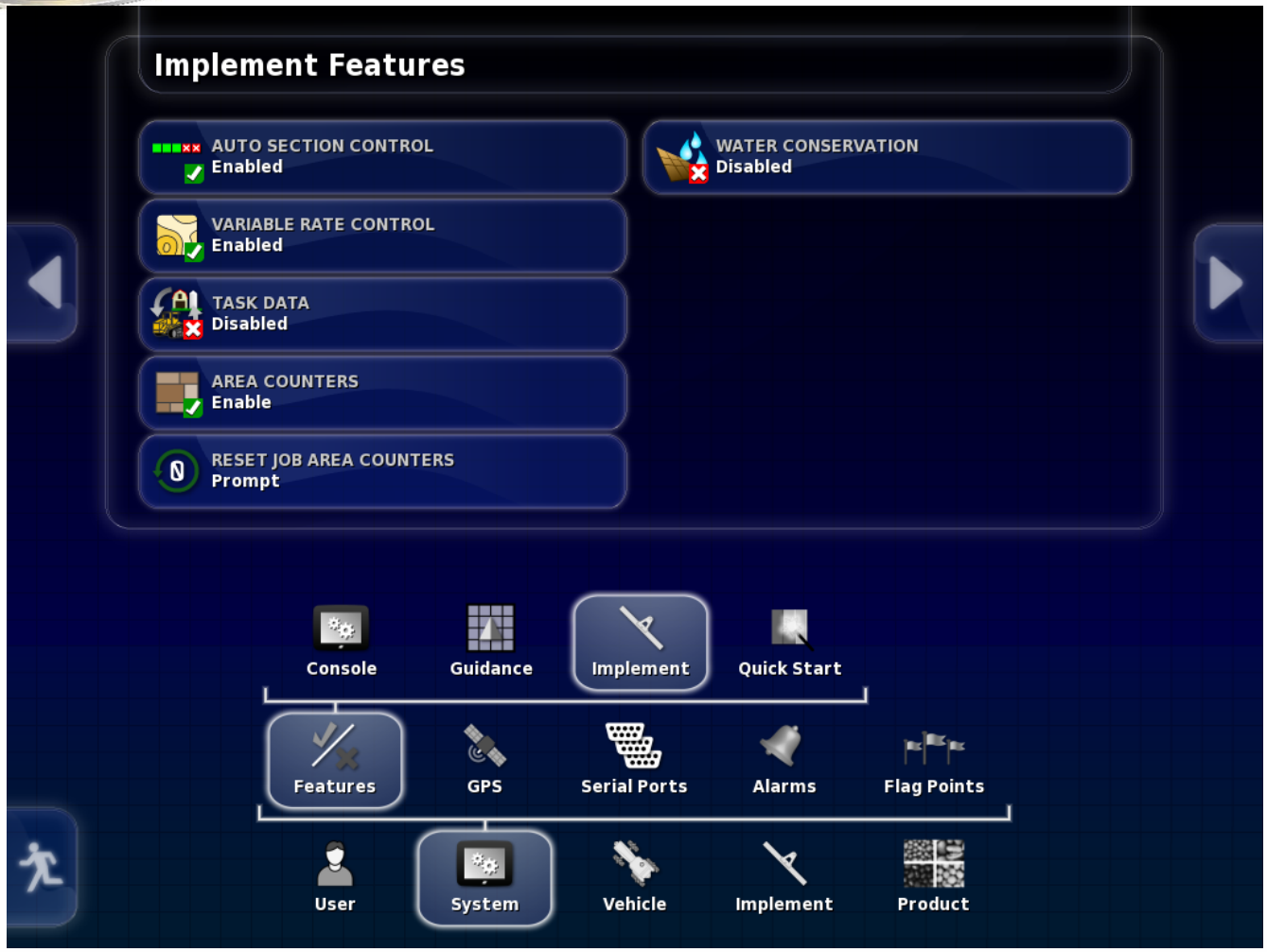
Flow Signal Test

Select the Area icon from the right side of the running screen and display NH3/Liquid Area

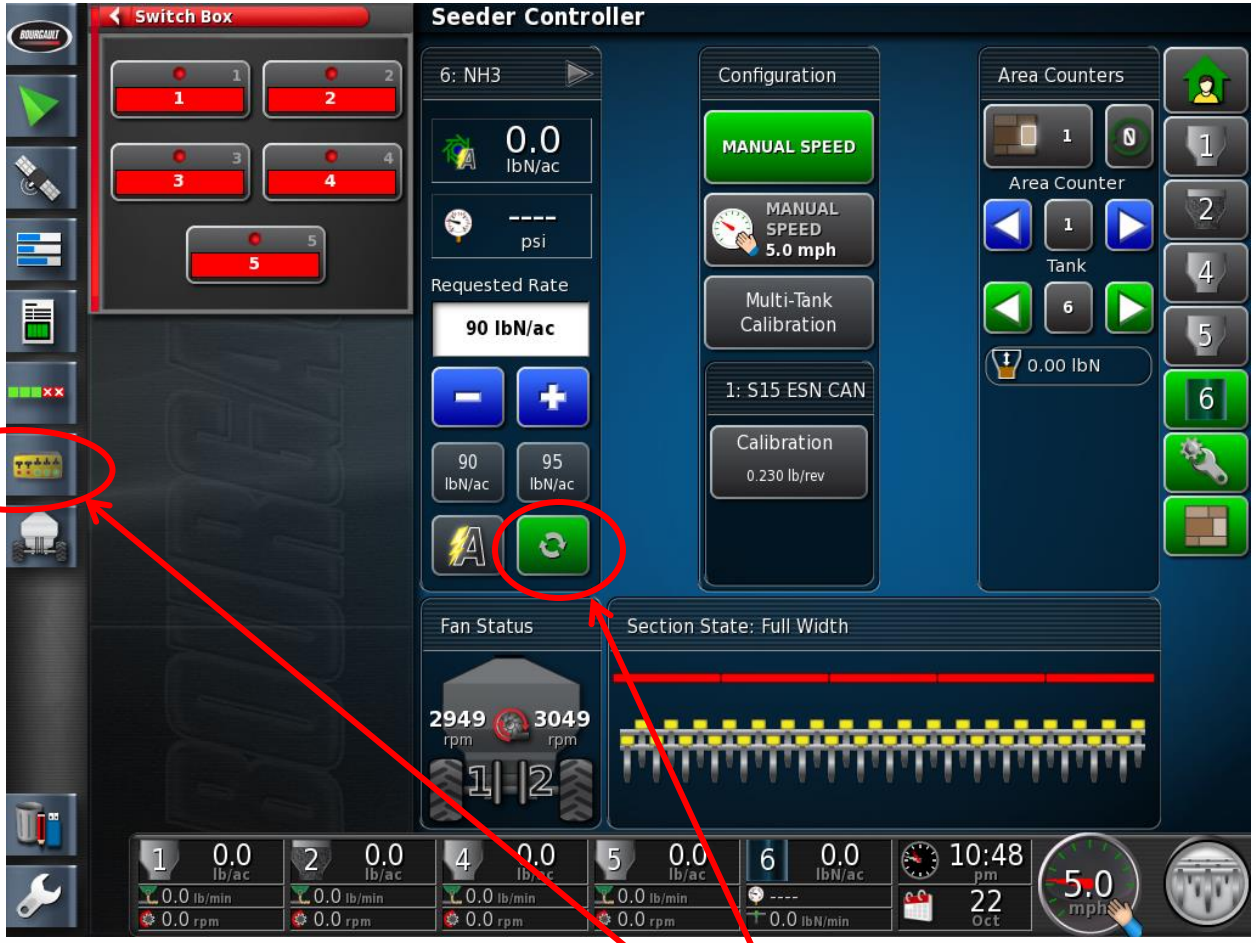
Enter Setup/Implement/Seeder/NH3or Liquid/Flow. Record the existing Calibration Factor for future reference and enter a Calibration Factor of 1.



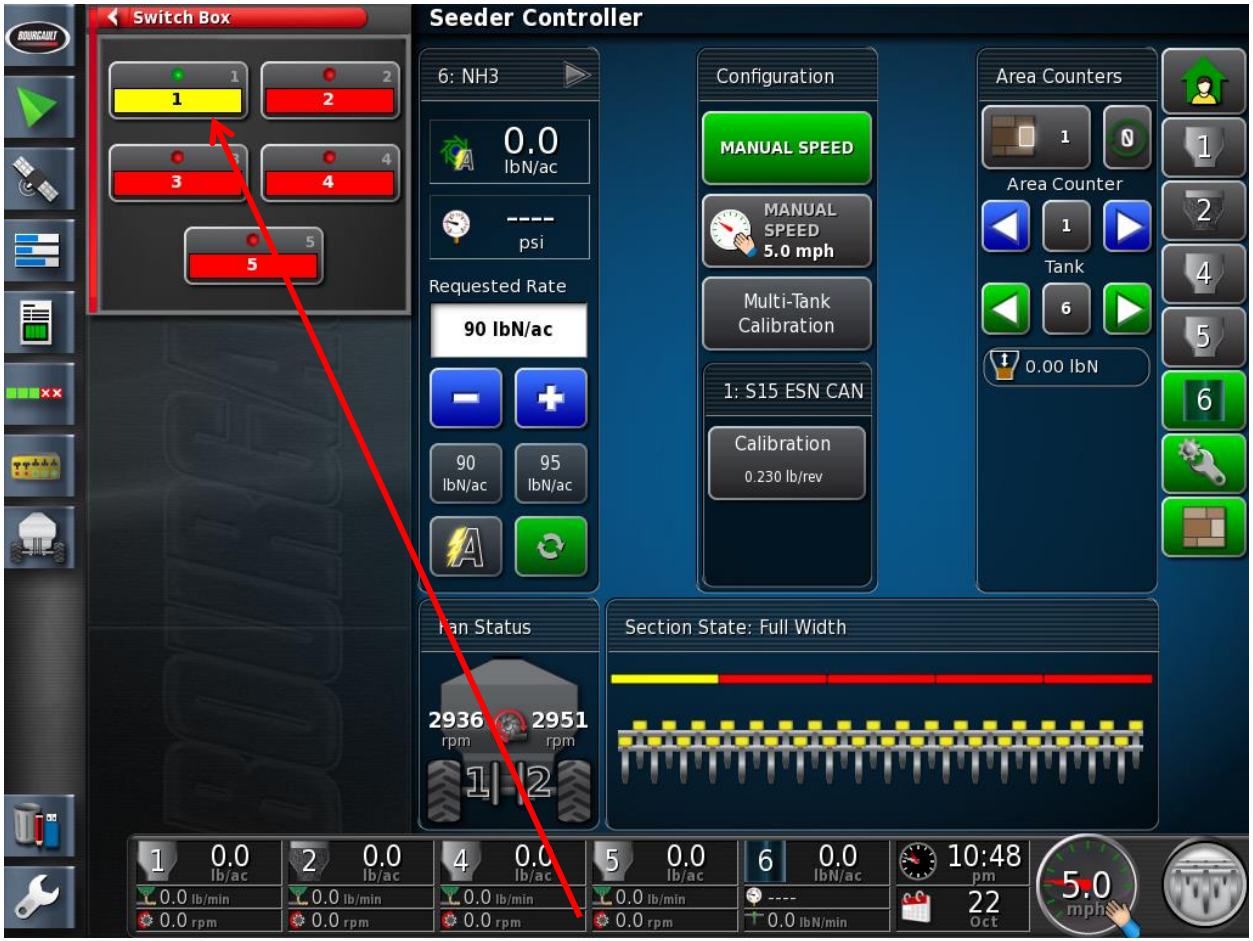
Go to the Running screen to view Area and with a small wire such as a paper clip short between pin 11 (GND) and pin 13 (signal) of the 3151-00 harness. Each pulse will register 1 lb of product in the area counter.

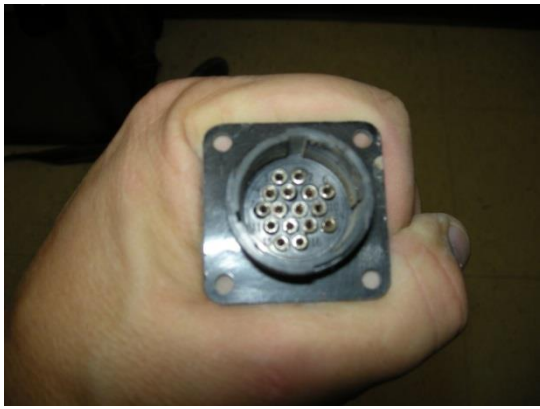


Enter Setup/System/Features/Implement then enable Auto Section Control.



Go to the Running screen, select the Virtual Switchbox on the LH side of the screen. Turn on the clutch for the NH3/Liquid as well.





With your negative lead on pin 1 and the positive lead in pin 6 you should have 12 volts positive when you turn on section 1

The chart bellow gives you the pin-outs of each section that should have 12 volts when you turn on the associated section.

- Section 1 – pin 1 (GDN) and pin 6 (+ 12 volts)
- Section 2 – pin 1 (GDN) and pin 2 (+ 12 volts)
- Section 3 – pin 1 (GDN) and pin 5 (+ 12 volts)
- Section 4 – pin 15(GDN) and pin 7 (+ 12 volts)
- Section 5 – pin 15 (GDN) and pin 8 (+ 12 volts)
- Section 6 – pin 15 (GDN) and pin 9 (+ 12 volts)

With the negative lead on pin1 you should have a constant +12 volts on pins 14 and 16.

Your final test should always be to have all of the Raven components plugged in and verify function and direction of the valves.