



Precision Liquid Fertilizer Solutions



AgXcel Integration into Ag Leader
Integra firmware 4.0 and higher

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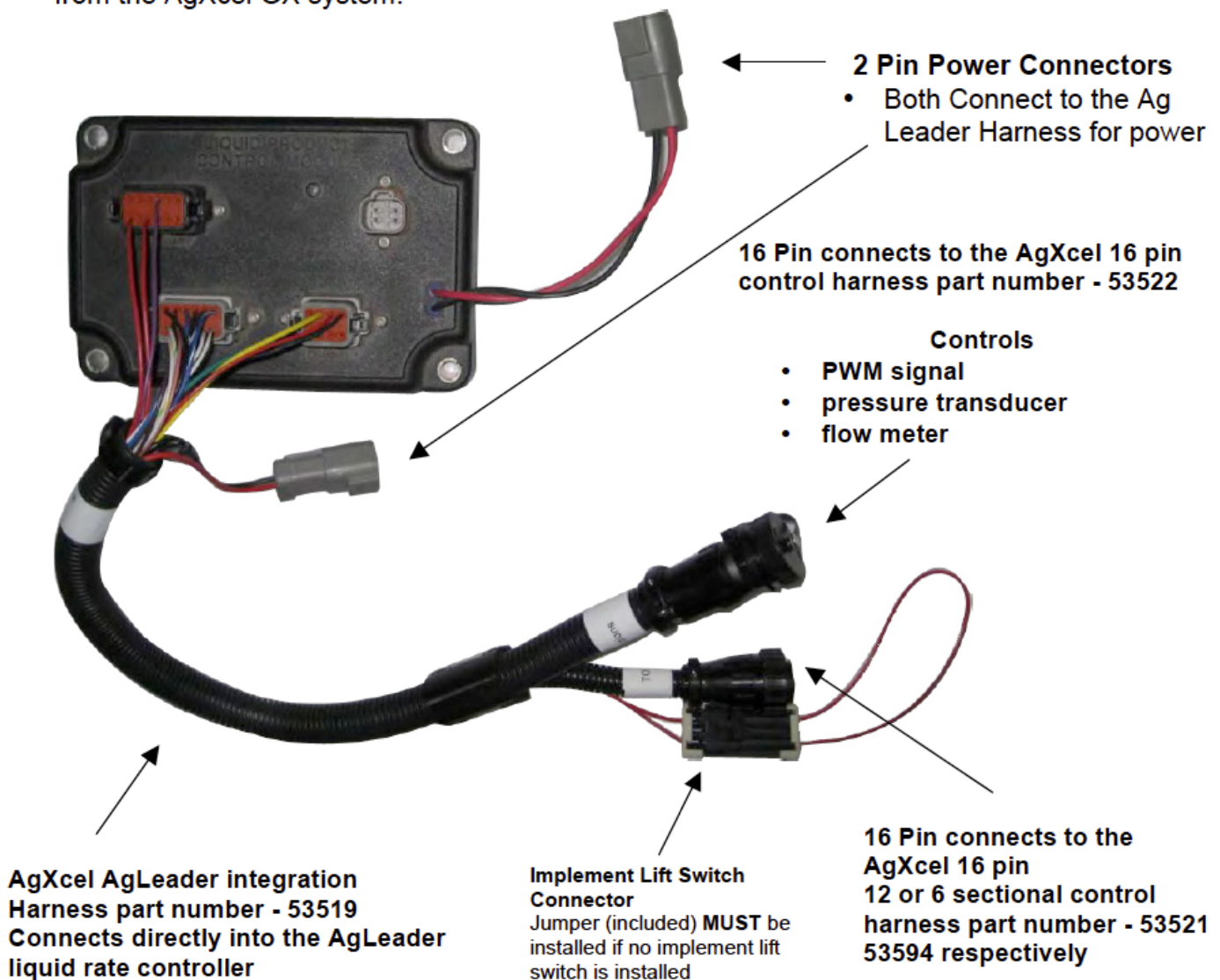
Table of Contents

AgXcel Integration into the AgLeader System.....	3
AgXcel Dual Fertilizer Pump GX2	4
AgXcel Dual Fertilizer Pump	5
AgXcel Liquid Control Module.....	6
Setting Up an Implement in an AgLeader Integra.....	7-16
AgLeader Setup.....	17
Configuration - Setup and Calibrate	17
Setup Configuration List.....	18
Setup Controller Choice	19
Setup Controller Settings.....	20-27
Troubleshooting.....	28-30
Fertilizer Flow Verification	31
Rate Charts	32-33
Recommended Care and Maintenance	34
Electronic Waste Gate Valve.....	35-41
Calibrating two pressure transducers	42-47

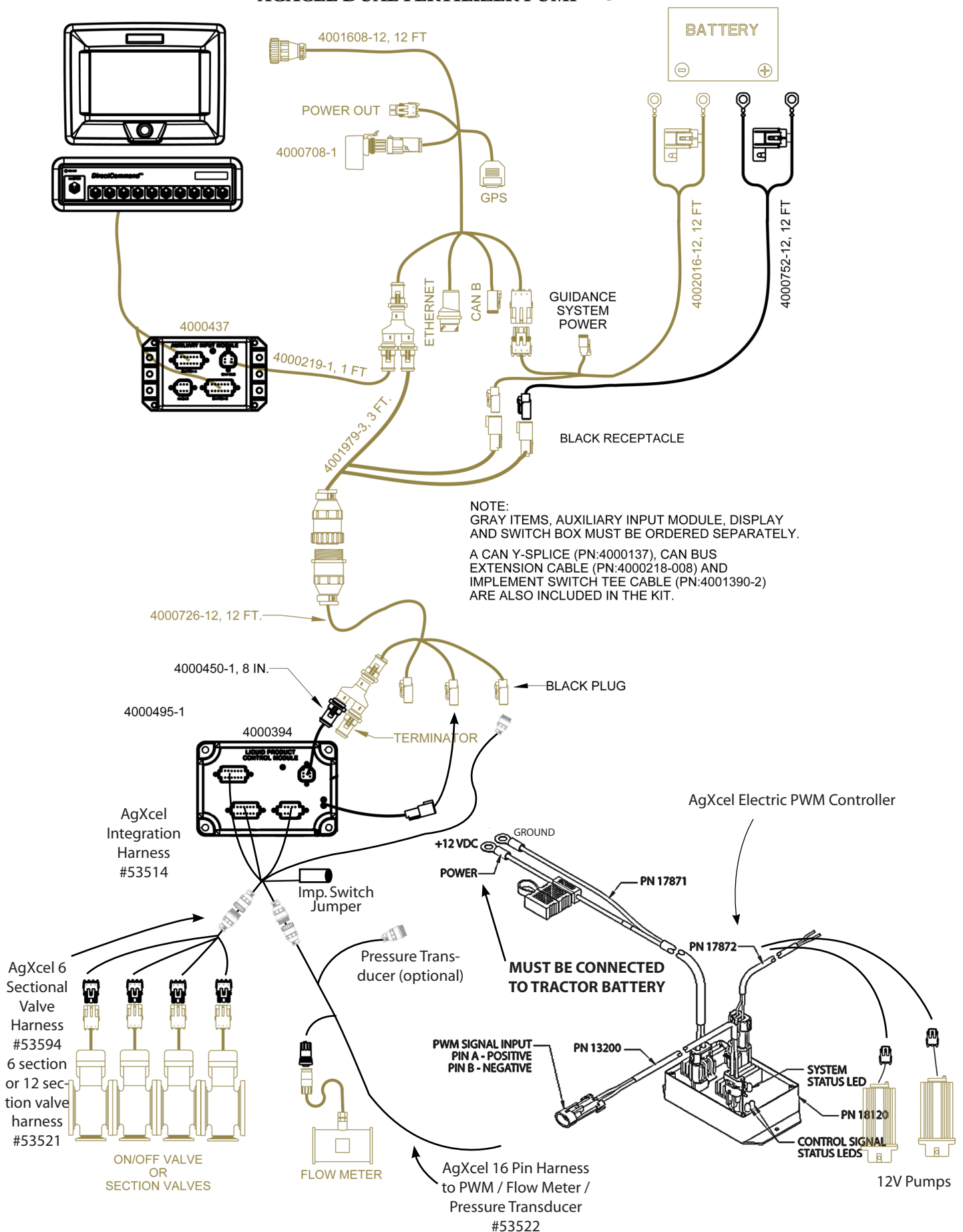
AgXcel Integration into the AgLeader System

AgXcel Precision Fertilizer Application Systems (FAS) are designed to integrate into various OEM controllers. This installation guide will assist in the controller configuration settings for the in-cab monitor. The integration process begins with the users purchase and installation of the corresponding OEM's Liquid Rate Control Module,

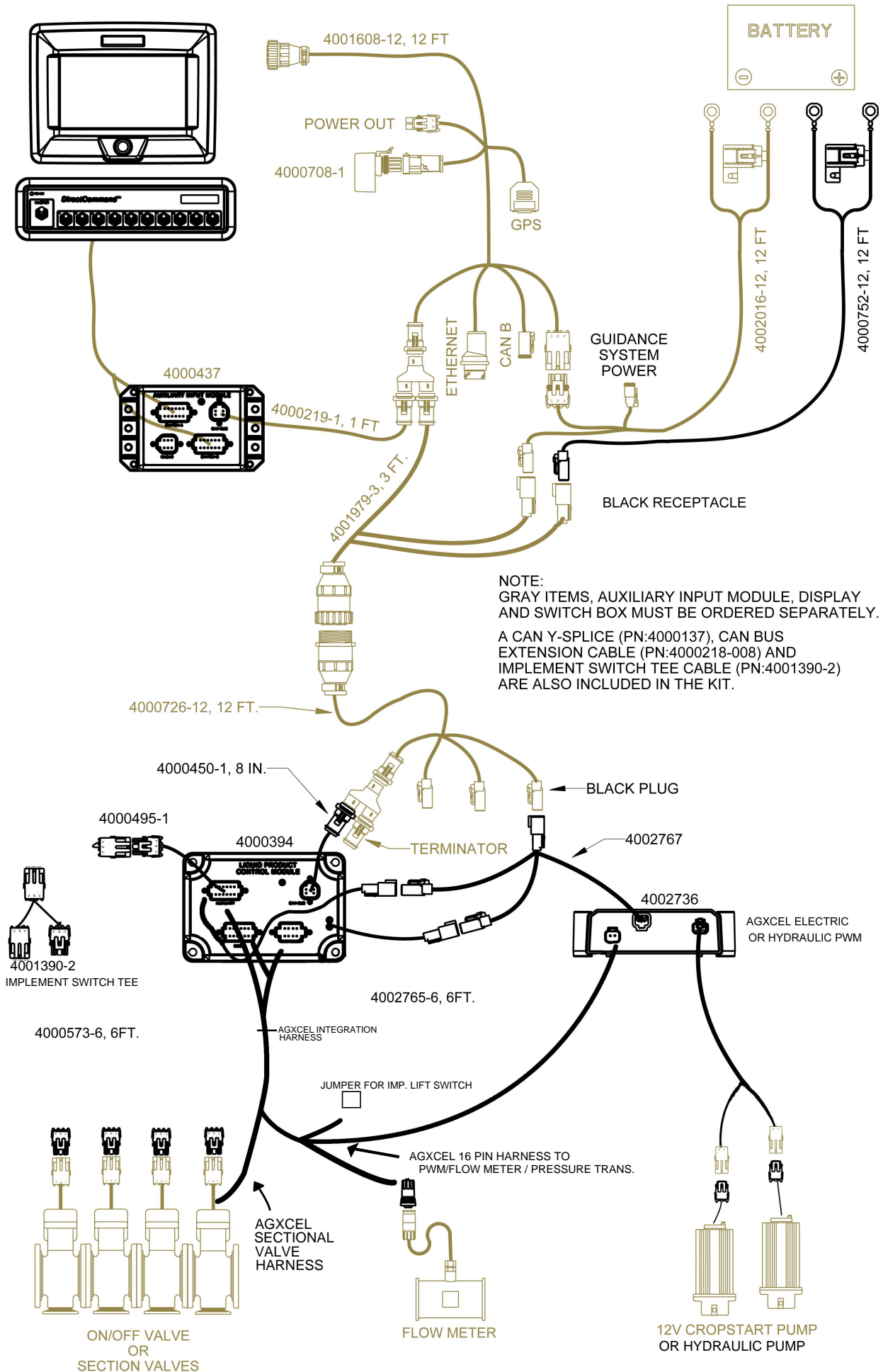
The picture below displays the AgLeader Rate Controller with the AgXcel integration harnesses. Each AgLeader Rate Controller can control one product. Therefore, if you were applying two liquid fertilizers on you planter, you will need three rate controllers, one for seed and two for liquid fertilizer. The harness coming out of the AgLeader rate controller is a 37 pin amp connector that will be connected to the AgXcel 12 / 12 / 8 pin amp connector extending from the AgXcel GX system.



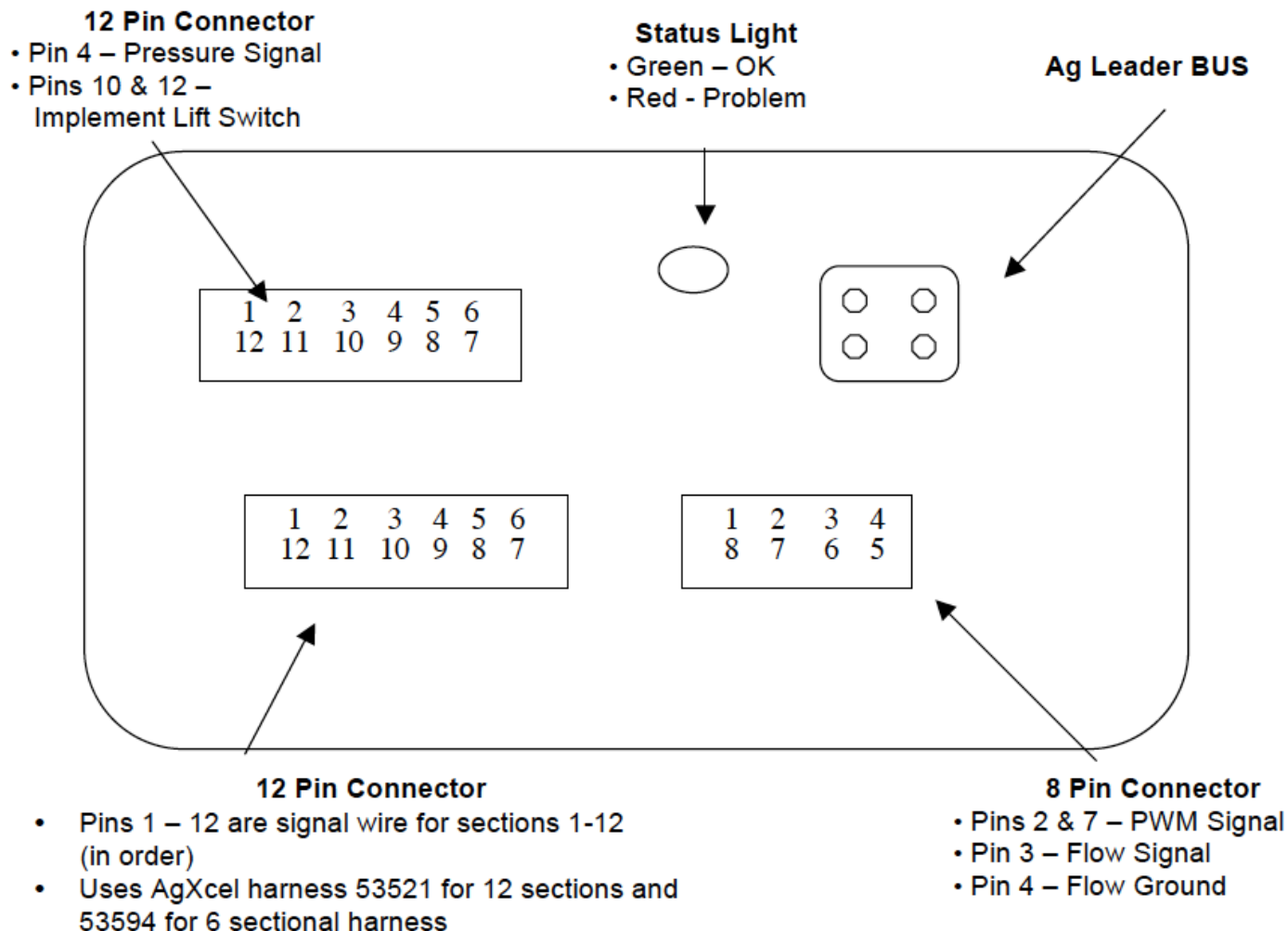
AGXCEL DUAL FERTILIZER PUMP - GX2



AGXCEL DUAL FERTILIZER PUMP



AgLeader Liquid Control Module

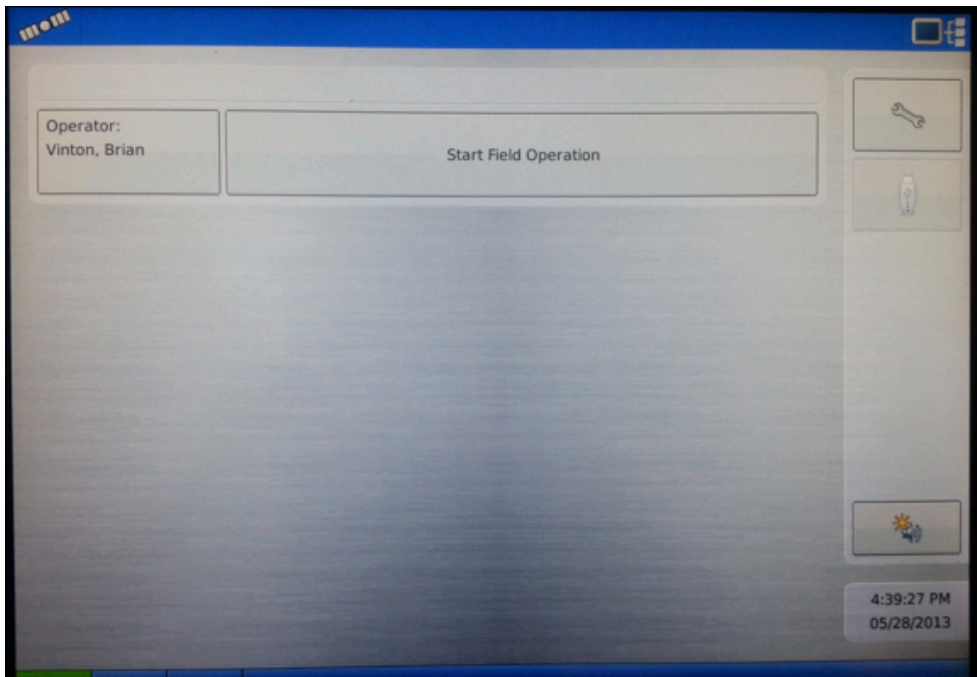


Common Troubleshooting Guidelines:

PWM Signal to Pump: Pin 2 to 7 should have 0-12 volts to turn pump on. Use manual mode to increase signal. This should get up to 12 volts after holding increase button.

Flow meter Tap Test: Pins 4 and 3 are Flow Ground and Signal. If no flow is registering on the display, you can tap between these two pins with a short wire. This produces a pulse. The display should indicate a flow when this is done rapidly.

Setting Up an Implement in an AgLeader Integra:



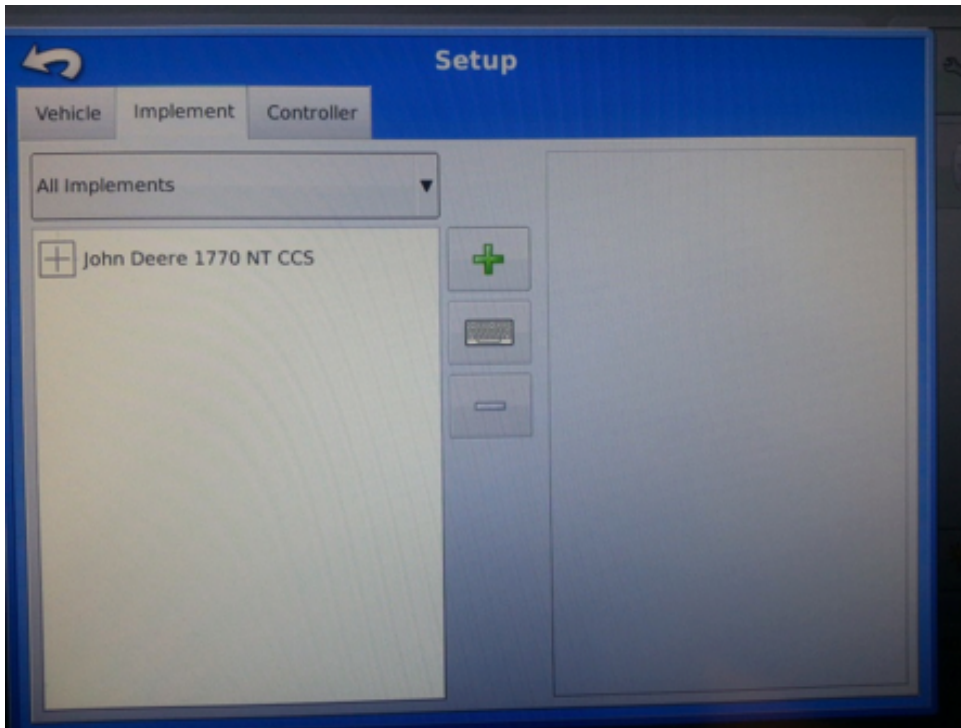
From the Home Screen choose “Wrench”.



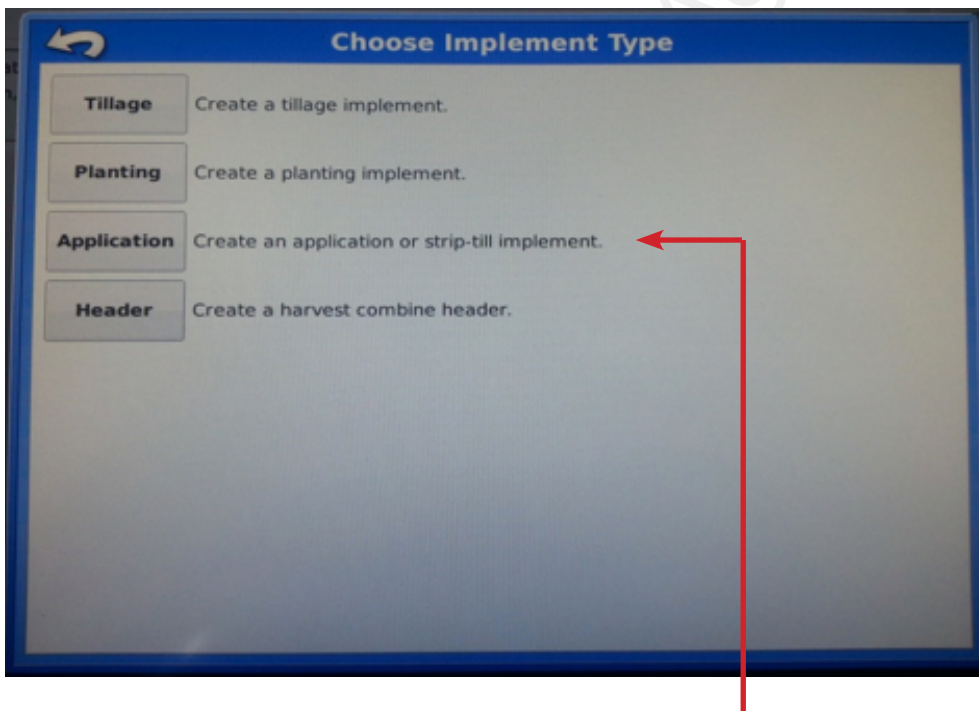
From the Configuration Setup screen choose “Equipment”.

Setting Up an Implement in an AgLeader Integra:

continued...



Next, choose the implement tab in the middle and touch the green “+” button to add a new implement.

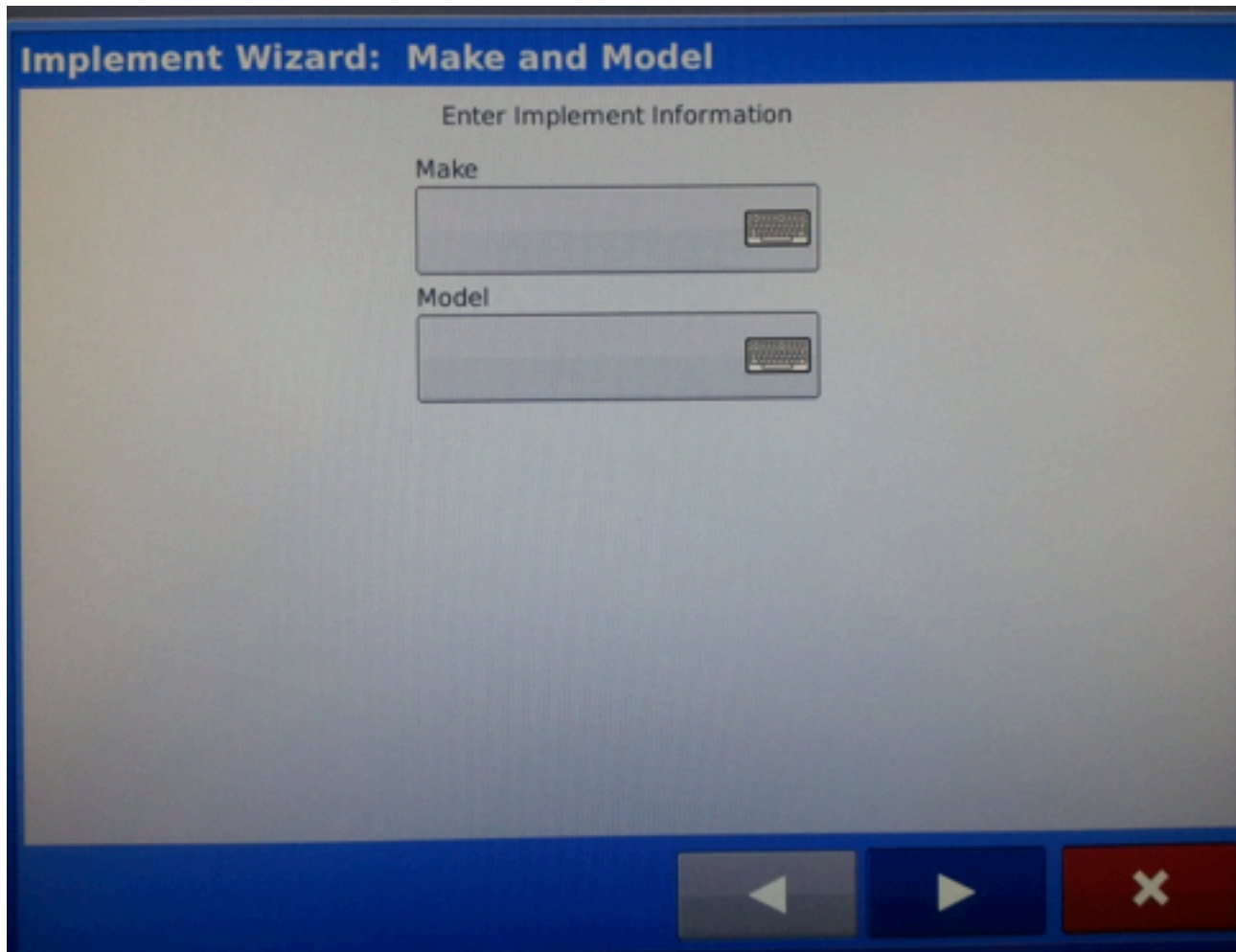


On this screen we are going to choose the implement type. When setting up the GX2 on a planter choose “Application”. Next, select the tractor being used with the implement and press the right arrow button.

Setting Up an Implement in an AgLeader Integra:

continued...

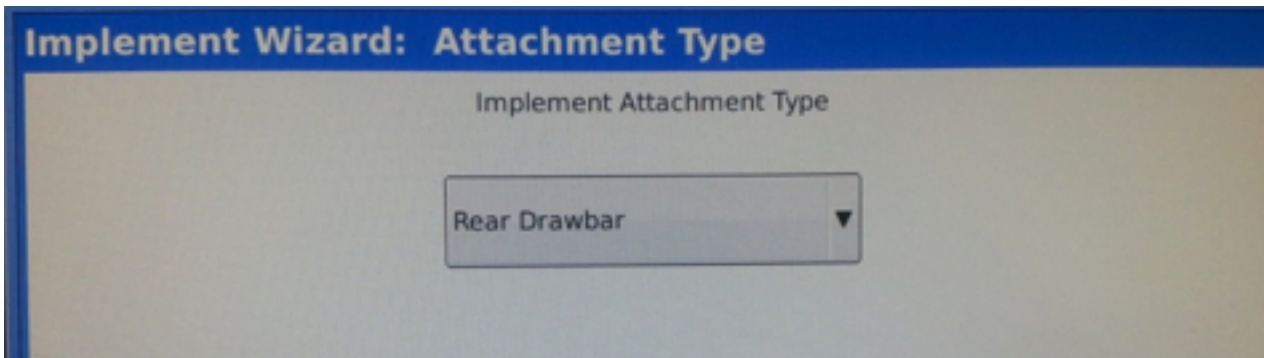
After the tractor has been selected an existing implement can be selected such as a planter, or press the green “+” button to add a new implement. When adding a new implement the following screen will appear:

The image shows a software window titled "Implement Wizard: Make and Model". Inside the window, there is a section titled "Enter Implement Information". Below this title, there are two input fields. The first field is labeled "Make" and the second is labeled "Model". Each field has a small keyboard icon on its right side. At the bottom of the window, there are three buttons: a grey button with a left-pointing arrow, a blue button with a right-pointing arrow, and a red button with a white "X" symbol.

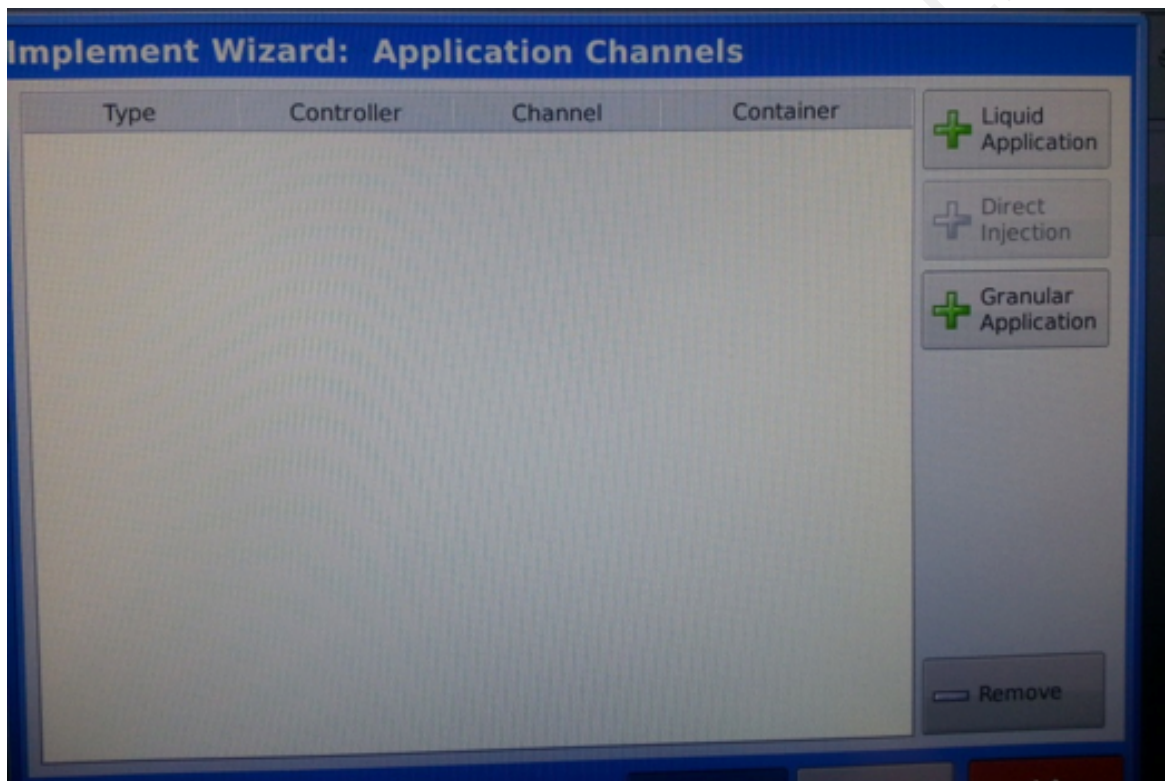
This is a user defined description of the implement. When the information is displayed correctly press the right arrow button.

Setting Up an Implement in an AgLeader Integra:

continued...



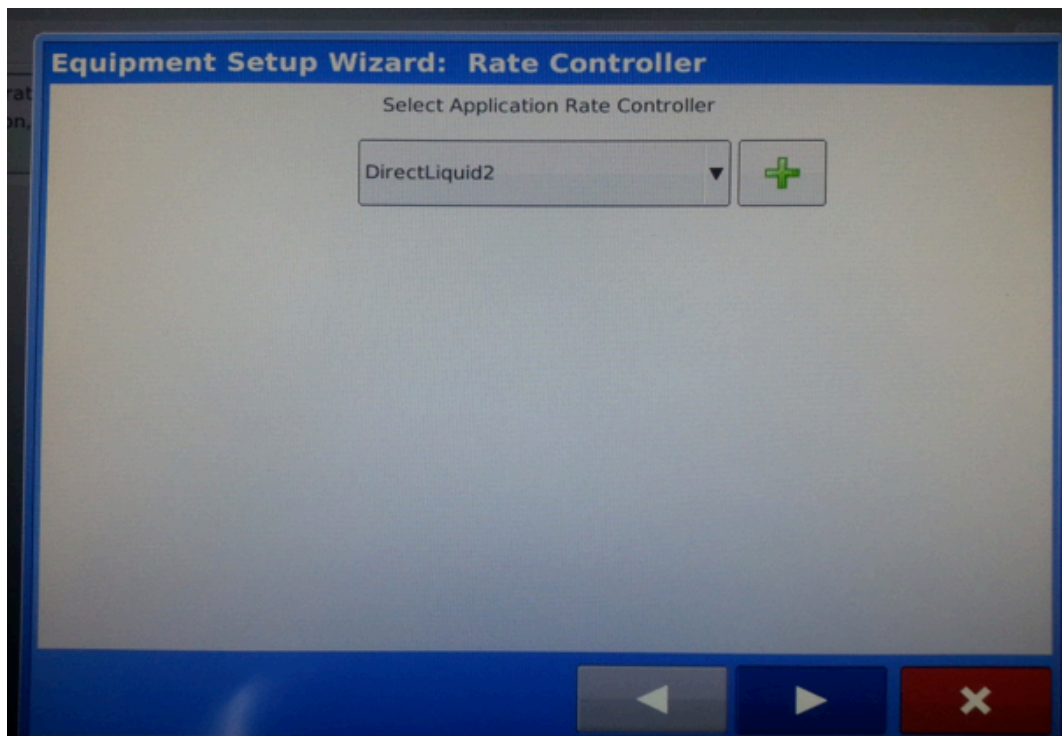
Next, add how the implement attaches to the tractor and press the right arrow button.



Next, add a liquid application.

Setting Up an Implement in an AgLeader Integra:

continued...



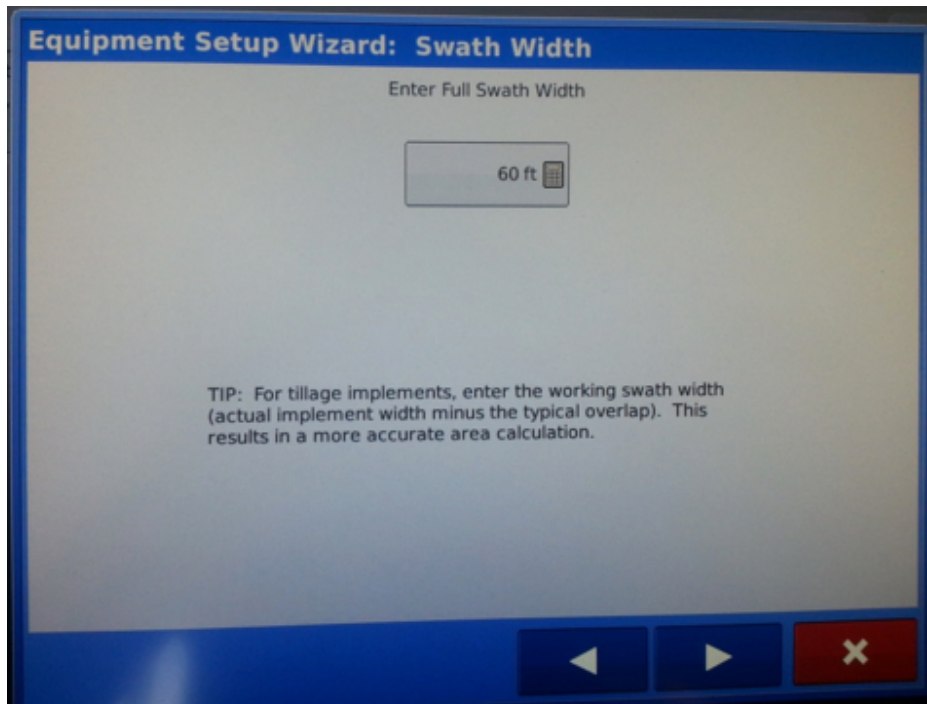
Select the appropriate liquid rate controller and press the right arrow button.



Setting Up an Implement in an AgLeader Integra:

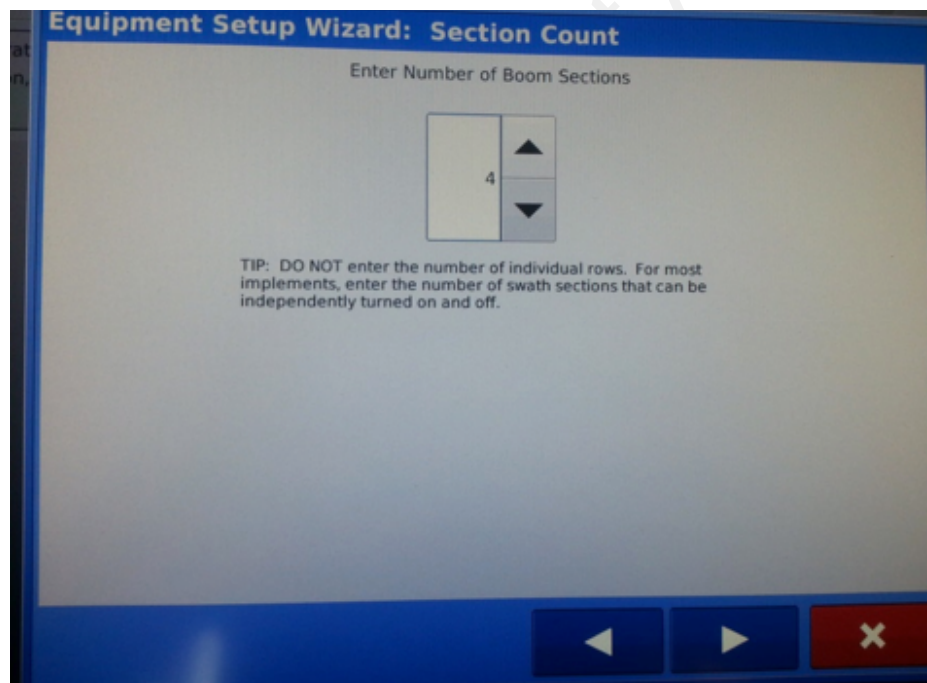
continued...

Choose a name and capacity of the tank being used on this implement. Press the right arrow button.



The screen is titled "Equipment Setup Wizard: Swath Width". It prompts the user to "Enter Full Swath Width". A text input field contains "60 ft" and a small calculator icon. Below the input field, a tip reads: "TIP: For tillage implements, enter the working swath width (actual implement width minus the typical overlap). This results in a more accurate area calculation." At the bottom, there are three buttons: a left arrow, a right arrow, and a red button with a white 'X'.

Select the appropriate implement swath width and press the right arrow button.

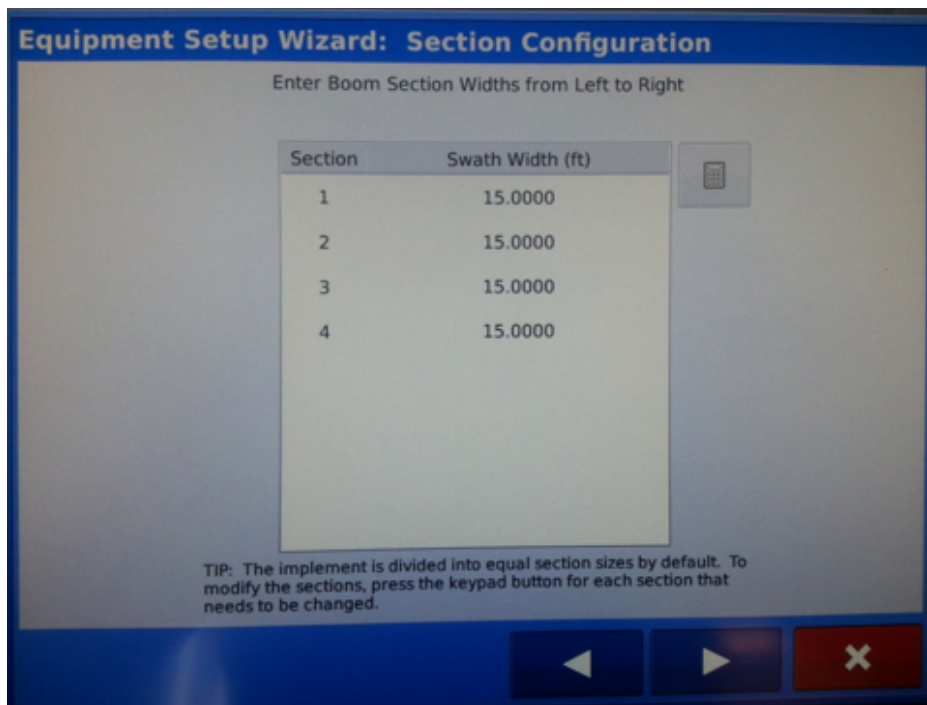


The screen is titled "Equipment Setup Wizard: Section Count". It prompts the user to "Enter Number of Boom Sections". A numeric keypad is shown with the number "4" selected. Below the keypad, a tip reads: "TIP: DO NOT enter the number of individual rows. For most implements, enter the number of swath sections that can be independently turned on and off." At the bottom, there are three buttons: a left arrow, a right arrow, and a red button with a white 'X'.

Enter the number of sectional valves if applicable and press the right arrow button.

Setting Up an Implement in an AgLeader Integra:

continued...



Equipment Setup Wizard: Section Configuration

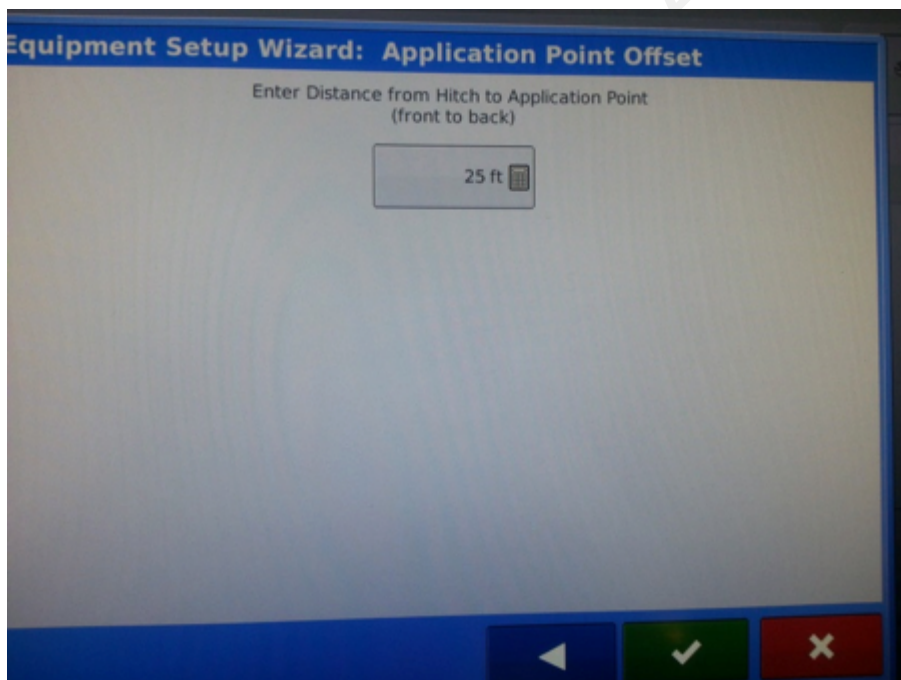
Enter Boom Section Widths from Left to Right

Section	Swath Width (ft)
1	15.0000
2	15.0000
3	15.0000
4	15.0000

TIP: The implement is divided into equal section sizes by default. To modify the sections, press the keypad button for each section that needs to be changed.

Navigation buttons: Left arrow, Right arrow, Close (X).

Verify the width of each section and press the right arrow button.



Equipment Setup Wizard: Application Point Offset

Enter Distance from Hitch to Application Point (front to back)

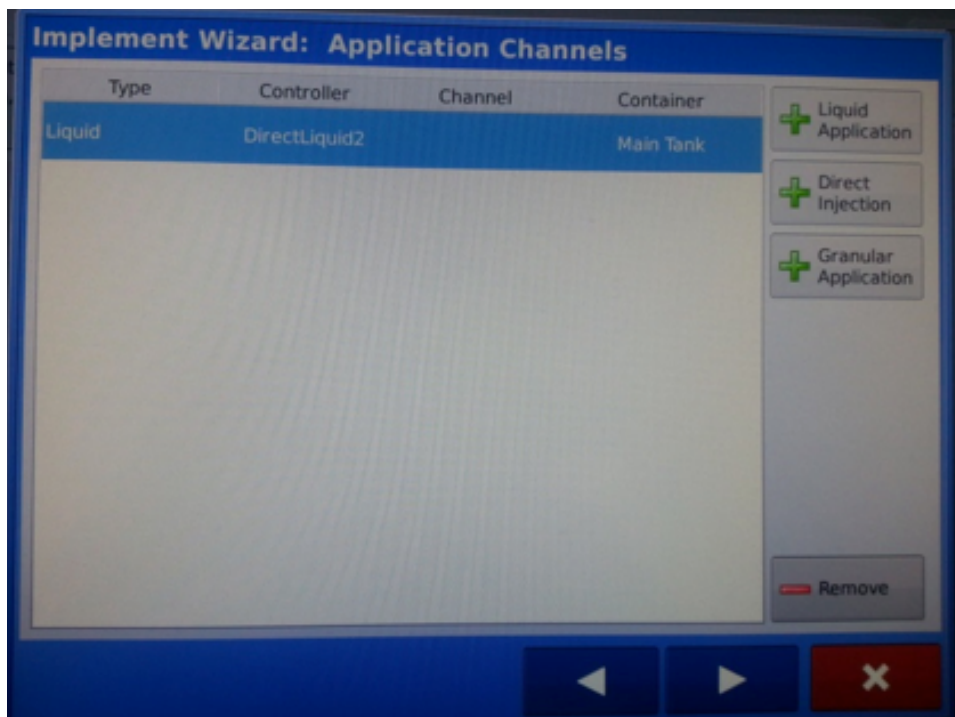
25 ft

Navigation buttons: Left arrow, Green check mark, Close (X).

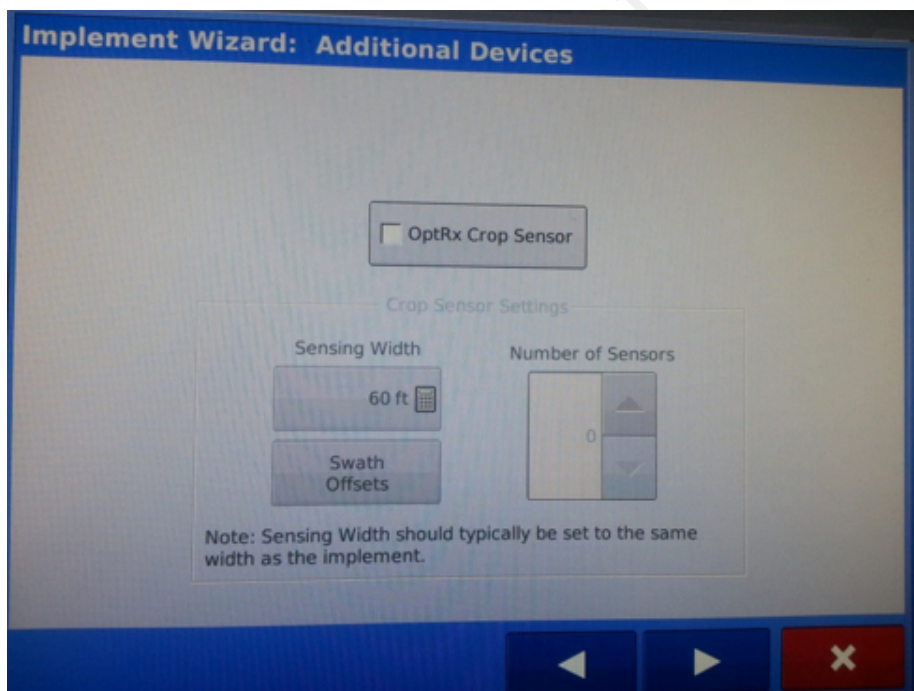
Enter the distance from the hitch to the application point or row unit and press the green check mark to complete the set-up.

Setting Up an Implement in an AgLeader Integra:

continued...



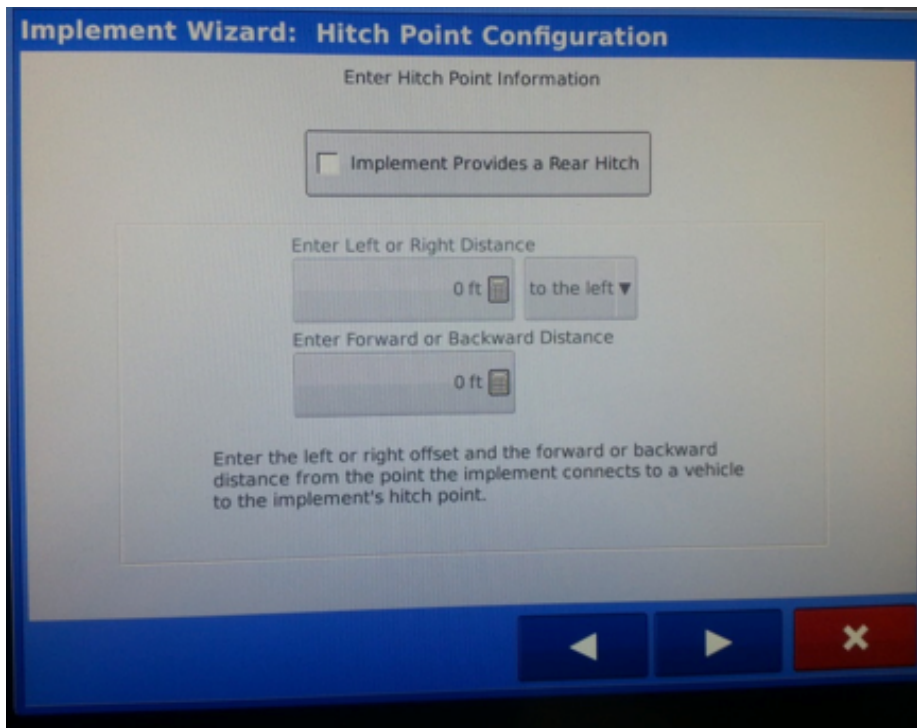
From this screen additional applications can be added to the implement. For example, if an in-furrow application set-up has been completed and a 2x2 application needed to be added the “+ Liquid Application” button would be pressed and the set-up process repeated for 2x2. When all applications are set up press the right arrow button.



Set up OptRx sensors if applicable and press the right arrow button.

Setting Up an Implement in an AgLeader Integra:

continued...



Implement Wizard: Hitch Point Configuration

Enter Hitch Point Information

☐ Implement Provides a Rear Hitch

Enter Left or Right Distance

0 ft to the left ▼

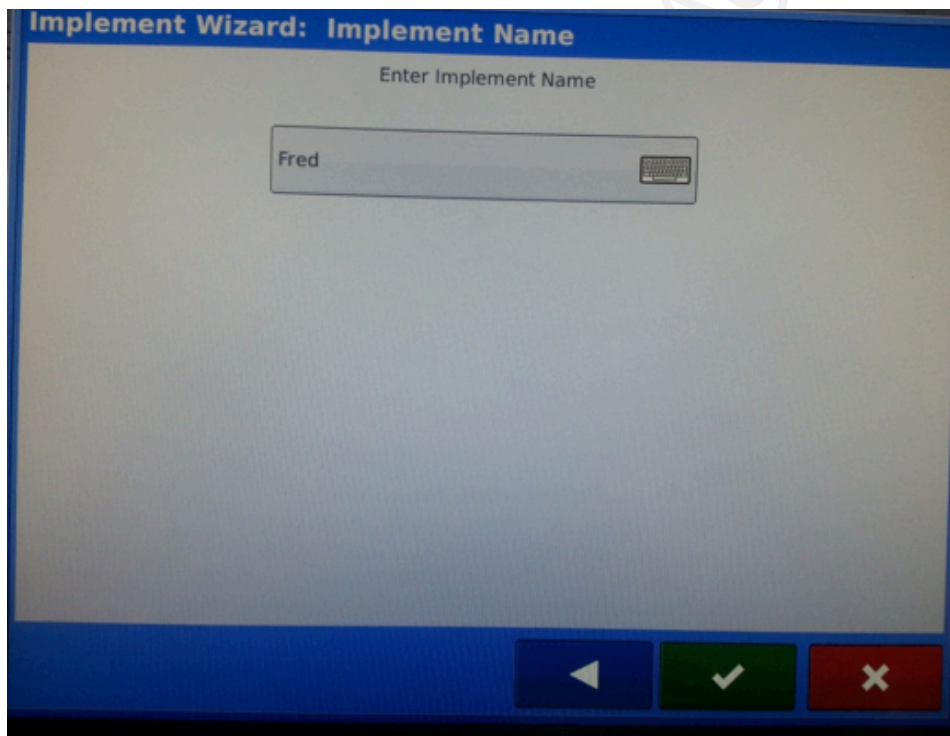
Enter Forward or Backward Distance

0 ft

Enter the left or right offset and the forward or backward distance from the point the implement connects to a vehicle to the implement's hitch point.

Navigation buttons: Left arrow, Right arrow, Close (X)

A pull behind tank can be configured here and then press the right arrow button.



Implement Wizard: Implement Name

Enter Implement Name

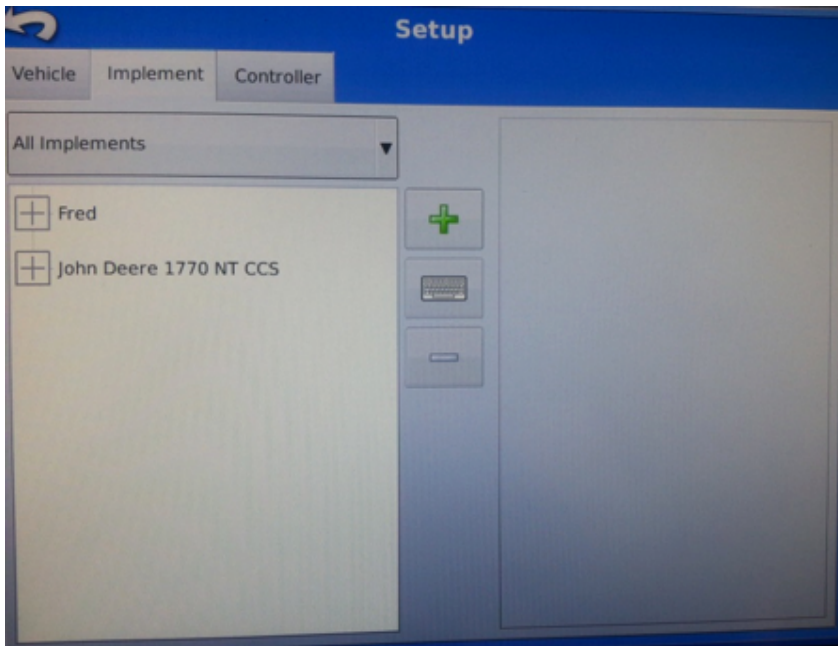
Fred

Navigation buttons: Left arrow, Green check mark, Close (X)

Finally, enter the implement name and press the green check mark to complete the set-up.

Setting Up an Implement in an AgLeader Integra:

continued...

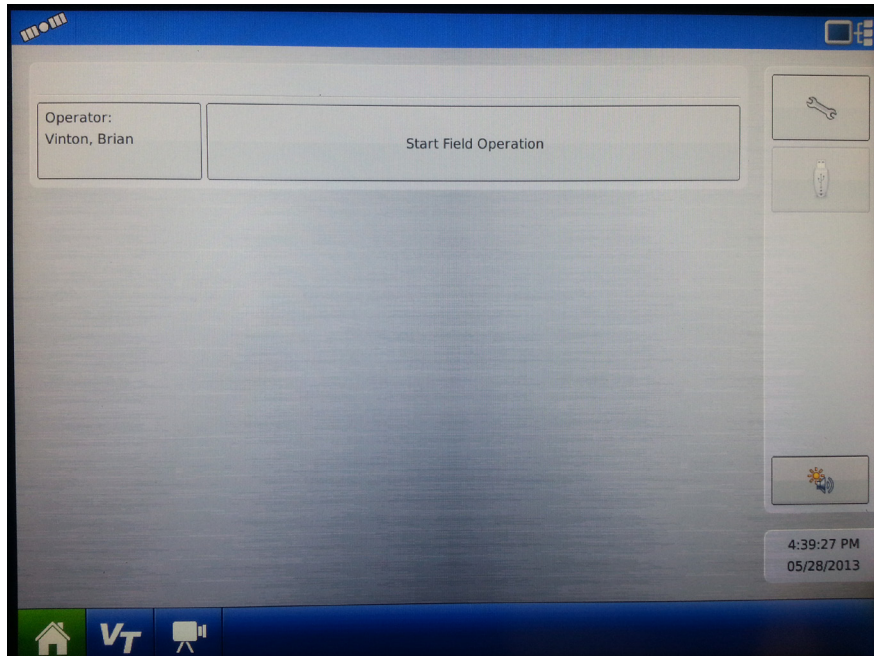


When completed the implement should appear under the "Implement" tab.

Ag Leader Setup

Ag Leader technology is a very flexible control platform with many capabilities. This section will show you the necessary steps to setup your Ag Leader display to control a AgX Fertilizer System.

- Home

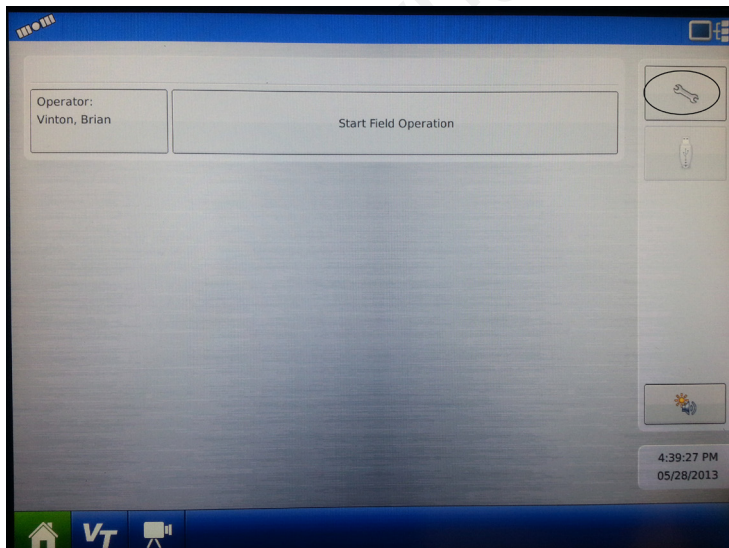


Navigation Buttons

- Home Screen
- Run Screen

Configuration - Setup & Calibrate

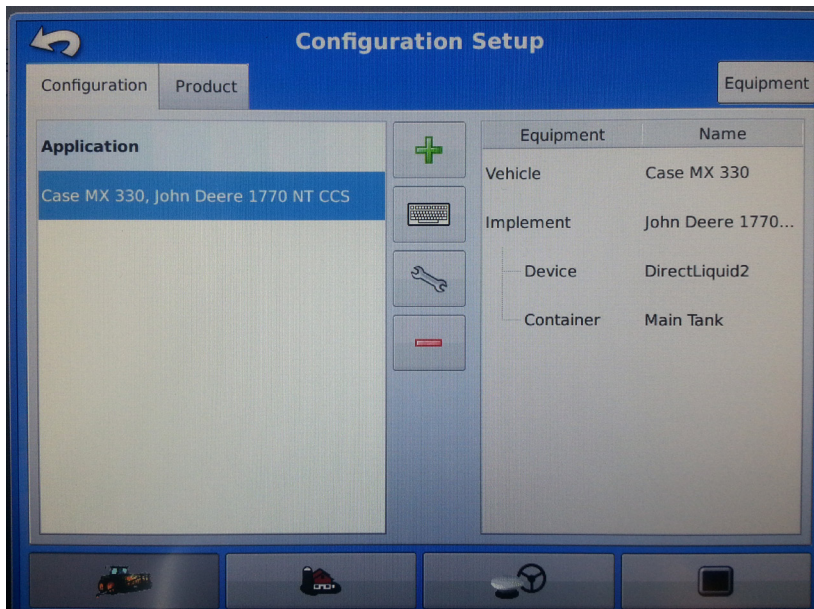
In the Setup menus you will set the Ag Leader display to work properly with the AgX Fertilizer System. Carefully follow these steps to first make the proper settings. Then, run the tests shown to verify your fertilizer system is ready to go to the field.



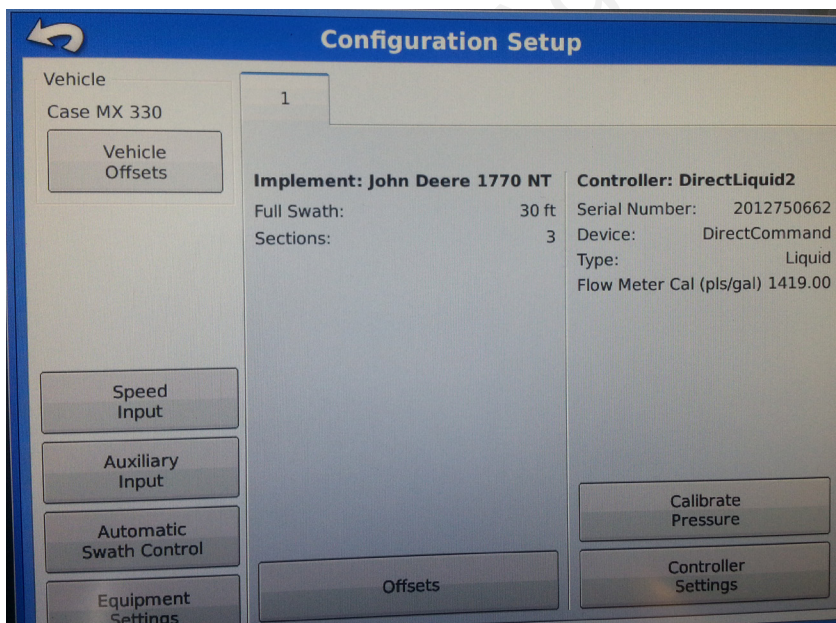
1. From the home screen choose Setup (wrench).
2. The Setup screen below will appear. Choose "Configuration"

Setup - Configuration List

1. From the Controller Menu, select the controller you want to change, or use the Add button to create a new controller.
2. Select Wrench in the middle. This will open the screen on the next page.



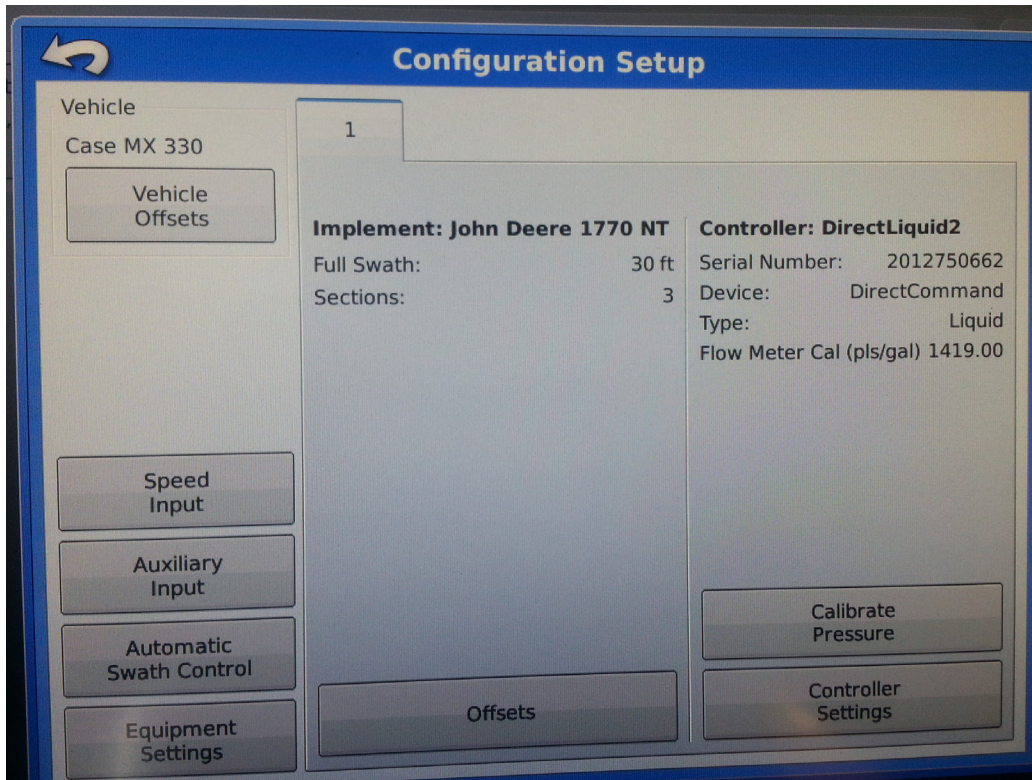
Use the Speed Input Settings button to set a manual ground speed. This is helpful for troubleshooting and when running the initial operation procedure outlined later in Section F.



1. From this menu, choose the Controller Settings button. This will enter the controller menu shown on the next page.

The Ag Leader is capable of storing multiple configurations. The controller settings used for each configuration are listed on the right of this screen. Use configuration settings to change these items. You will want to set items in the vehicle, implement and product screens. Consult your manual or Ag Leader dealer for assistance with those settings.

Setup - Controller Choice



Pressure Calibration

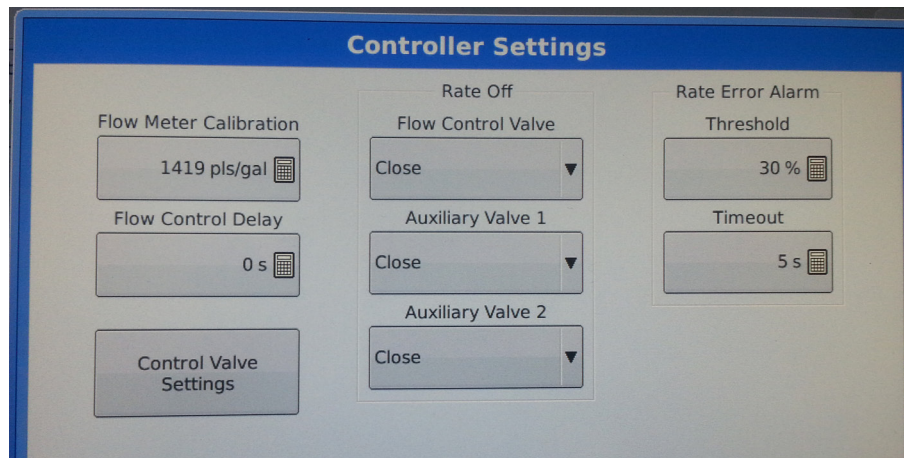
The AgX harness includes a connection for an electronic pressure sensor.* This sensor is identified as "Main Pressure" in the Ag Leader display.

1. From the above screen choose Calibrate Main Pressure
2. Enter values in the calibration - 50.0 mV/PSI

*Note: the pressure sensor is an optional feature!

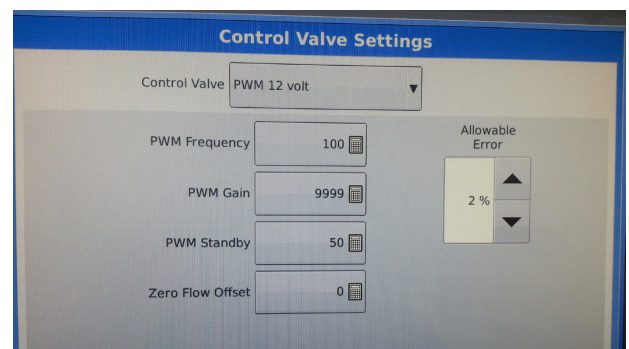
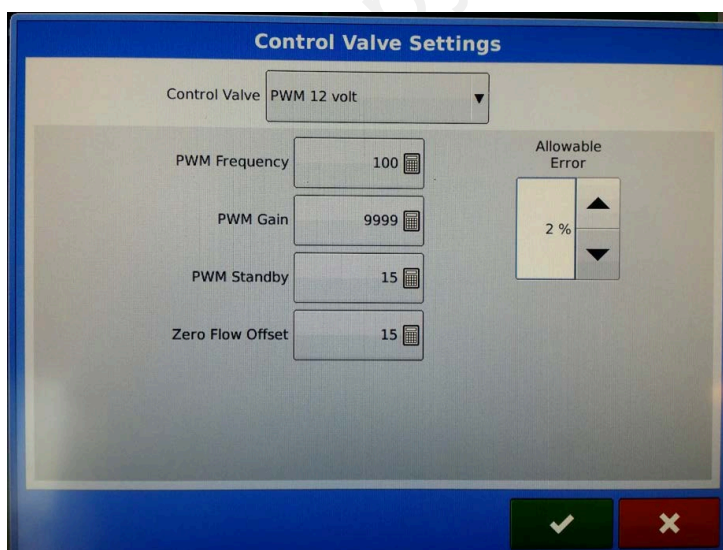
Setup - Controller Settings

Controller Settings are the parameters that must be set to accurately control your AgXcel GX2 Fertilizer App. System



1. Flow Meter Cal:
 - ION Flowmeter: see chart
 - Micro-Trak Turbine Flowmeter: # on tag ÷ 2
2. Control Valve Configuration: PWM 12 Volt
3. Flow Control Delay: 0
4. Rate Off, Flow Control Valve: Off
5. PWM Frequency: 100
6. PWM Gain: 9999 (AgX has found the highest gain possible is best for electric pump systems)
7. Zero Flow Offset: 0
8. Allowable Error: 2% (Ag Leader default)
9. PWM Standby : 50

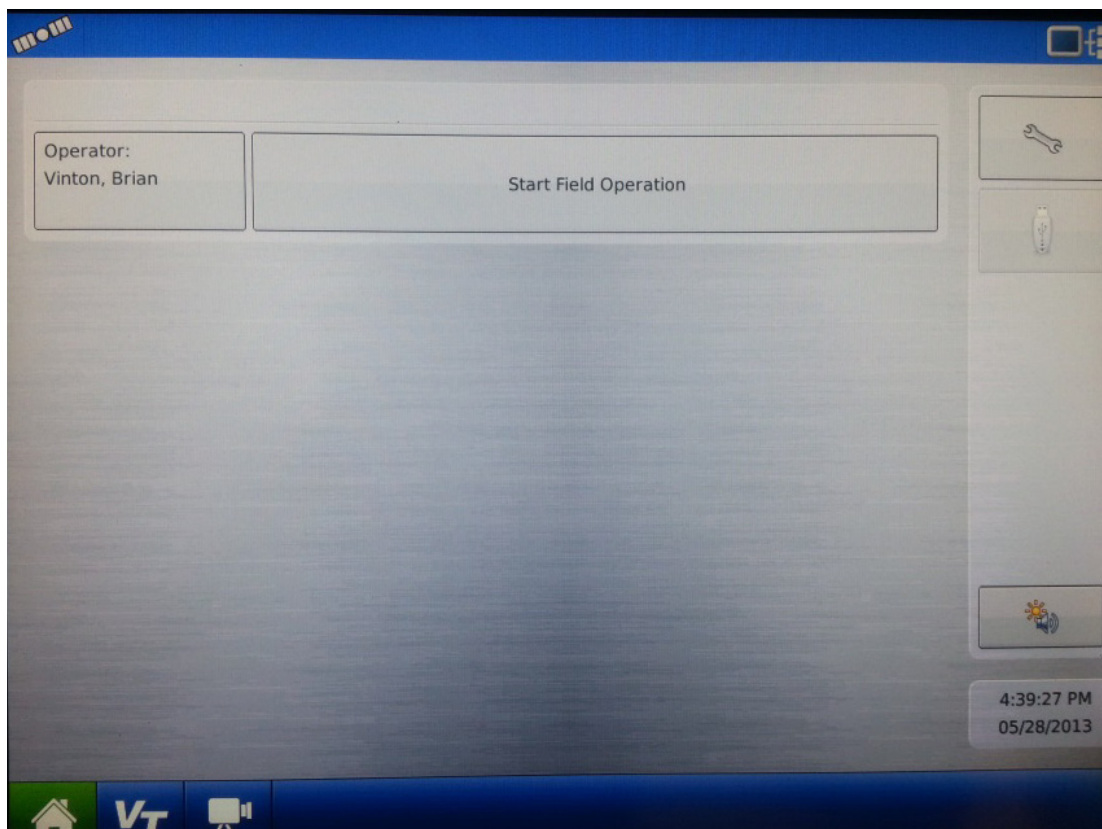
FLOW RANGE (GPM)	PULSES PER GALLON	AG LEADER	
DIVIDE BY 8 CABLE REQUIRED (DB8)		DB8 CABLE	CAL #
0.13 - 2.6	22710	YES	2839
0.3 - 5	11355	YES	1419
0.6 - 13	4542	NO	4542
1.3 - 26	2271	NO	2271
2.6 - 53	1135	NO	1135

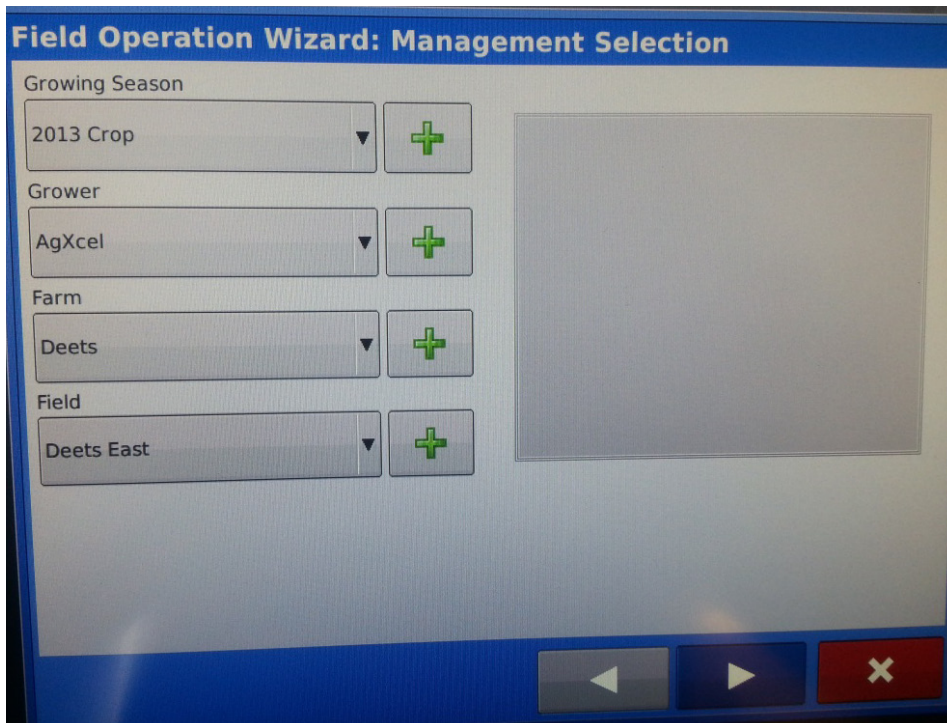


These settings will be used with AgLeader Integra FW 5.2 on Electric Systems (GX2)

AgXcel highly recommends you perform these exact steps with water to verify system is correctly installed and ready for field use.

Press "Start Field Operation"





Field Operation Wizard: Management Selection

Growing Season
 2013 Crop ▼ +

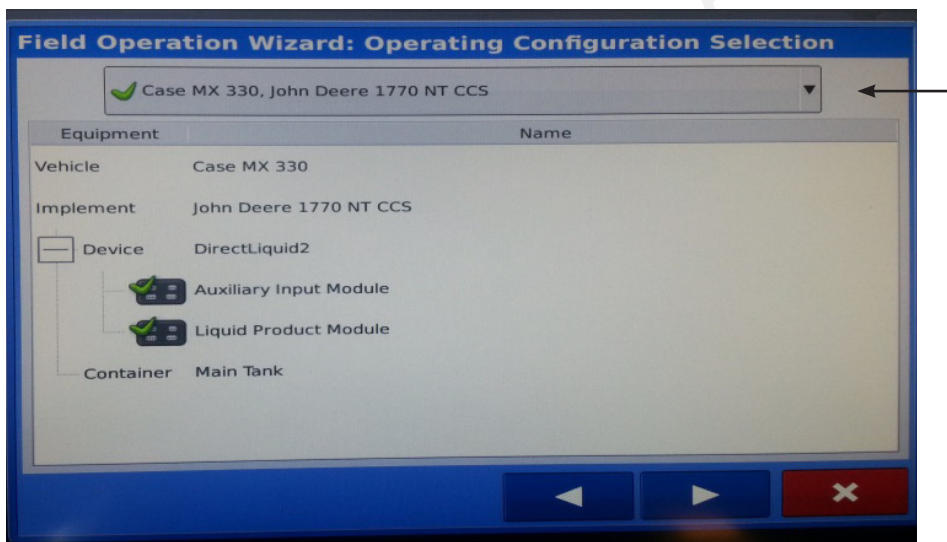
Grower
 AgXcel ▼ +

Farm
 Deets ▼ +

Field
 Deets East ▼ +

Navigation buttons: ◀ ▶ ✕

Select Growing Season, Grower, Farm, and Field from the drop down box or add new selections by pressing the green “+” button. Press right arrow button



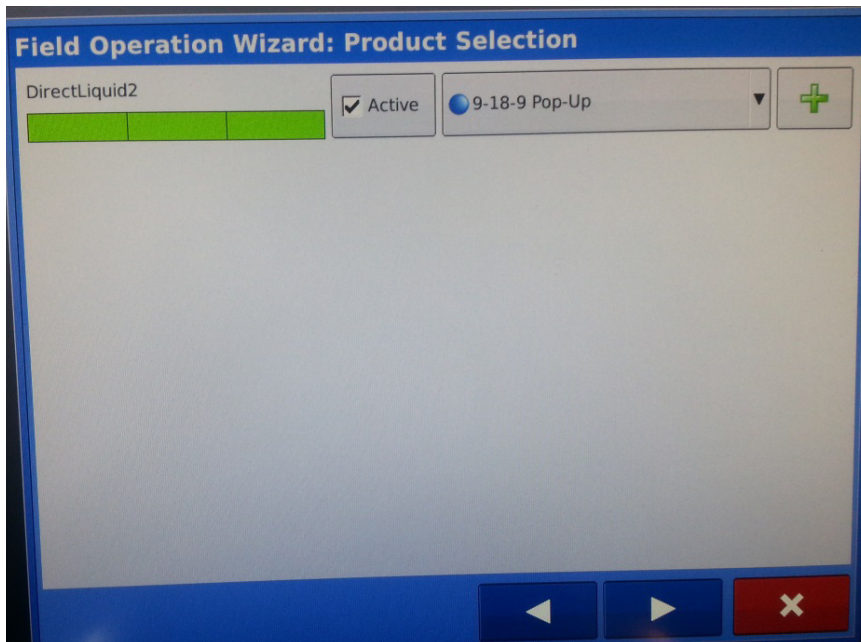
Field Operation Wizard: Operating Configuration Selection

✓ Case MX 330, John Deere 1770 NT CCS ▼

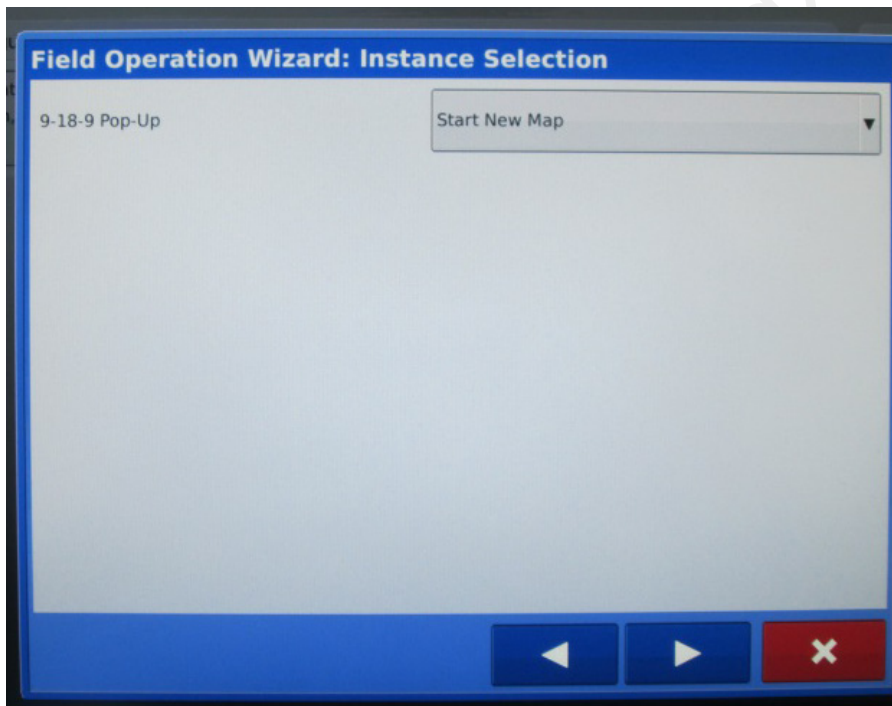
Equipment	Name
Vehicle	Case MX 330
Implement	John Deere 1770 NT CCS
Device	DirectLiquid2
Auxiliary Input Module	✓
Liquid Product Module	✓
Container	Main Tank

Navigation buttons: ◀ ▶ ✕

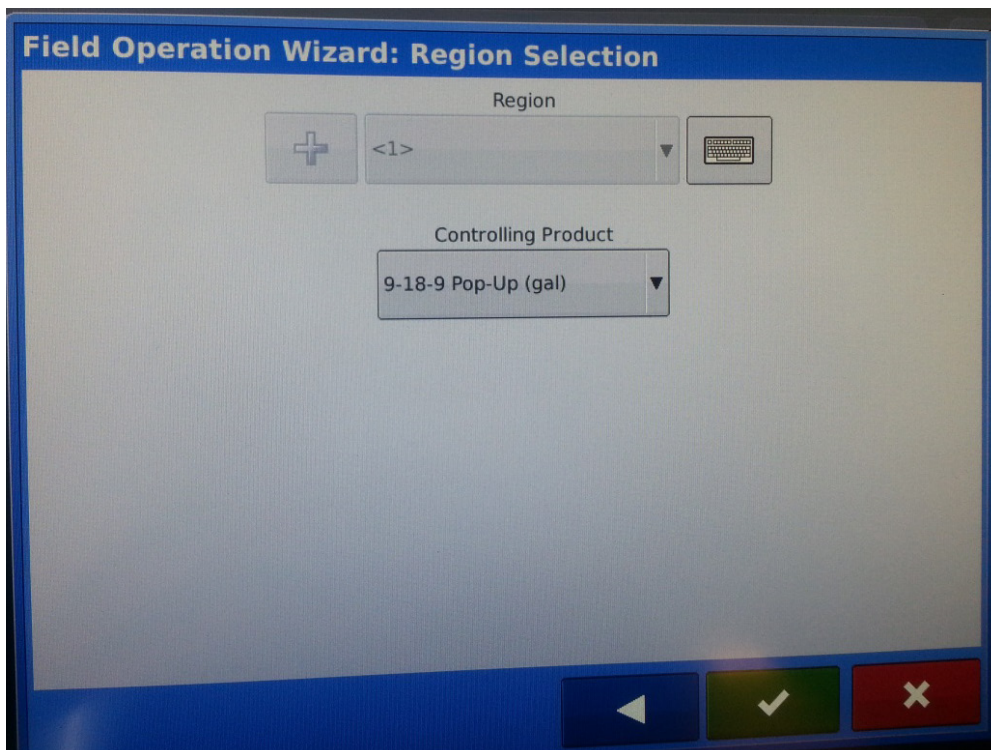
Select the vehicle and implement configuration being used from the drop-down box and press the right arrow button.



Select the product being used from the drop-down box or press the green '+' key to create a new product. When completed press the right arrow button.

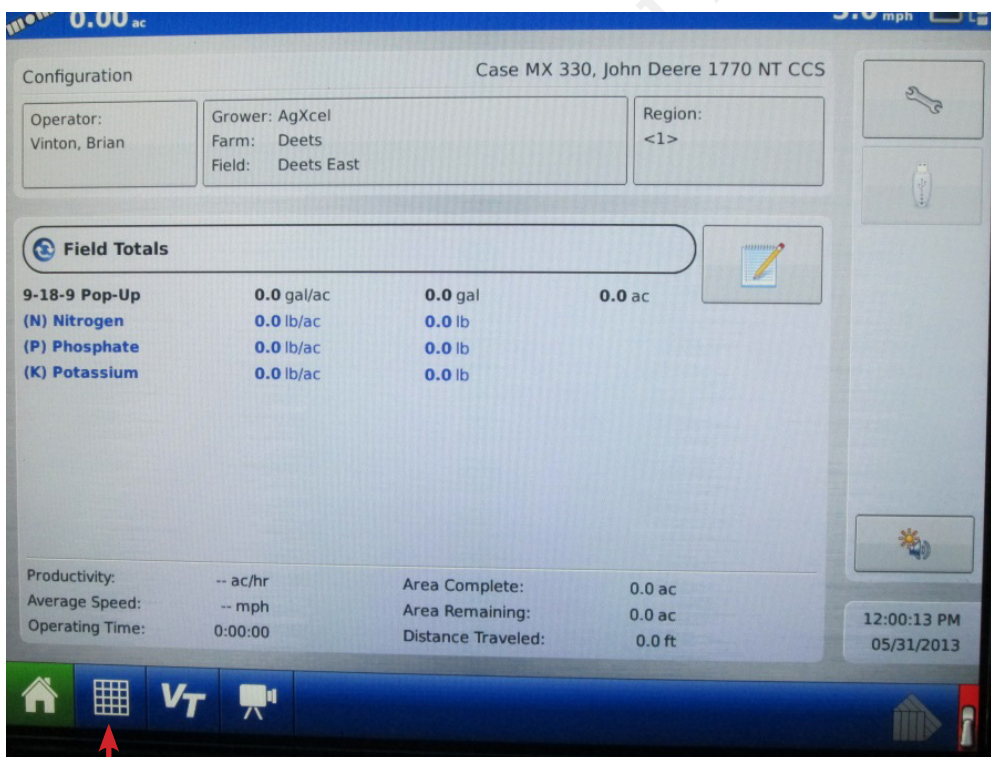


From the instance selection screen either an existing or a new map can be selected. When completed press the right arrow button.

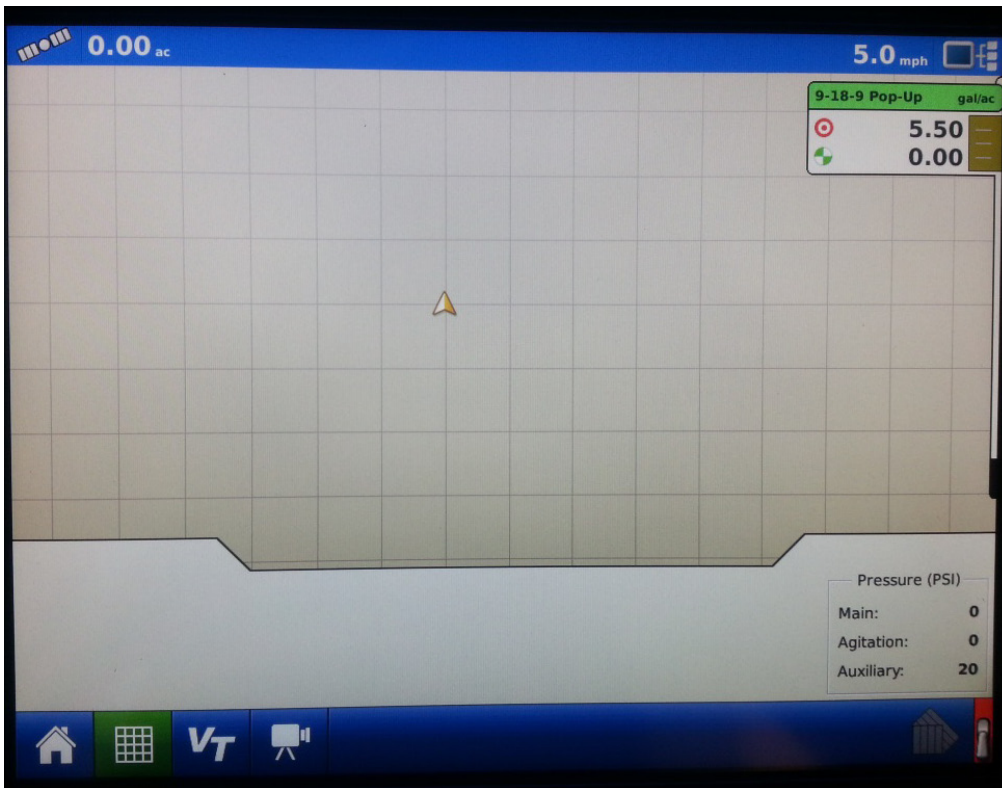


Finally, select the region and the controlling product. When this is complete select the green check mark button to finish setting up a new field.

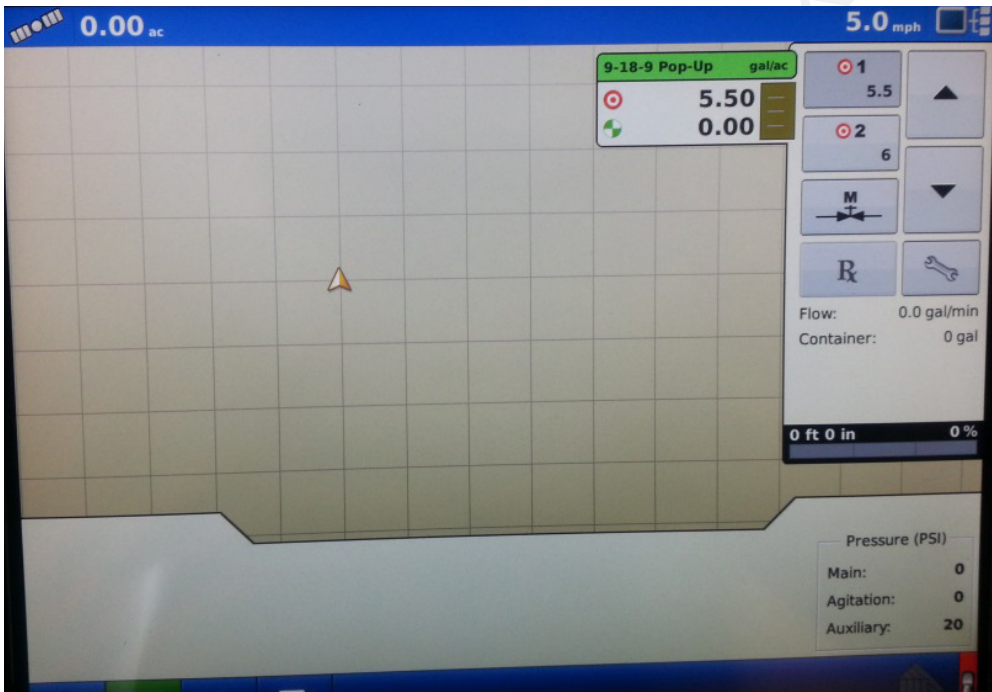
The home screen will look like this after a field is set up:



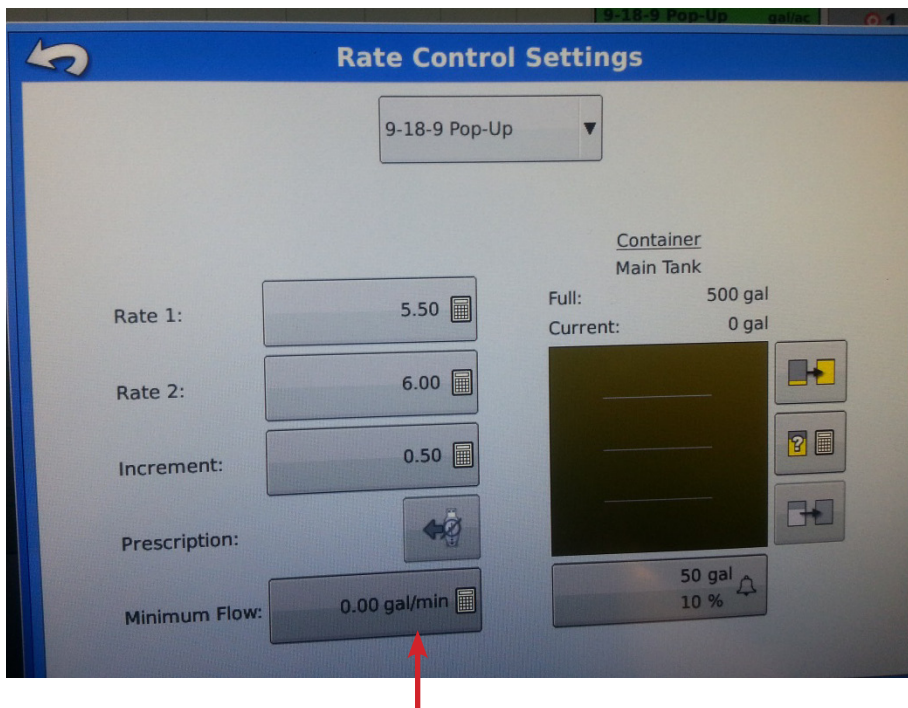
To go to the run screen select the grid button



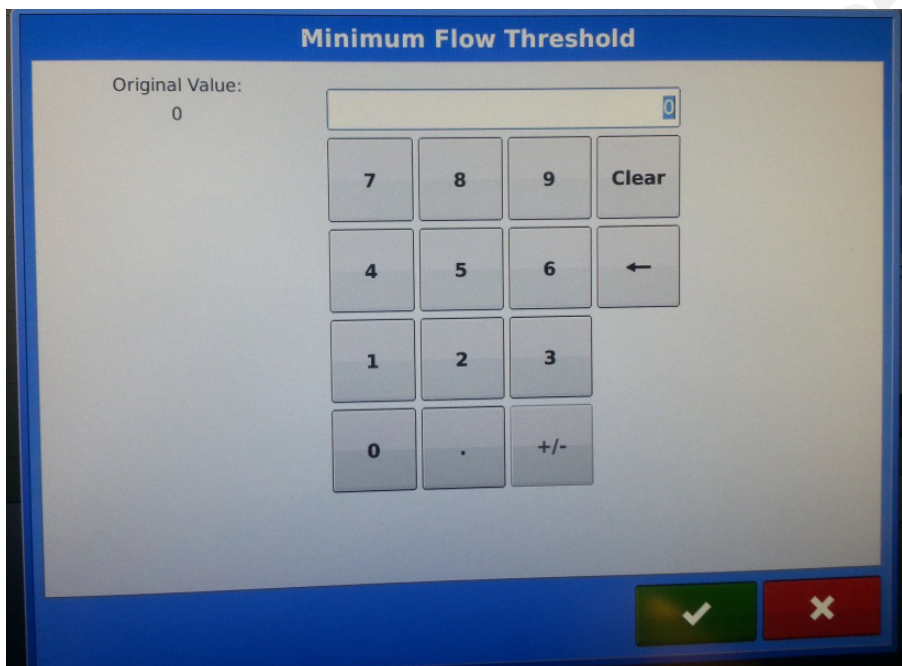
To adjust rates touch the tab where the rate information is displayed



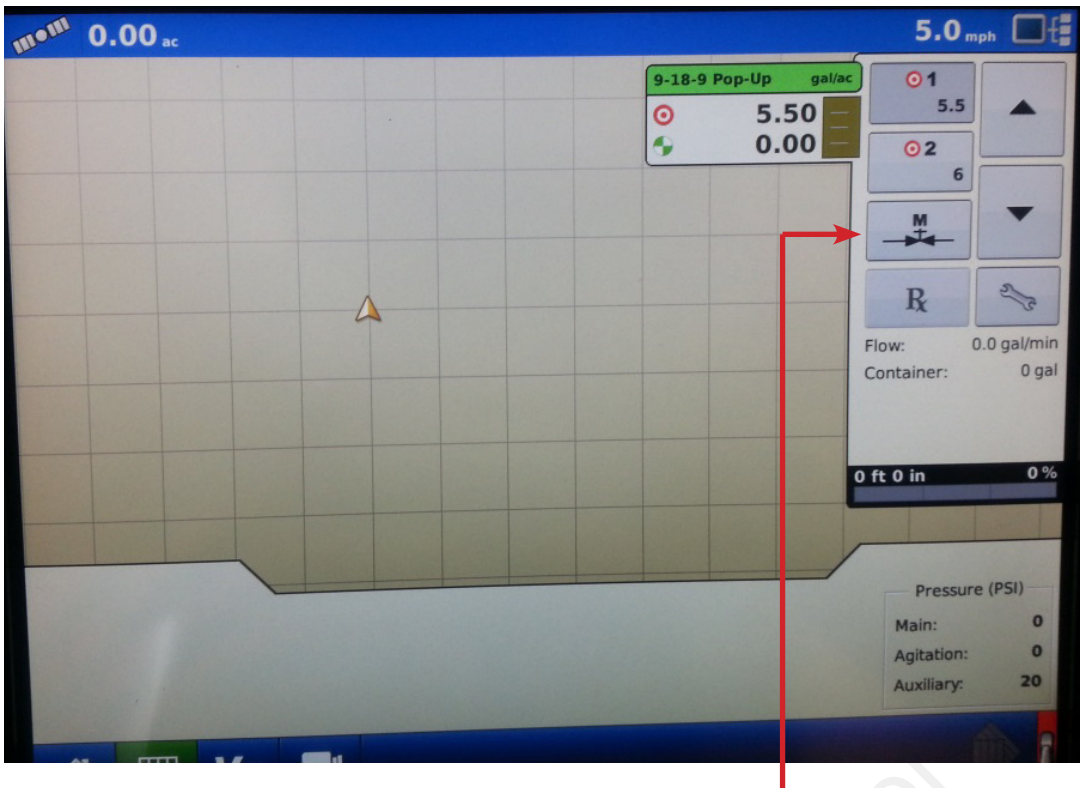
From this screen rates 1 and 2 can be selected or a variable rate prescription can be loaded. Press the wrench button on the right side of the rate screen.



From this screen both Rate 1 and 2 can be entered along with the minimum flow. Press the Minimum Flow button.



From this screen the minimum flow threshold can be set. AgXcel recommends the minimum flow be set to '0'. After rates and minimum flow are set return to the main operation screen to conduct a catch test.



1. Enter the manual mode by pushing the “M” button under the Rate 1 and Rate 2 buttons. You can tell you are in manual mode when the “Target Rate” says “OFF”.
2. On the switch box, turn the master switch on. Turn section switches on and off to check proper section valve operation. Leave all section valves “ON”.
3. Use up arrow on right side of screen to increase flow. Does “Flow Rate” display a flow rate? Is it stable after the system is primed? Do increase and decrease buttons increase and decrease the flow?
4. Next, perform a catch test using either automatic rate 1 or 2 while utilizing the simulated speed set earlier. The simulated speed should be displayed in the upper right hand corner of the screen.
5. This is also a good time to ensure the rate adjusts when the section valves are turned on and off through the switch box.

Troubleshooting

Pumps run for a few seconds then turn off

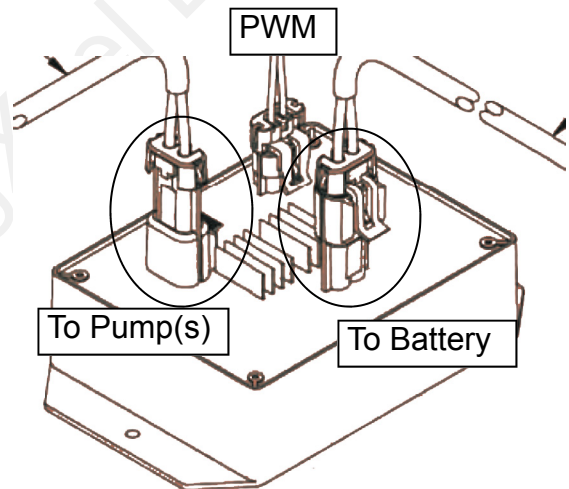
This symptom is due to the pumps drawing more current than the 40 amp limit of the EPD.

1. Unplug the EPD connector going to the battery for 2-3 seconds. Removing power from the EPD resets it.
2. Go to Diagnostics to investigate this issue.
3. Turn system on and push increase button.
4. Increase the flow slowly, watching flow in GPM. Find the approximate flow where the EPD kicks out. If this is below the flow you need you will need to reduce system pressure by:
 - Look for any unintended restrictions or plugged rows
 - Increase orifice size
 - Reduce ground speed
 - Reduce application rate

Electric pumps will not turn on

Connect pumps directly to battery

1. Find the EPD (electric pump driver) shown at right. Connect the two connectors circled to each other (bypass the module and supply 12 volts directly to pumps)
2. Do the pumps run? If not, check the 40 amp fuse in the EPD harness near the tractor battery. Inspect harnesses and connections.
3. If 2 pump system, plug pumps in by themselves to check both.



Electric pumps only run with 12 volts direct from battery

1. Connect pumps and power harness back to EPD.
2. Go to Diagnostics to investigate this issue.
3. Turn system on and push increase button.
4. Remove PWM valve connector and check voltage. You will need 1-12 volts to turn pumps on.
5. If 1-12 volts is not present, check harnesses and review control valve type setup.
6. Go back to the Liquid Product Control Module. Check voltage between pins 2 & 7 of eight pin connector. This should be between 6-12 volts after holding increase button in manual mode.
7. If you cannot get voltage at pins 2 & 7, contact your Ag Leader dealer for further assistance.

Troubleshooting

Section Valve(s) will not move

1. Go to Rate Control Detail screen, to investigate this issue.
2. Turn section valve switches on switch box on and off.
3. Do you have a problem with 1 valve or all valves?
4. If working with the 7-12 section harness, identify if section 1-6 or section 7-12 as a group are not working.

One Valve doesn't work

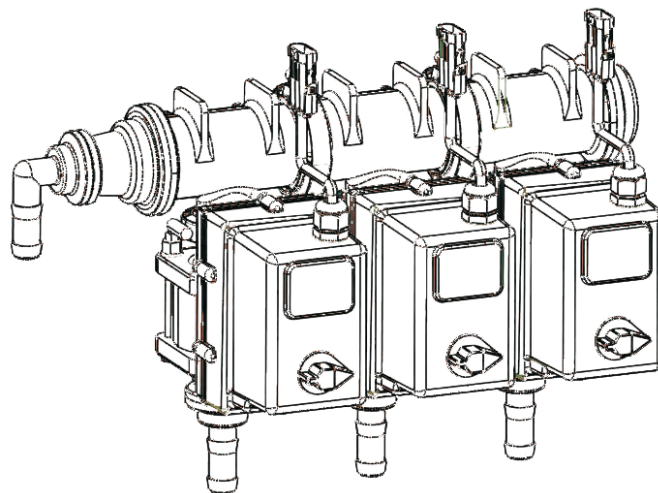
1. Check the harness connection to that valve. It is a 3 Pin Weather Pack connector. See Section D for wiring diagrams

Pin	Function
A	+ 12 V Constant
B	GND
C	+ 12 V Signal

2. Check voltage pin A to Pin B. Must be 12 volts, if not, go back to Liquid Product Control Module and check voltage. See Section D for wiring diagrams.
3. If no voltage on Ag Leader harness connecting to AgXcel harness with 2 pin power connector, contact your Ag Leader dealer for assistance.
4. If voltage is present on pins A&B of 3 pin connection to valve, then check pin C to Pin B. This should be 12 volts when the valve is commanded on or open, this should be zero volts when valve is off or closed.
5. If signal voltage is not present to open valve, use diagrams to check at the 16 pin, then on 12 pin of liquid product control module for voltage.
6. If constant voltage (Pins A&B) and switched voltage (Pins C&B) are pre-sent, inspect, repair or replace the valve.

All or multiple valves don't work

1. Generally, follow the same steps as for a single valve. However, concentrate on checking for constant voltage on Pins A & B, then follow that back to the 16 pin and Liquid Product Control Module and power connectors.
2. This problem could also be related to Ag Leader configuration. Review Setup to make sure sections are correct in controller.



Troubleshooting

Application Rate Fluctuates

First, you need to determine if the fluctuation is caused by the controller sending fluctuating signals to the valve.

1. Go to Rate Control Detail screen.
2. Turn the system on in Manual mode and watch the flow in GPM.
3. Is the flow steady within a very small range. For example a fluctuation from 2.3 to 2.5 GPM would be considered normal. A fluctuation from 2-3 GPM is a problem. If only a small normal fluctuation is seen, skip steps 4-8 and proceed to "Application Rate Fluctuates in Field " below.
4. If there is a large fluctuation, observe the system flow. Is the discharge a steady stream; are the flow indicator balls floating steady.
5. If visually the flow is steady, but the display reports a fluctuation in GPM, inspect the flowmeter. See section B for flowmeter information.
6. If visually the flow is unsteady, the flowmeter is working correctly reporting a flow problem. Is the pump turning steady or surging? If the pump is surging reduce the PWM gain in controller settings.
7. Look for any type of obstruction in the pump inlet. Clean the strainer. If continually plugging the strainer investigate fertilizer quality and necessary strainer size.

Application Rate fluctuates in field, but flow in diagnostics mode is stable.

This problem indicates the valve calibration needs changed. The system is surging because the Liquid Product Control Module is "hunting" for the correct flow.

1. Go to Controller Settings.
2. Change the settings by reducing the PWM gain.

Application Rate is slow to get to the Target Rate

1. You may need to increase the valve calibration. Go to Valve Calibration, Control.
2. Change the settings by increasing the PWM gain.

Fertilizer System Flow Verification

Follow the steps below:

I can't get up to my desired rate. How much flow is required?

Can I achieve a new application rate with my current system?

Follow the steps below:

1. Use the Fertilizer System Flow Charts on the next two pages to find your required flow. First, locate the chart for your implement size. Next, find your operating speed on the left side and your application rate on the top. Record the flow in gallons per minute for your maximum speed and rate and your minimum speed and rate.

A. Maximum Flow _____ GPM (Max Rate & Max Speed)

B. Minimum Flow _____ GPM (Min Rate & Min Speed)

2. Locate your pump model on the chart on this page. Will the pump model provide the maximum flow you need from above?
3. Find your flowmeter model in the chart on this page. Will the flowmeter work at both the maximum and minimum flow your recorded in step 1? If not, a different flow meter is required.
4. If using section valves you must complete this step.

A. Minimum Flow (from above) ÷ Total Rows = _____ GPM / Row

B. GPM / Row (from line above) x Rows per section = _____ GPM / Section

Will your flowmeter measure the minimum GPM / section

Tower (Electric Pump) Flow Table

	Max Flow GPM
1 Pump	3.0
2 Pump	5.0
Roller Pump	4.5

GX5 Flow Table

	Number of Diaphragms	Max Flow GPM
D70	2	15
D115	3	25
D160	4	35
D250	6	55

Flowmeter Table

Model	Type	Min GPM	Max GPM
FM750LR	Turbine	0.3	12
FM750	Turbine	2	40
FlowMaster 270	Turbine	3.5	70
.13—2.6	ION	0.13	2.6
.3—5	ION	0.3	6.5
.6—13	ION	0.6	13
1.3—26	ION	1.3	26
2.6—53	ION	2.6	53

Fertilizer System Flow Charts

Use the correct implement width chart to find the required pump flow (in gallons per minute) based on travel speed and application rate

Implement Width 15 feet

MPH	Application Rate in Gallons Per Acre												
	2	4	6	8	10	15	20	25	30	35	40	45	50
4	0.2	0.5	0.7	1.0	1.2	1.8	2.4	3.0	3.6	4.2	4.8	5.5	6.1
4.5	0.3	0.5	0.8	1.1	1.4	2.0	2.7	3.4	4.1	4.8	5.5	6.1	6.8
5	0.3	0.6	0.9	1.2	1.5	2.3	3.0	3.8	4.5	5.3	6.1	6.8	7.6
5.5	0.3	0.7	1.0	1.3	1.7	2.5	3.3	4.2	5.0	5.8	6.7	7.5	8.3
6	0.4	0.7	1.1	1.5	1.8	2.7	3.6	4.5	5.5	6.4	7.3	8.2	9.1
6.5	0.4	0.8	1.2	1.6	2.0	3.0	3.9	4.9	5.9	6.9	7.9	8.9	9.8
7	0.4	0.8	1.3	1.7	2.1	3.2	4.2	5.3	6.4	7.4	8.5	9.5	10.6
8	0.5	1.0	1.5	1.9	2.4	3.6	4.8	6.1	7.3	8.5	9.7	10.9	12.1
9	0.5	1.1	1.6	2.2	2.7	4.1	5.5	6.8	8.2	9.5	10.9	12.3	13.6
10	0.6	1.2	1.8	2.4	3.0	4.5	6.1	7.6	9.1	10.6	12.1	13.6	15.2

Implement Width 20 feet

MPH	Application Rate in Gallons Per Acre												
	2	4	6	8	10	15	20	25	30	35	40	45	50
4	0.3	0.6	1.0	1.3	1.6	2.4	3.2	4.0	4.8	5.7	6.5	7.3	8.1
4.5	0.4	0.7	1.1	1.5	1.8	2.7	3.6	4.5	5.5	6.4	7.3	8.2	9.1
5	0.4	0.8	1.2	1.6	2.0	3.0	4.0	5.1	6.1	7.1	8.1	9.1	10.1
5.5	0.4	0.9	1.3	1.8	2.2	3.3	4.4	5.6	6.7	7.8	8.9	10.0	11.1
6	0.5	1.0	1.5	1.9	2.4	3.6	4.8	6.1	7.3	8.5	9.7	10.9	12.1
6.5	0.5	1.1	1.6	2.1	2.6	3.9	5.3	6.6	7.9	9.2	10.5	11.8	13.1
7	0.6	1.1	1.7	2.3	2.8	4.2	5.7	7.1	8.5	9.9	11.3	12.7	14.1
8	0.6	1.3	1.9	2.6	3.2	4.8	6.5	8.1	9.7	11.3	12.9	14.5	16.2
9	0.7	1.5	2.2	2.9	3.6	5.5	7.3	9.1	10.9	12.7	14.5	16.4	18.2
10	0.8	1.6	2.4	3.2	4.0	6.1	8.1	10.1	12.1	14.1	16.2	18.2	20.2

Implement Width 30 feet

MPH	Application Rate in Gallons Per Acre												
	2	4	6	8	10	15	20	25	30	35	40	45	50
4	0.5	1.0	1.5	1.9	2.4	3.6	4.8	6.1	7.3	8.5	9.7	10.9	12.1
4.5	0.5	1.1	1.6	2.2	2.7	4.1	5.5	6.8	8.2	9.5	10.9	12.3	13.6
5	0.6	1.2	1.8	2.4	3.0	4.5	6.1	7.6	9.1	10.6	12.1	13.6	15.2
5.5	0.7	1.3	2.0	2.7	3.3	5.0	6.7	8.3	10.0	11.7	13.3	15.0	16.7
6	0.7	1.5	2.2	2.9	3.6	5.5	7.3	9.1	10.9	12.7	14.5	16.4	18.2
6.5	0.8	1.6	2.4	3.2	3.9	5.9	7.9	9.8	11.8	13.8	15.8	17.7	19.7
7	0.8	1.7	2.5	3.4	4.2	6.4	8.5	10.6	12.7	14.8	17.0	19.1	21.2
8	1.0	1.9	2.9	3.9	4.8	7.3	9.7	12.1	14.5	17.0	19.4	21.8	24.2
9	1.1	2.2	3.3	4.4	5.5	8.2	10.9	13.6	16.4	19.1	21.8	24.5	27.3
10	1.2	2.4	3.6	4.8	6.1	9.1	12.1	15.2	18.2	21.2	24.2	27.3	30.3

Fertilizer System Flow Charts

Use the correct implement width chart to find the required pump flow (in gallons per minute) based on travel speed and application rate

Implement Width 40 feet

MPH	Application Rate in Gallons Per Acre												
	2	4	6	8	10	15	20	25	30	35	40	45	50
4	0.6	1.3	1.9	2.6	3.2	4.8	6.5	8.1	9.7	11.3	12.9	14.5	16.2
4.5	0.7	1.5	2.2	2.9	3.6	5.5	7.3	9.1	10.9	12.7	14.5	16.4	18.2
5	0.8	1.6	2.4	3.2	4.0	6.1	8.1	10.1	12.1	14.1	16.2	18.2	20.2
5.5	0.9	1.8	2.7	3.6	4.4	6.7	8.9	11.1	13.3	15.6	17.8	20.0	22.2
6	1.0	1.9	2.9	3.9	4.8	7.3	9.7	12.1	14.5	17.0	19.4	21.8	24.2
6.5	1.1	2.1	3.2	4.2	5.3	7.9	10.5	13.1	15.8	18.4	21.0	23.6	26.3
7	1.1	2.3	3.4	4.5	5.7	8.5	11.3	14.1	17.0	19.8	22.6	25.5	28.3
8	1.3	2.6	3.9	5.2	6.5	9.7	12.9	16.2	19.4	22.6	25.9	29.1	32.3
9	1.5	2.9	4.4	5.8	7.3	10.9	14.5	18.2	21.8	25.5	29.1	32.7	36.4
10	1.6	3.2	4.8	6.5	8.1	12.1	16.2	20.2	24.2	28.3	32.3	36.4	40.4

Implement Width 60 feet

MPH	Application Rate in Gallons Per Acre												
	2	4	6	8	10	15	20	25	30	35	40	45	50
4	1.0	1.9	2.9	3.9	4.8	7.3	9.7	12.1	14.5	17.0	19.4	21.8	24.2
4.5	1.1	2.2	3.3	4.4	5.5	8.2	10.9	13.6	16.4	19.1	21.8	24.5	27.3
5	1.2	2.4	3.6	4.8	6.1	9.1	12.1	15.2	18.2	21.2	24.2	27.3	30.3
5.5	1.3	2.7	4.0	5.3	6.7	10.0	13.3	16.7	20.0	23.3	26.7	30.0	33.3
6	1.5	2.9	4.4	5.8	7.3	10.9	14.5	18.2	21.8	25.5	29.1	32.7	36.4
6.5	1.6	3.2	4.7	6.3	7.9	11.8	15.8	19.7	23.6	27.6	31.5	35.5	39.4
7	1.7	3.4	5.1	6.8	8.5	12.7	17.0	21.2	25.5	29.7	33.9	38.2	42.4
8	1.9	3.9	5.8	7.8	9.7	14.5	19.4	24.2	29.1	33.9	38.8	43.6	48.5
9	2.2	4.4	6.5	8.7	10.9	16.4	21.8	27.3	32.7	38.2	43.6	49.1	54.5
10	2.4	4.8	7.3	9.7	12.1	18.2	24.2	30.3	36.4	42.4	48.5	54.5	60.6

Implement Width 90 feet

MPH	Application Rate in Gallons Per Acre												
	2	4	6	8	10	15	20	25	30	35	40	45	50
4	1.5	2.9	4.4	5.8	7.3	10.9	14.5	18.2	21.8	25.5	29.1	32.7	36.4
4.5	1.6	3.3	4.9	6.5	8.2	12.3	16.4	20.5	24.5	28.6	32.7	36.8	40.9
5	1.8	3.6	5.5	7.3	9.1	13.6	18.2	22.7	27.3	31.8	36.4	40.9	45.5
5.5	2.0	4.0	6.0	8.0	10.0	15.0	20.0	25.0	30.0	35.0	40.0	45.0	50.0
6	2.2	4.4	6.5	8.7	10.9	16.4	21.8	27.3	32.7	38.2	43.6	49.1	54.5
6.5	2.4	4.7	7.1	9.5	11.8	17.7	23.6	29.5	35.5	41.4	47.3	53.2	59.1
7	2.5	5.1	7.6	10.2	12.7	19.1	25.5	31.8	38.2	44.5	50.9	57.3	63.6
8	2.9	5.8	8.7	11.6	14.5	21.8	29.1	36.4	43.6	50.9	58.2	65.5	72.7
9	3.3	6.5	9.8	13.1	16.4	24.5	32.7	40.9	49.1	57.3	65.5	73.6	81.8
10	3.6	7.3	10.9	14.5	18.2	27.3	36.4	45.5	54.5	63.6	72.7	81.8	90.9

Recommended Care and Maintenance

Winterization

AgX recommends flushing your fertilizer pump and complete system with adequate amounts of water first. Next, use RV antifreeze to winterize your system by pumping an adequate amount through all components. At the beginning of the next season, begin with water to verify the system is in working order.

Inspect Electric Pumps

The electric pump and motor is a completely sealed component. Over time the electric motor will lose efficiency. The entire pump and motor will need replaced when it won't efficiently produce the flow required.

Each individual pump should be able to produce more than 4 gpm of water flow with an open outlet (zero pressure). If pump falls short of this specification, replace to ensure a trouble free fertilizing operation.

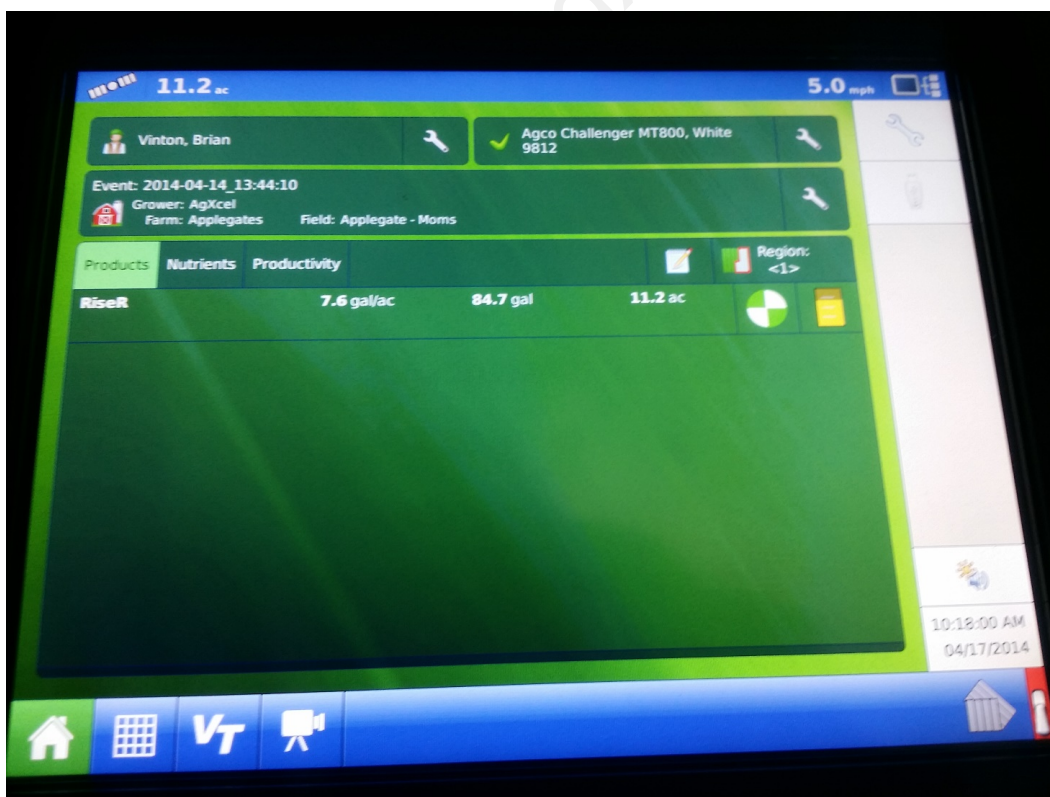
copyright AgXcel LLC

Electronic Waste Gate Valve:

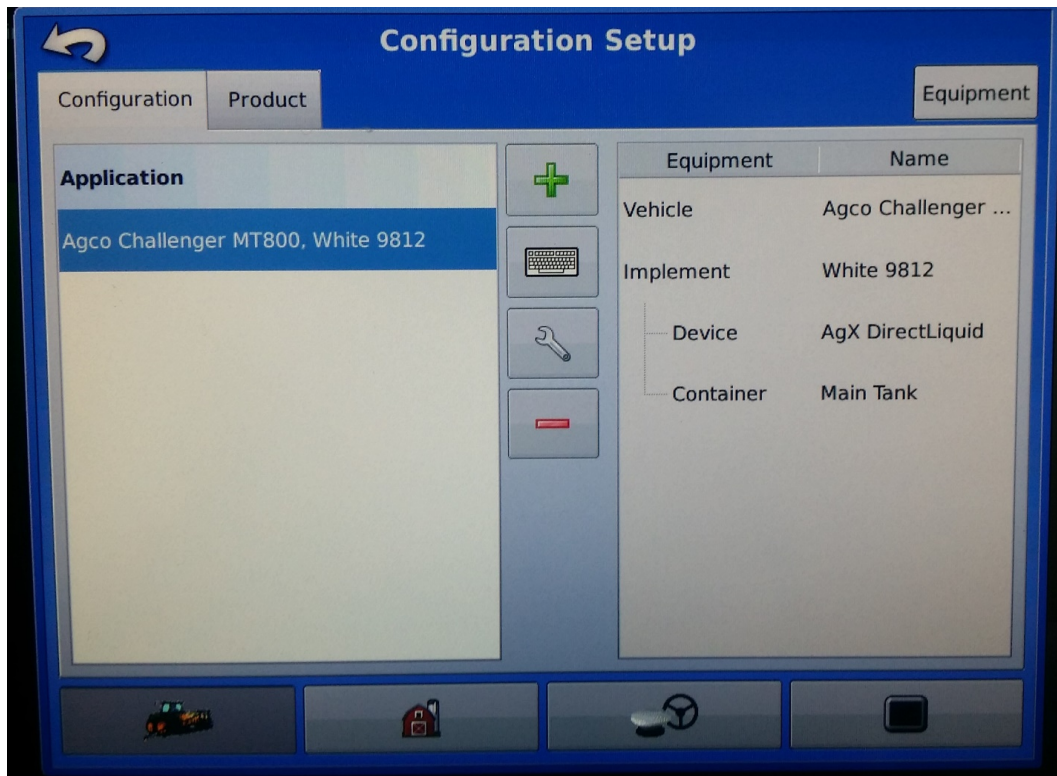
To improve the response of flow throughout the fertilizer system and to achieve a more instantaneous application of fertilizer, there is a setting that can be adjusted to utilize an Electronic Waste Gate Valve. This will allow the user to keep the pump motors pumping at all times without over pressurizing the system. This setting requires a specialized harness and an Electronic Waste Gate Valve Kit.

Caution read before beginning!

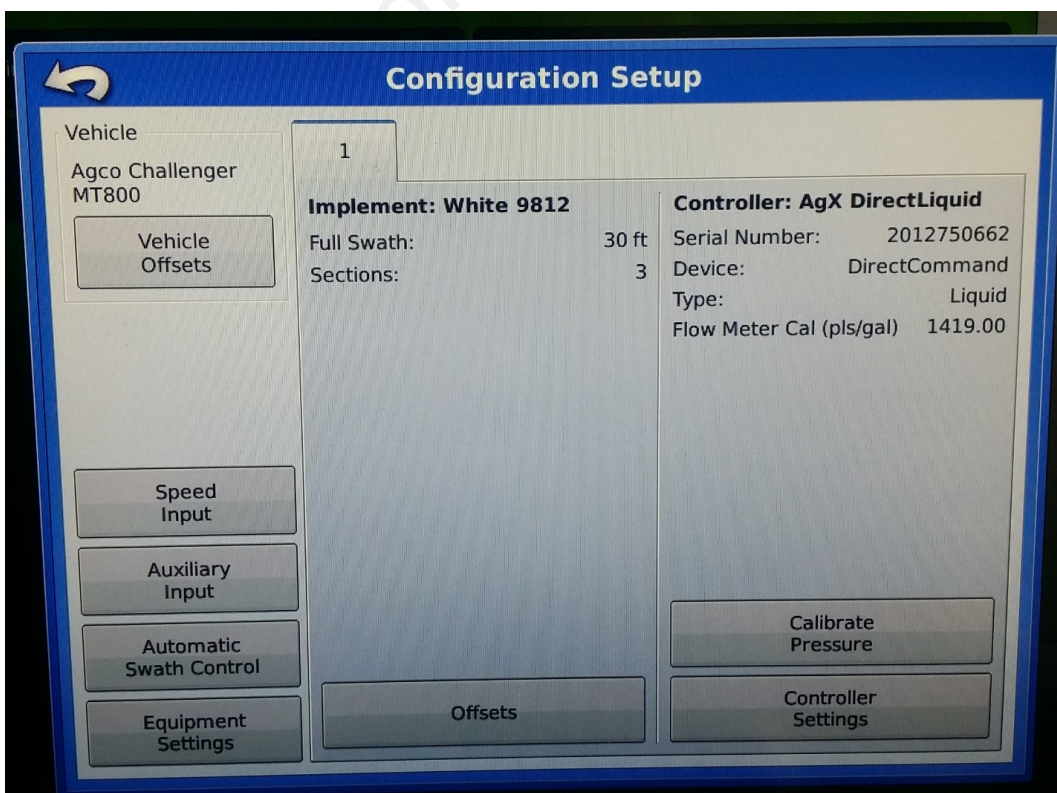
When your AgLeader System is operating with the Electronic Waste Gate Valve, the pump motors will be pumping at all times. The only way to shut the pump motors off will be to access them through system settings. In the event of an emergency simply power down the AgLeader Integra monitor.



To access this setting start at your home screen. In the upper right hand corner of the screen press the wrench to access Configuration Setup.



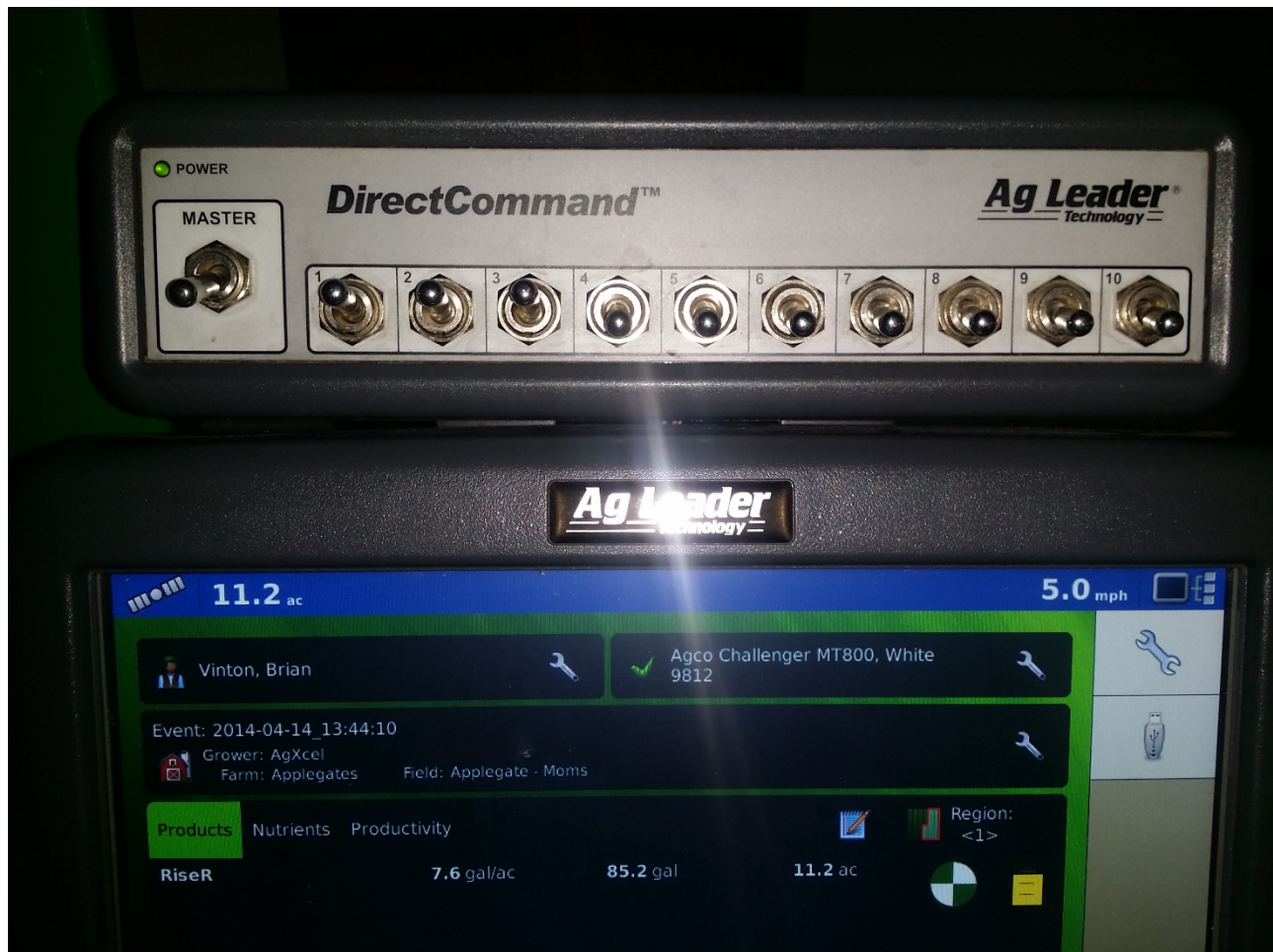
Select the wrench in the center of the screen and then select controller settings in the bottom right hand corner of the screen.



Controller Settings

Flow Meter Calibration 1419 pls/gal	Rate Off Flow Control Valve Hold ▼	Rate Error Alarm Threshold 30 %
Flow Control Delay 0 s	Auxiliary Valve 1 Open ▼	Timeout 5 s
Control Valve Settings	Auxiliary Valve 2 Close ▼	

You now need to set the Flow Control Valve on Hold and also set the Auxiliary Valve to Open.



It is important when exiting out of the Controller settings to make sure that you press the green check mark button or else your setting changes will not take effect. Your pump motors should start as soon as you exit out of the Configuration Setup. You will then push the MASTER switch up into the on position and make sure your section valve switches are up and in the on position. The Waste Gate should open when the implement is lifted from the ground as the Section Valves close. The waste gate should close when the implement is lowered to the ground as the Section Valves open.

Controller Settings

<p>Flow Meter Calibration</p> <div style="border: 1px solid black; padding: 5px; text-align: center;">1419 pls/gal </div> <p>Flow Control Delay</p> <div style="border: 1px solid black; padding: 5px; text-align: center;">0 s </div> <div style="border: 1px solid black; padding: 5px; text-align: center; margin-top: 10px;">Control Valve Settings</div>	<p style="text-align: center;">Rate Off</p> <p>Flow Control Valve</p> <div style="border: 1px solid black; padding: 5px; text-align: center;">Close ▼</div> <p>Auxiliary Valve 1</p> <div style="border: 1px solid black; padding: 5px; text-align: center;">Close ▼</div> <p>Auxiliary Valve 2</p> <div style="border: 1px solid black; padding: 5px; text-align: center;">Close ▼</div>	<p>Rate Error Alarm</p> <p>Threshold</p> <div style="border: 1px solid black; padding: 5px; text-align: center;">30 % </div> <p>Timeout</p> <div style="border: 1px solid black; padding: 5px; text-align: center;">5 s </div>
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✓

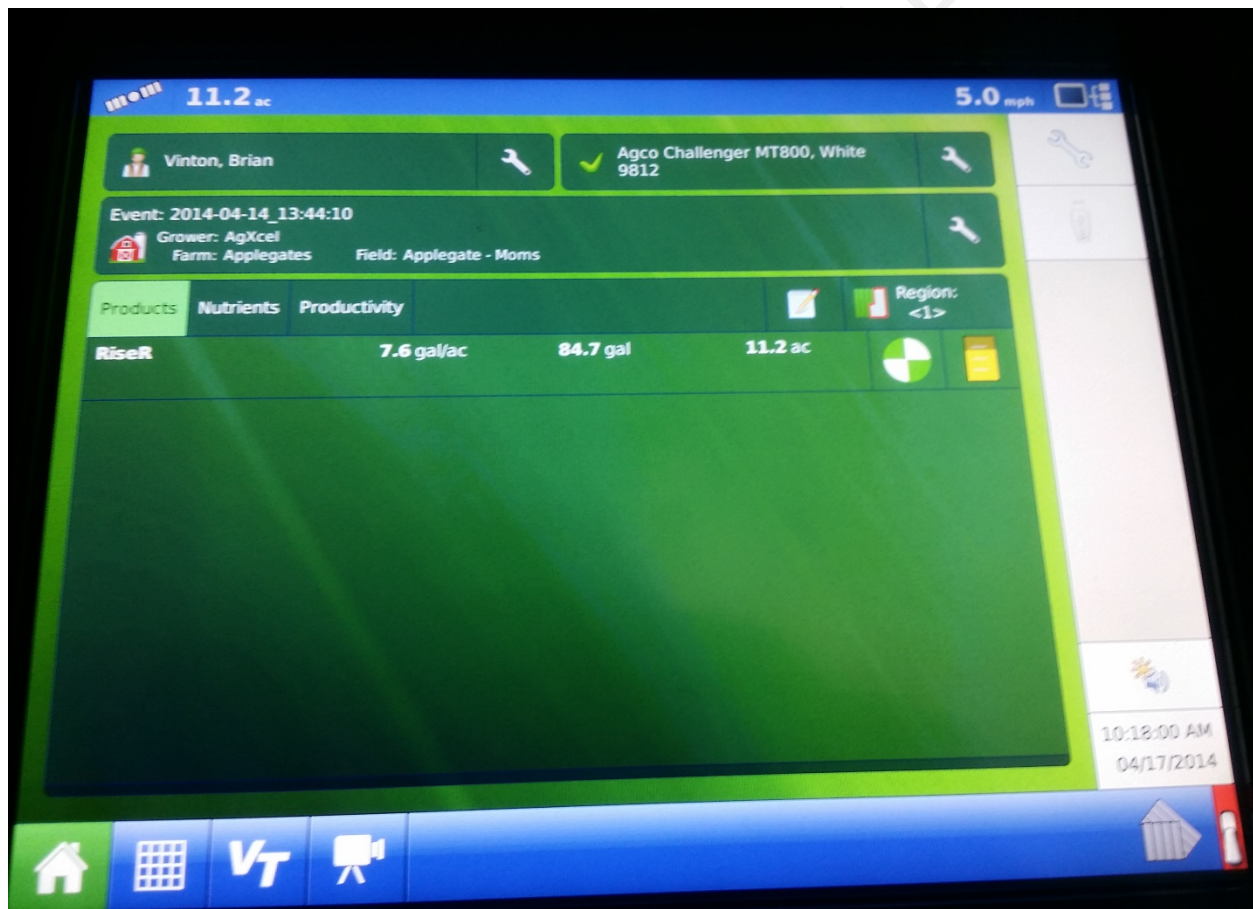
✗

In order to turn the fertilizer system off the user must repeat the steps to access the Controller Settings. Then they must set the Flow Control Valve to Close and set the Auxiliary Valve to Close also in order to turn the pump motors off. Be sure to save your settings by pressing the green checkmark button. Your pump motors should shut off when you exit from the Configuration Set Up.

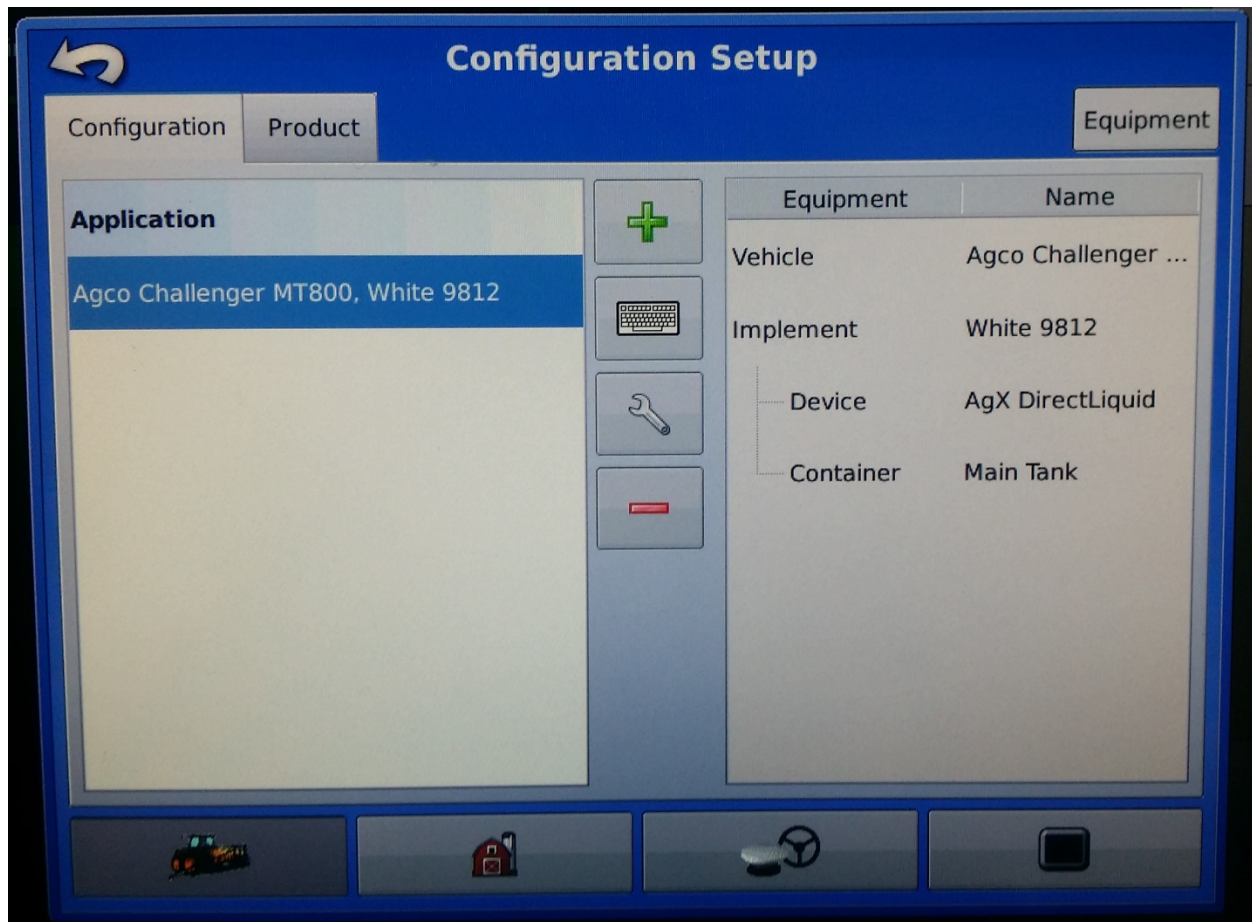
Calibrating two AgXcel pressure transducers into AgLeader Integra

Caution: when calibrating the pressure transducers you must relieve all the pressure from the pressure transducer in order for it to calibrate correctly. The Voltage/Pressure Ratio is 50.0 mV/PSI. In order to have the ability to use two pressure transducers on the AgLeader Integra Screen you must have a specialized harness from AgXcel.

Begin by starting at your home screen. Press the wrench in the top right hand corner of your screen.



You are now at the configuration setup. You will need to press the wrench located in the center of the screen.



You will now select Calibrate Pressure. This will take you to Pressure Sensor Calibration: Step 1 of 3.

Configuration Setup

Vehicle
Agco Challenger MT800

Vehicle Offsets

1

Implement: White 9812

Full Swath: 30 ft
Sections: 3

Controller: AgX DirectLiquid

Serial Number: 2012750662
Device: DirectCommand
Type: Liquid
Flow Meter Cal (pls/gal) 1419.00

Speed Input

Auxiliary Input

Automatic Swath Control

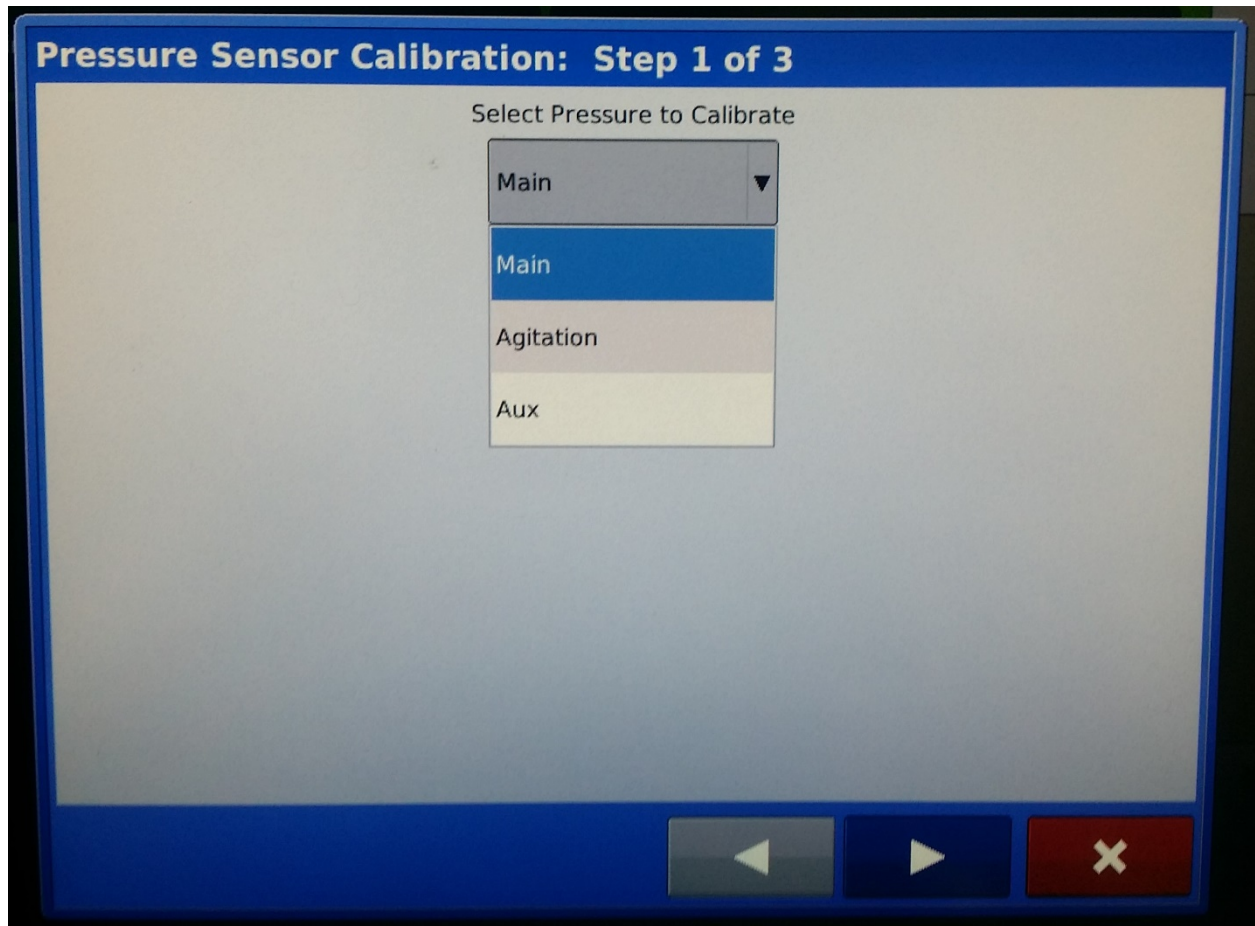
Equipment Settings

Offsets

Calibrate Pressure

Controller Settings

You will now be able to select the Main, Agitation, or Aux Pressure Transducer for Calibration. Once you have selected the harness you want to calibrate press the arrow pointing right. If you are using two pressure transducers you must calibrate each of them individually. You must also have an AgXcel harness that allows the use of a second pressure transducer.



With all the pressure relived from the pressure transducer you may now enter the values on Pressure Sensor Calibration: Step 2 of 3.

Select: Enter a Pressure Value as a Set Point

Set as: 0 PSI

Select: Enter Voltage/ Pressure Ratio

Set as: 50.0 mV/PSI

Press the right arrow to complete the calibration setup

The screenshot shows a software interface for "Pressure Sensor Calibration: Step 2 of 3". The interface has a blue header bar with the title. Below the header, there are two input fields. The first field is labeled "Enter a Pressure value as a Set Point" and contains the text "0 PSI" with a small calculator icon to its right. The second field is labeled "Enter Voltage / Pressure Ratio" and contains the text "50.0 mV/PSI" with a small calculator icon to its right. Below these fields is a button labeled "Reset to Default". At the bottom of the screen, there are three buttons: a left arrow, a right arrow, and a red button with a white "X" (close button).

You may now repeat the calibration process in order to calibrate a second pressure transducer. In order to save your calibration settings you must press the green checkmark.

