SETUP GUIDE

JOHN DEERE RATE CONTROLLER 2000

FAST SHUT OFF - SINGLE LIQUID – SINGLE SWATH

DOCUMENT NO.	MAN0021
REVISION	F
REVISION DATE	27/01/2026

Overview

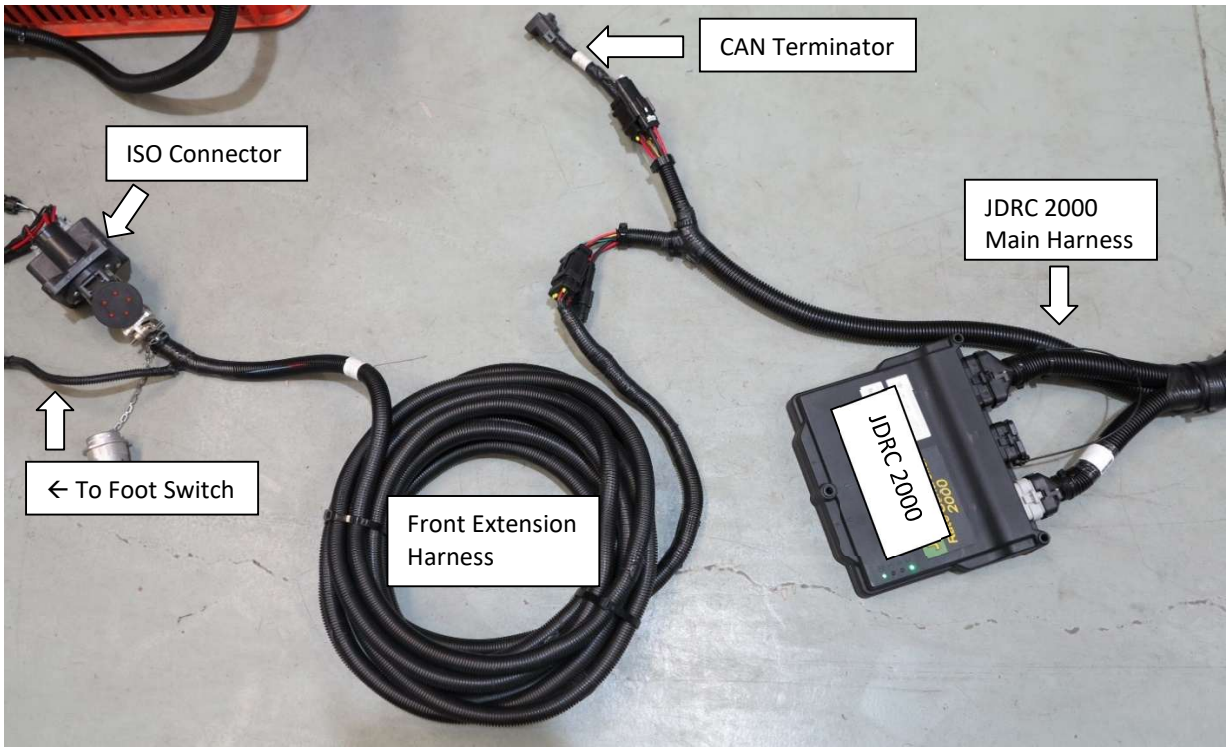
This document provides instructions for setting up a Liquid Systems (SA) Rate Control Module with a John Deere Greenstar Display using a John Deere Rate Controller 2000 (JDRC 2000). The scenario covers setup of a single liquid system without section control where it is the one and only product being controlled by JDRC 2000.

This document should be read in conjunction with the JDRC 2000 Operators Manual.

Configuration Prerequisites

Before the liquid system can be configured in the Greenstar Display (2630 or newer), following actions need to be completed.

- Physical installation of Liquid Systems (SA) Rate Control module including tank plumbing.
- Installation and connection of JDRC 2000 to the Greenstar Display with Front Extension Harness and Foot Switch.
- Installation of Height Switch on planting implement if required.



Physical Connection to Liquid Systems module

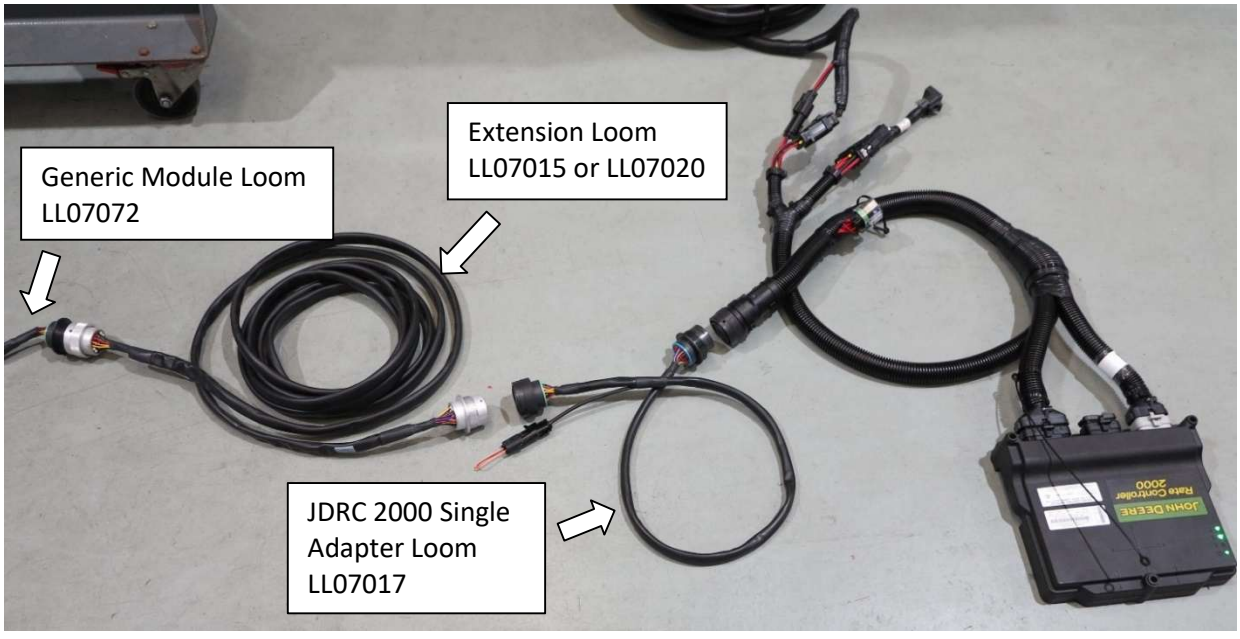
Connect Liquid Systems (SA) module to the JDRC 2000 with wiring looms supplied.
Liquid Systems (SA) looms available for single liquid set up without section control are:

Part No.	Name		Description
LL07017	JDRC 2000 Single Adapter Loom (47 pin)		Adapter that connects to 47 pin connector on JDRC 2000 Main Harness.
LL07072	Generic Module Loom (5m)		Connects to individual device connectors on LQS pump module. Connects to LL07017 Adapter Loom via 23 pin circular connector.
LL07015 (optional)	Generic Module Loom Extension (6m)		Extensions of Generic Module Loom for when additional length is required from LQS pump module to JDRC 2000.
LL07020 (optional)	Generic Module Loom Extension (12m)		

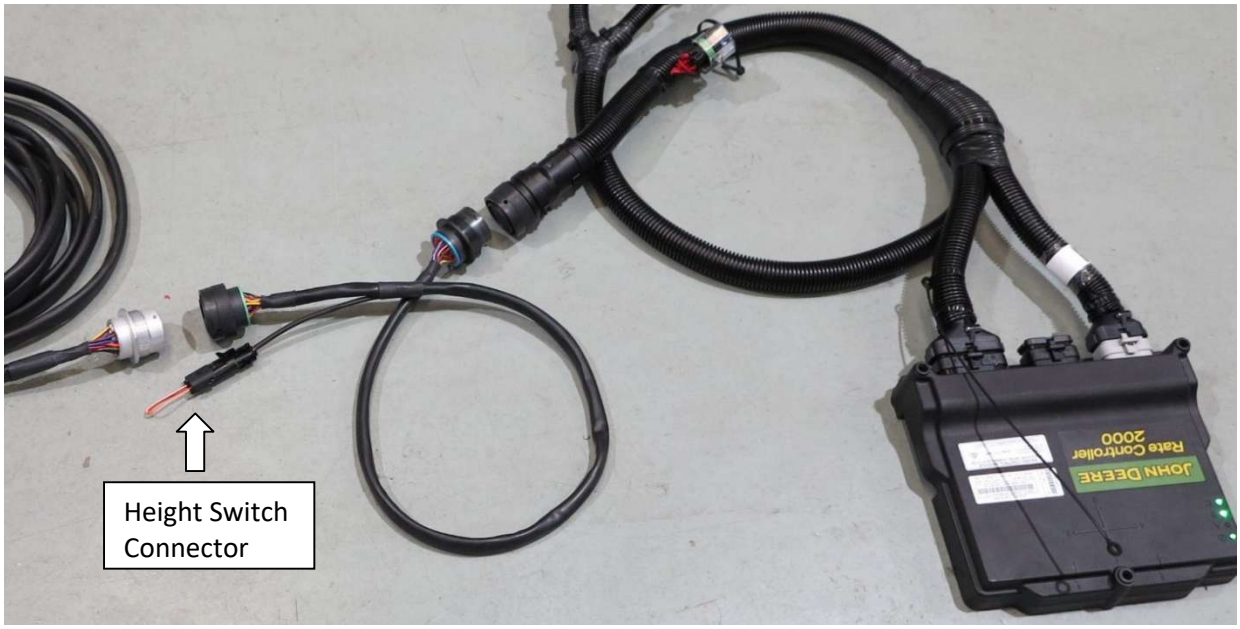
1. Connect Generic Module Loom (LL07072) to device on Liquid Systems (SA) module, ensuring connector is clipped in properly.

2. Connect and route Extension Loom (LL07015 or LL07020) to reach JDRC 2000 if required for the routing distance.

3. Connect JDRC 2000 Single Adapter Loom (LL07017) to the Extension Loom and to the JDRC 2000 Main Harness.



4. If installed, connect Height Switch to connector on Adapter Loom (LL07017).



FLOW METER Identification & Settings----------

All Liquid Systems (SA) Pump and Rate Control Modules are available with multiple flow meter configurations to suit specific applications and flow rates. Each flow meter has a 'Calibration Factor' which needs to be input to the rate controller by the operator. If the incorrect calibration factor is used, the system will not operate correctly, and the applied rate will be incorrect. The below images and tables show the different flow meter and calibration factors.

TeeJet 801 Flow Meter (STD)

ARAG Flow Meters

IDENTIFICATION LABEL
ARAG Flow Meters all appear visually the same, although can be identified by the label on the side. This label shows the range and calibration factor in pulses per litre.

Flow Meter Variations & Calibration Setting	**TeeJet 801 Flow Meter** (Standard)	**ARAG Electromagnetic Flow Meter**		
Flowmeter Range	7.5-250L/Min	2.5-50L/Min	1.0-20L/Min	0.5-10L/Min
Pulses Per Litre	82	1200	3000	6000
Pulses Per US Gallon	310	4542	11355	22710
Pulses Per Imperial Gallon	373	5455	13638	27277

SHUTOFF VALVE Identification & Settings----------

LQS Modules are built with 3 different Fast-Shutoff Valves, the images below show the difference between the two KZ Valves and Teejet Valve.

KZ Valve- L03067

KZ Valve- L03085 (STD)

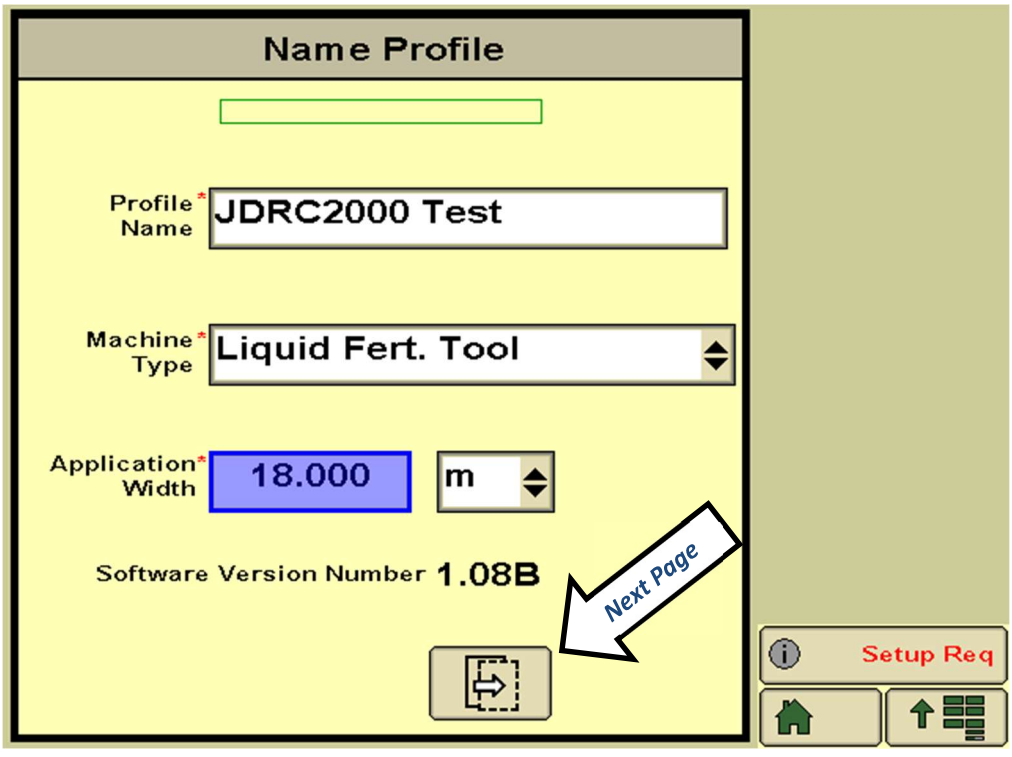
TeeJet Valve

Shut off VALVE TYPE	**Modules Pre 2025**			**Modules 2025 – BPOD** Note: BPOD – Back Pressure Orifice Diffuser		
	Valve Response Rate	**Control Deadband**	**Control Effort**	**Valve Response Rate**	**Control Deadband**	**Control Effort**
L03067	50	2	3	100	4	17
L03085 (Standard)	50	2	3	100	3	36
TeeJet	50	2	3	100	3	30

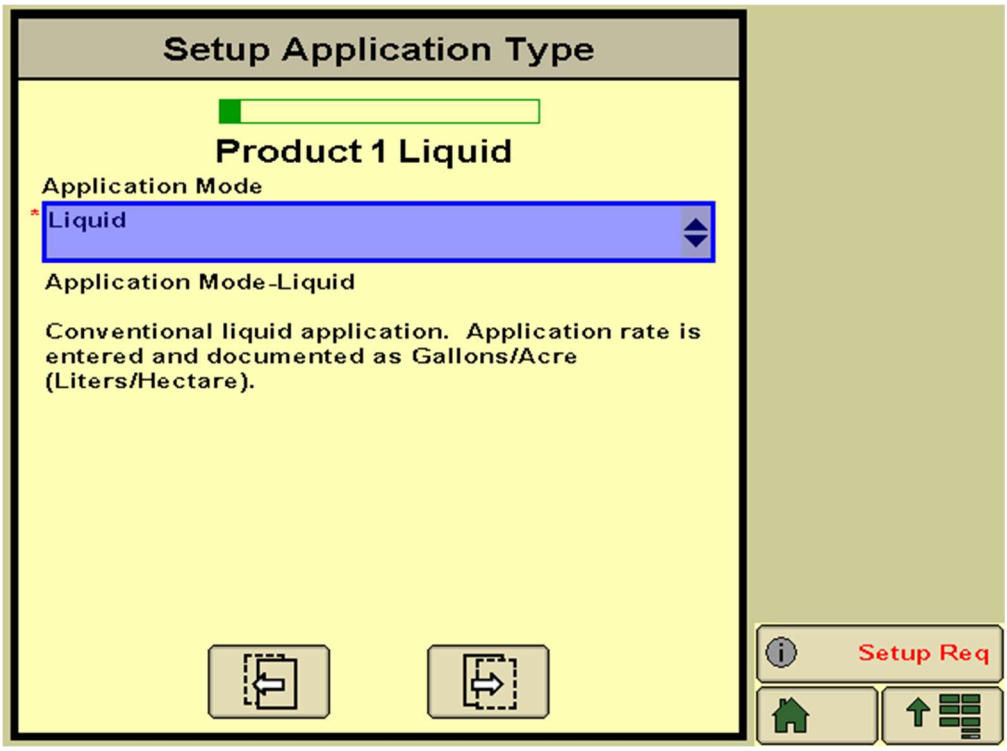
Rate Controller 2000 Setup

1. Enter Rate Controller Setup. Select **New Profile** from drop down menu and press **Accept** button.

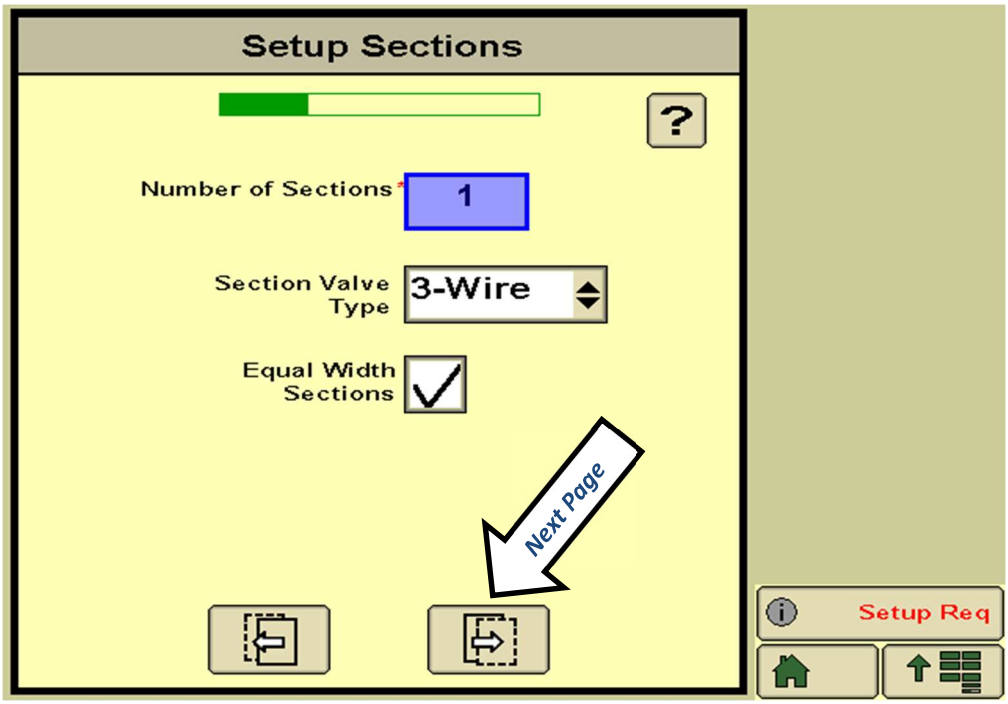
2. Assign an appropriate **Profile Name**. Select **Liquid Fert Tool** from Machine Type drop down menu. Enter effective operating width of implement and press **Next Page** button (right arrow).



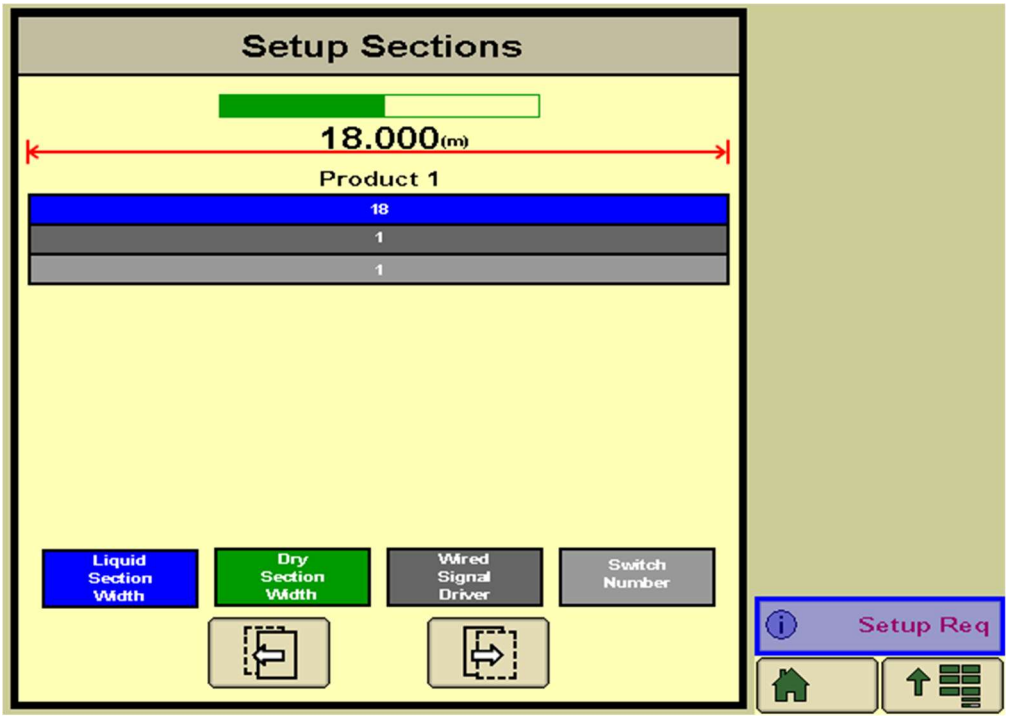
3. Select **Liquid** from Application Mode drop down menu. Press **Next Page** button (right arrow).



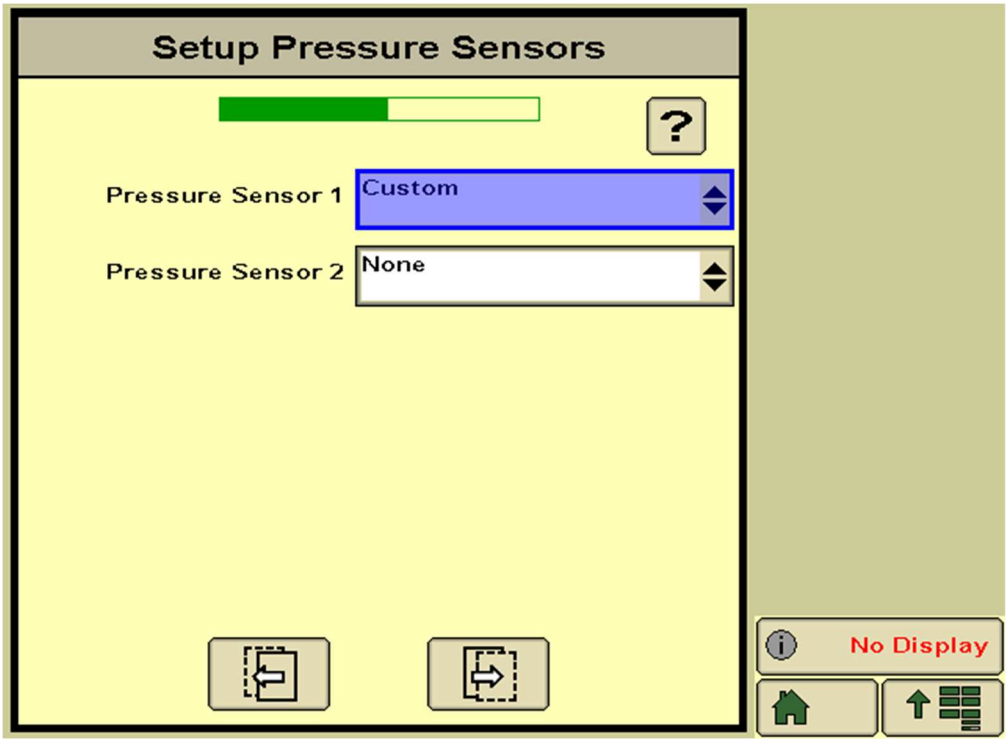
4. Setup single section as below. Press **Next Page** button (right arrow). If required, press **Previous Page** button (left arrow) to go back and re-enter data.



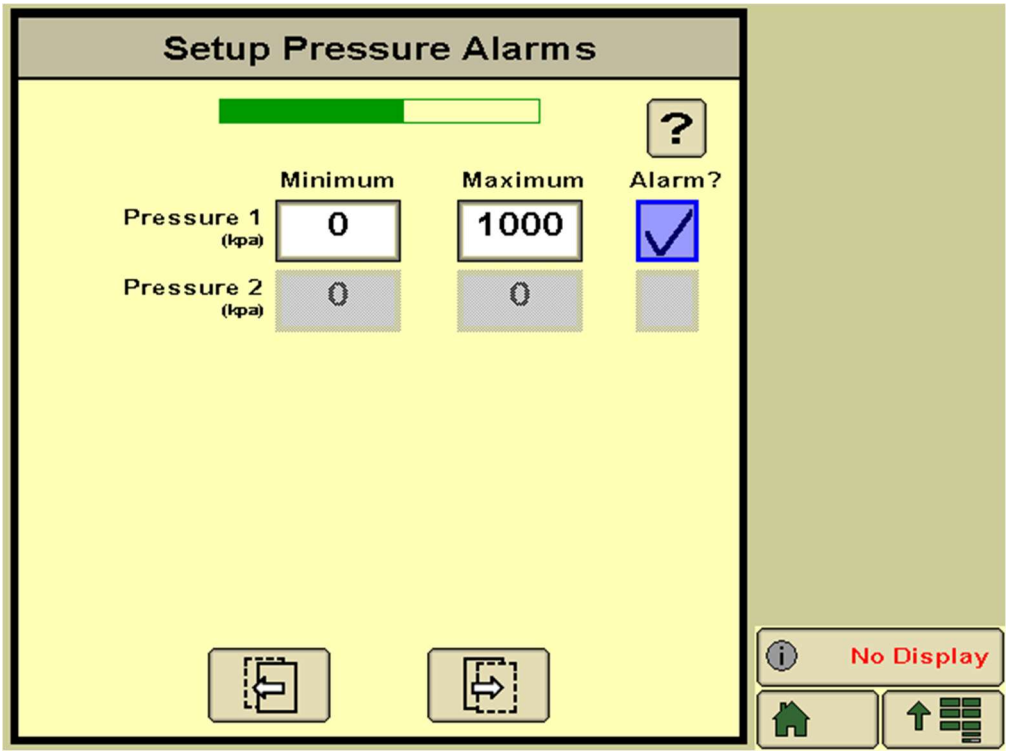
5. Review section set up data and press **Next Page** button (right arrow).



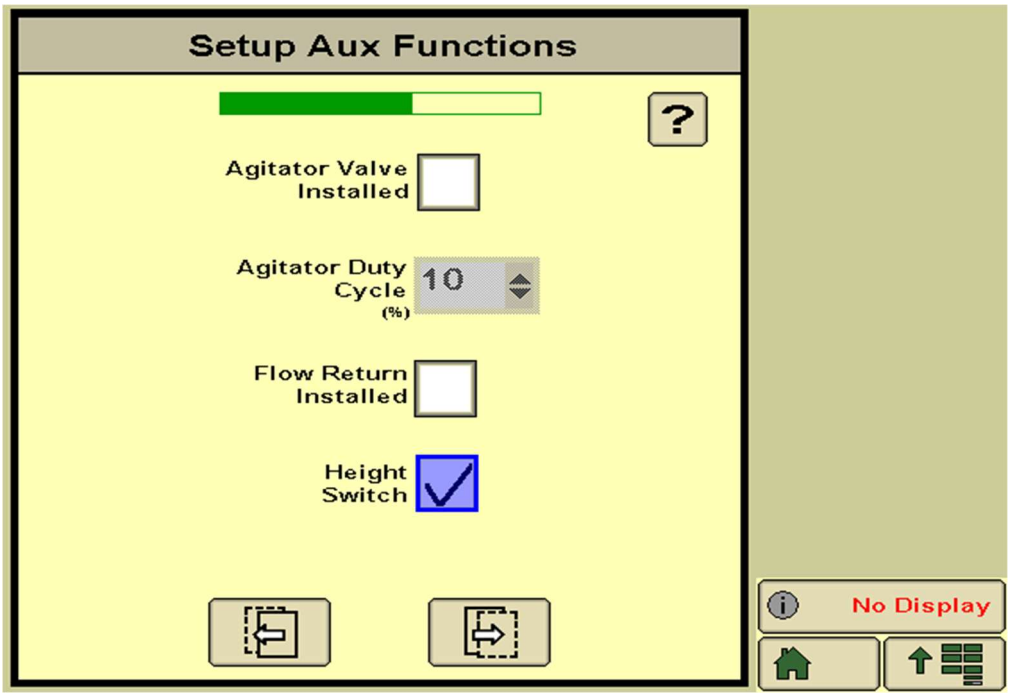
6. Select **Custom** from Pressure Sensor 1 drop down menu.
   Ignore any warnings at this stage.



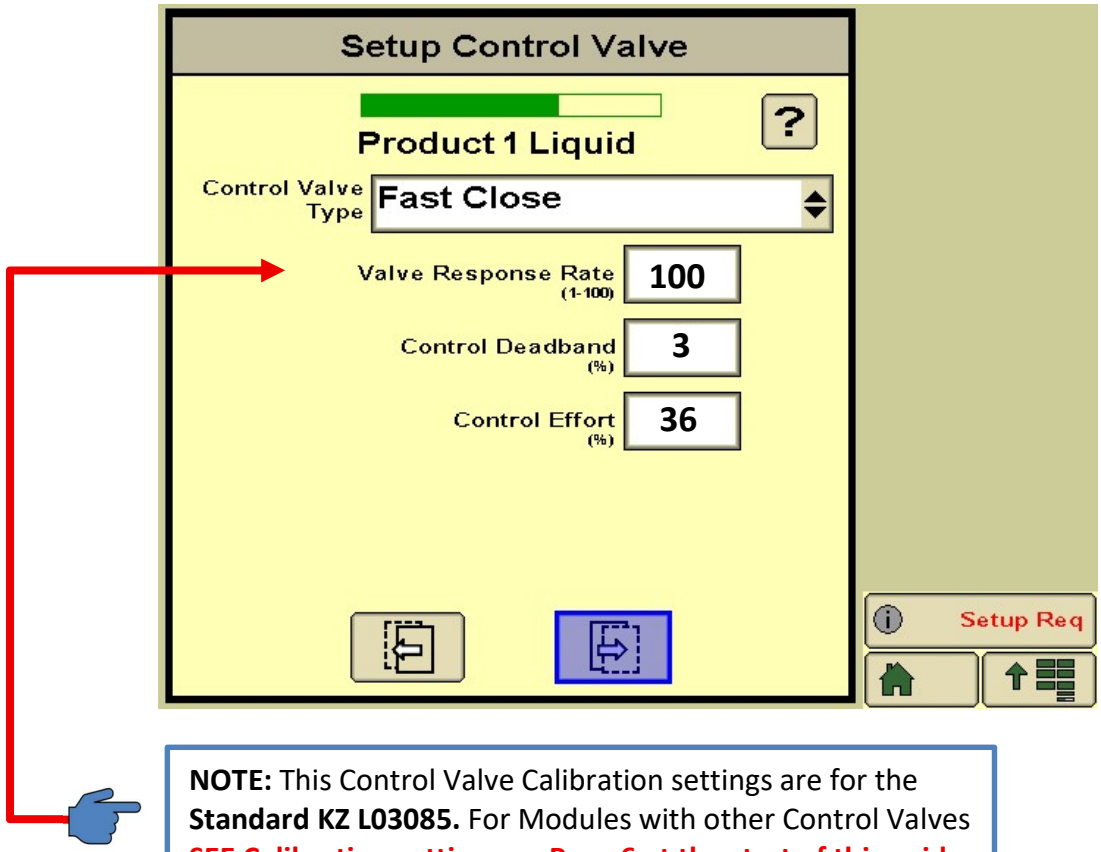
7. Set Maximum pressure alarm at **1000 kPa** (or 145 psi).



8. If installed, enable Height Switch and press **Next Page** button.

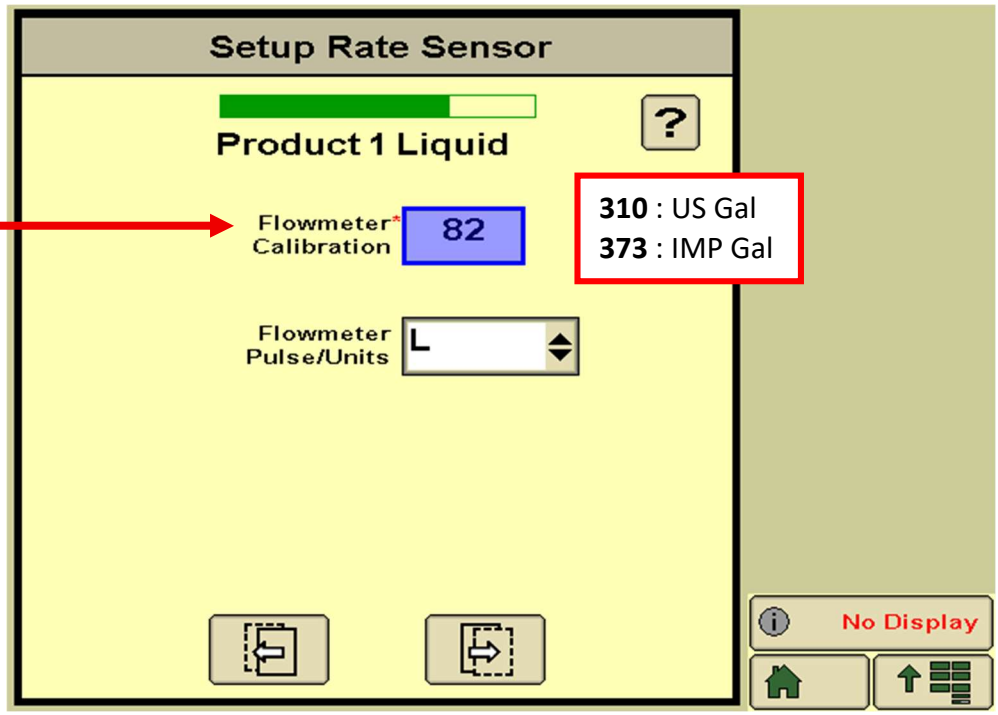


9. Enter following Control Valve settings for Product 1 as a starting point. Settings can be adjusted later if rate control is erratic. Press **Next Page** button. Refer to Help button for each parameter and their impact on rate control.



NOTE: This Control Valve Calibration settings are for the **Standard KZ L03085.** For Modules with other Control Valves **SEE Calibration settings on Page 6 at the start of this guide**.

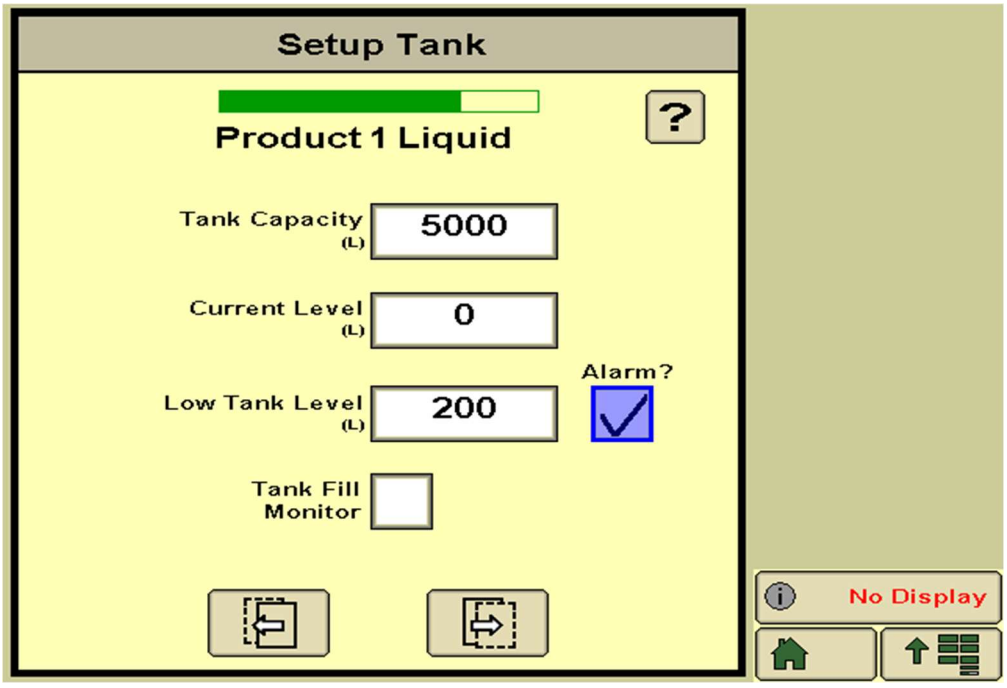
10. Enter Flowmeter Calibration factor for Product 1 and press **Next Page** button. Refer to table below for applicable factor for various types of flowmeters.



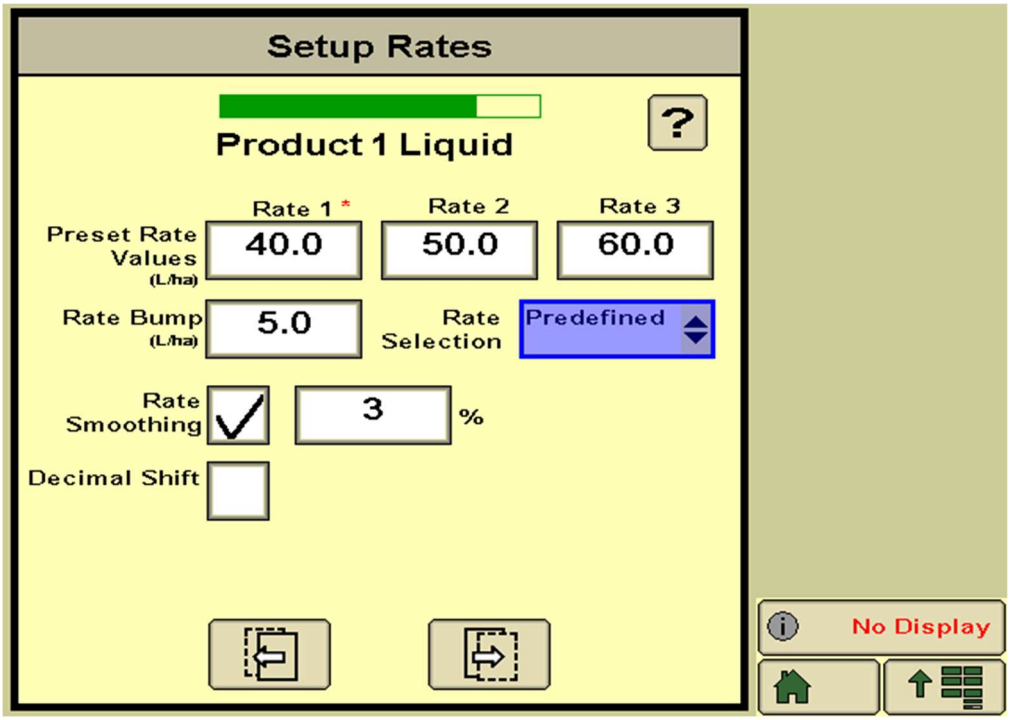
310 : US Gal
373 : IMP Gal

NOTE: This Flow Meter Calibration setting is for a **Standard TeeJet 801 Flowmeter** in Litres. For modules with **ARAG Electromagnetic** Flowmeter, check label for calibration setting.
SEE Calibration settings on Page 6 at the start of this guide.

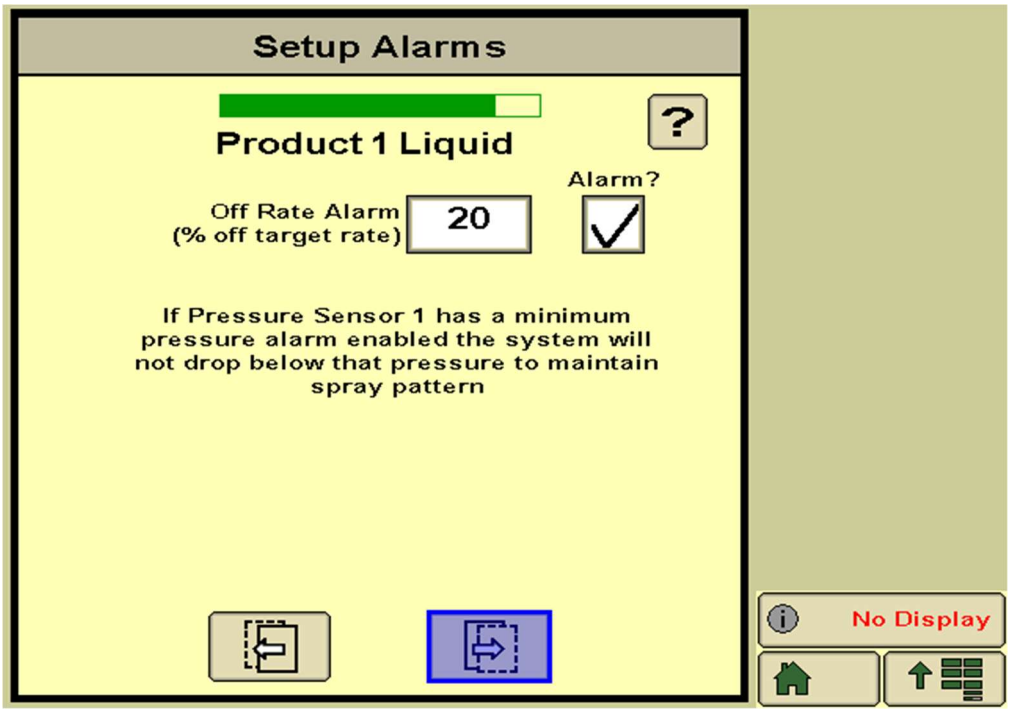
11. Enter tank parameters for Product 1 and press **Next Page** button.



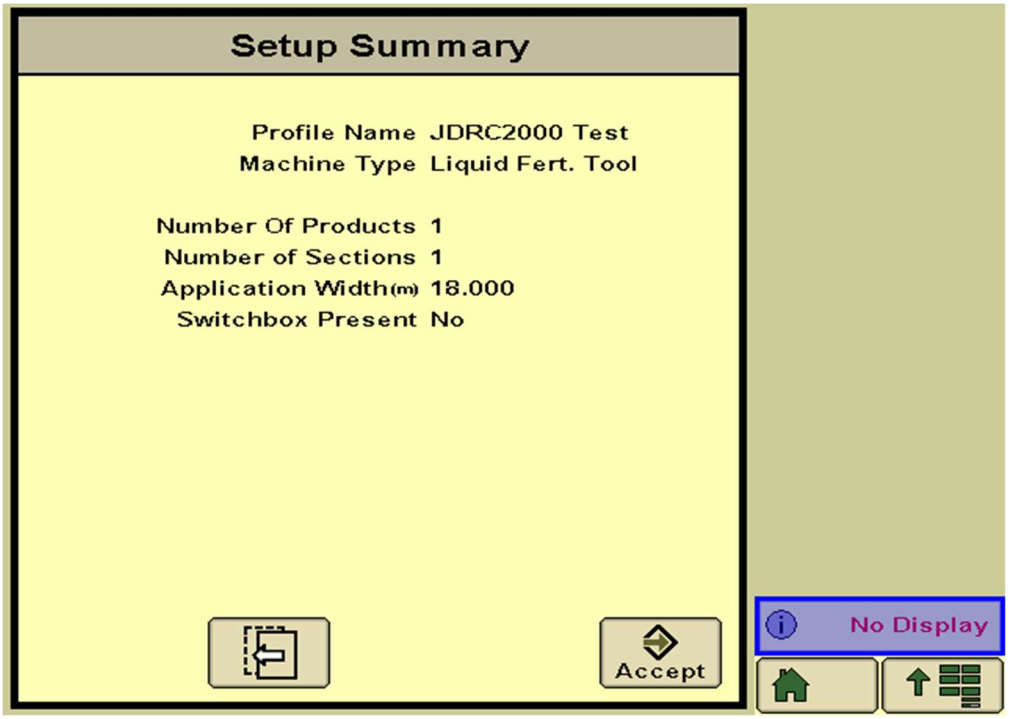
12. Enter target application rates for Product 1.



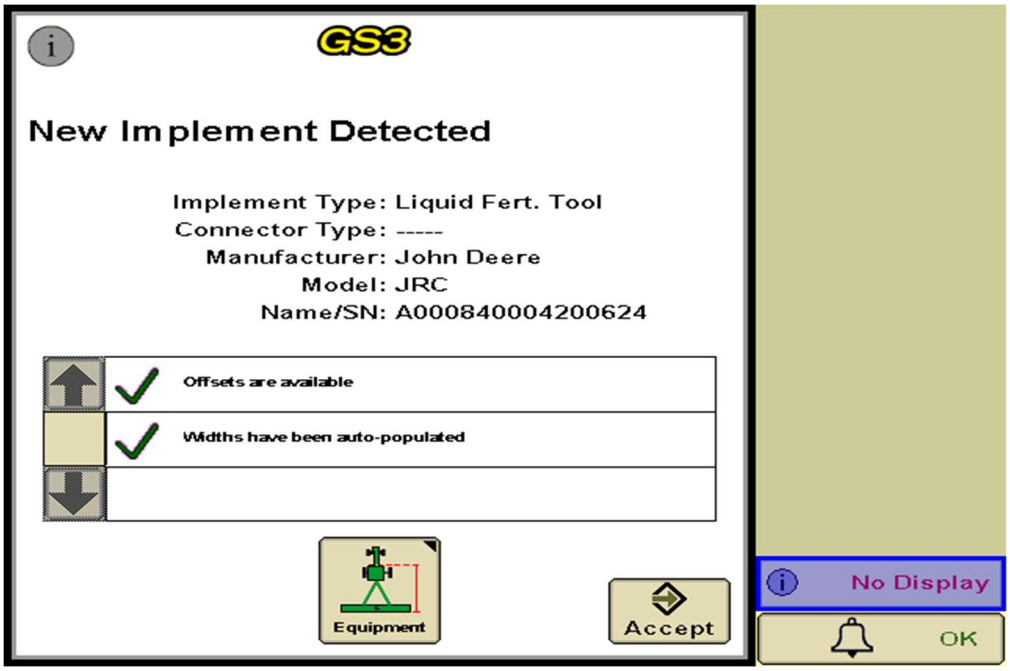
13. Enter Alarm parameters for off target rate % and press **Next Page** button.



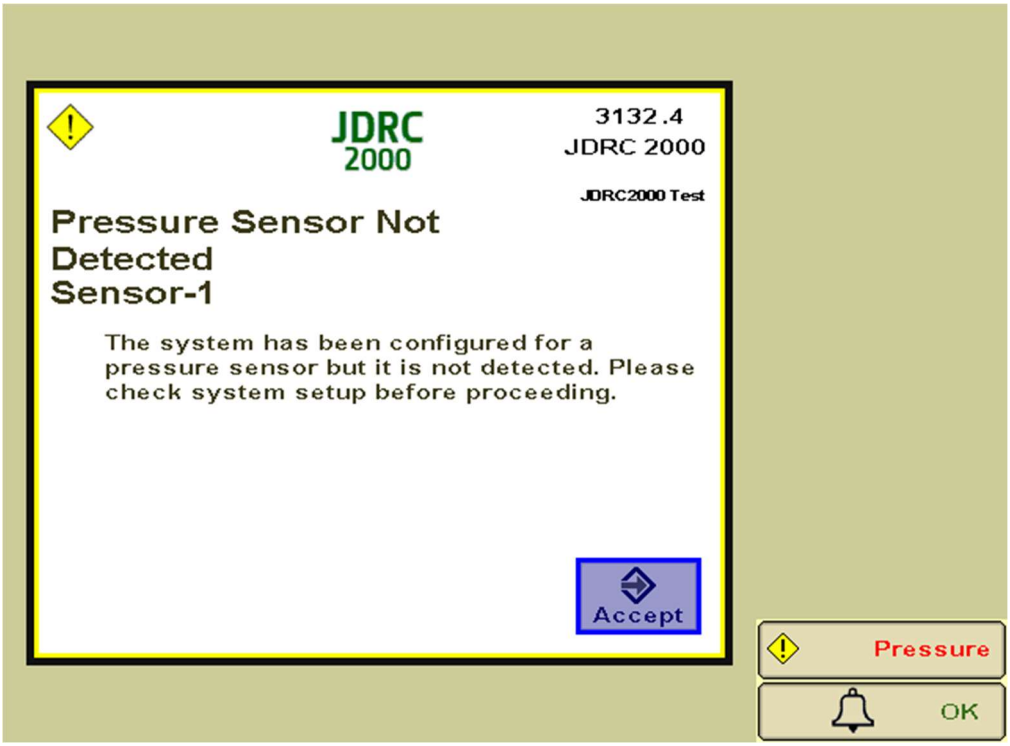
14. Review Setup summary. Press **Accept** or Previous Page button (left arrow) to edit.



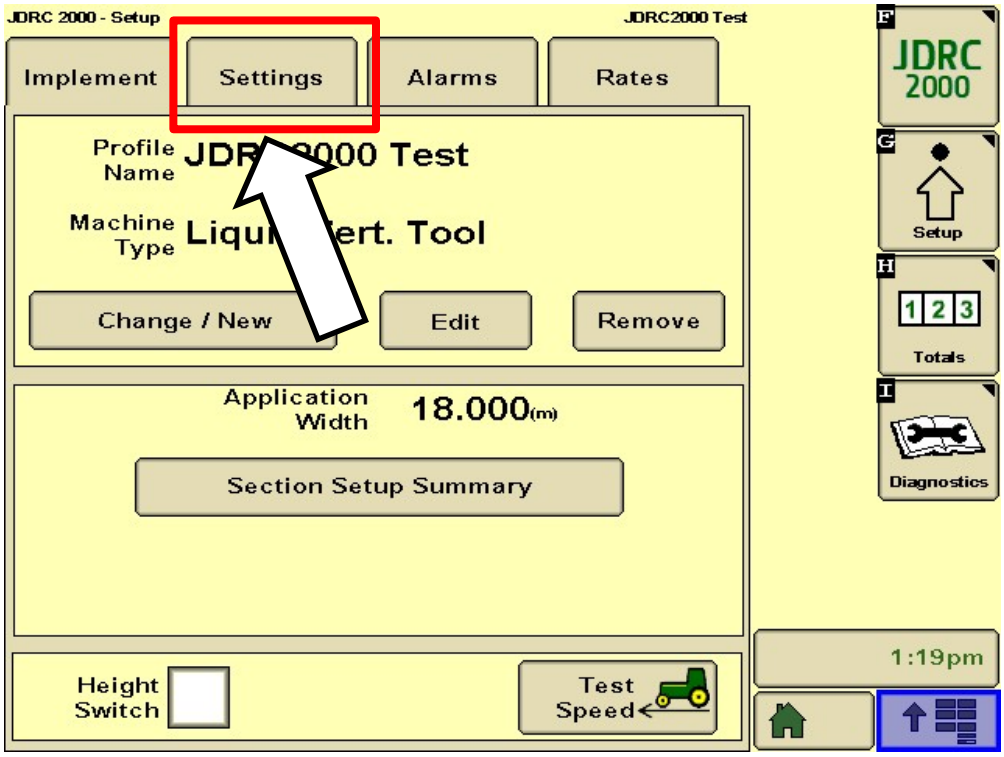
15. At this stage of set up, the following screen will be displayed. Press **Accept**.



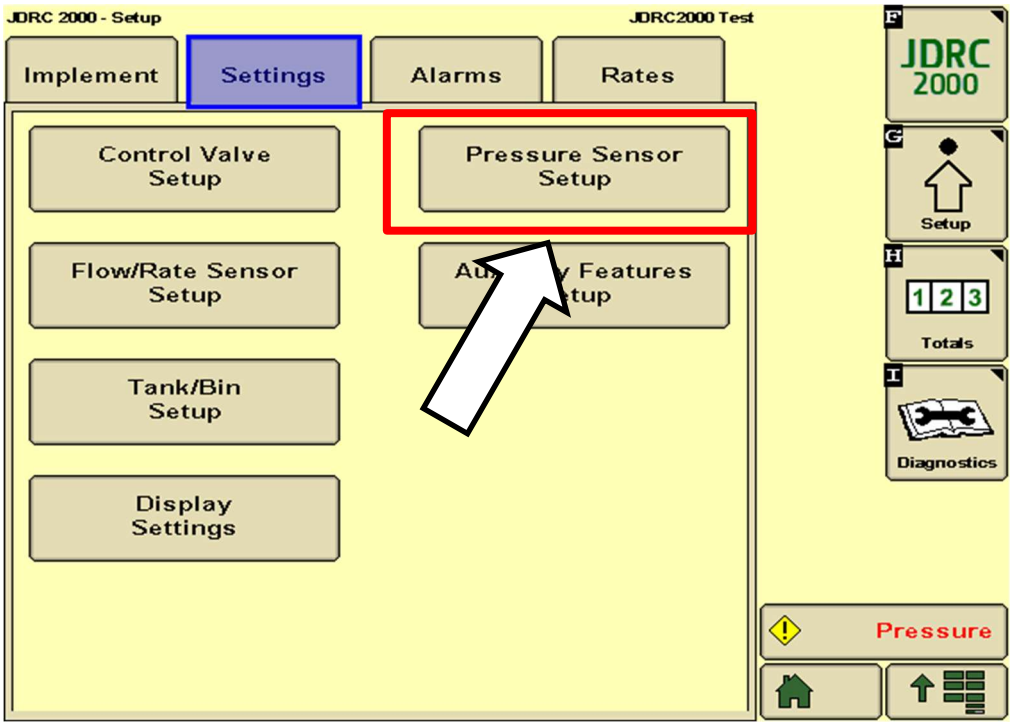
16. IGNORE THIS ALERT. Press **Accept** to proceed to pressure sensor set up.



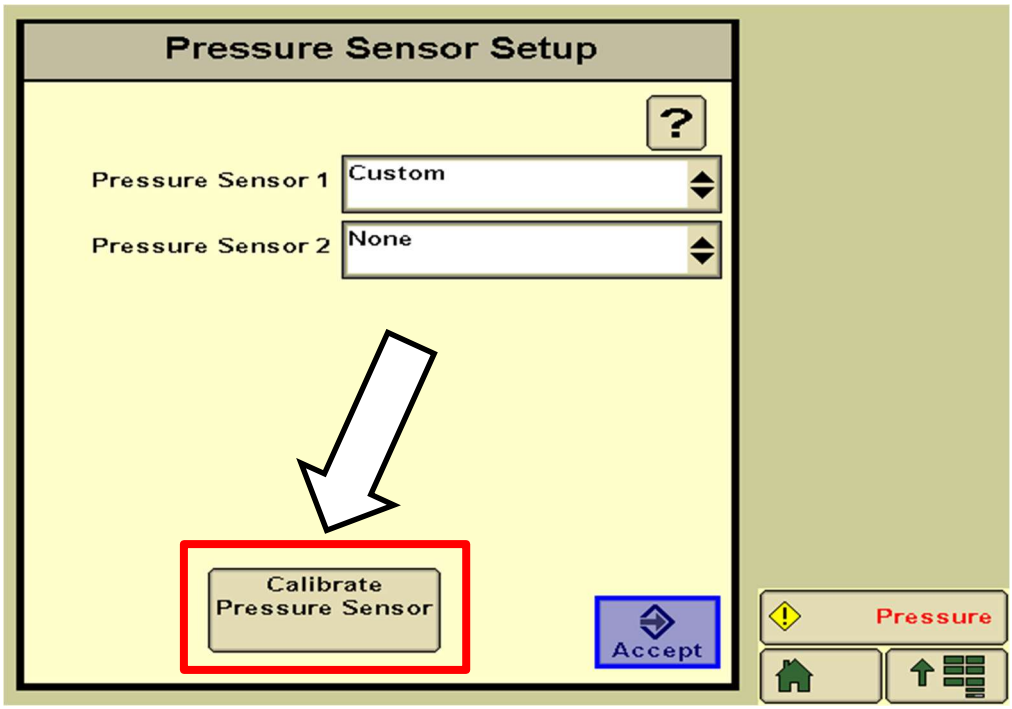
17. Select **Settings** tab from the setup screen.



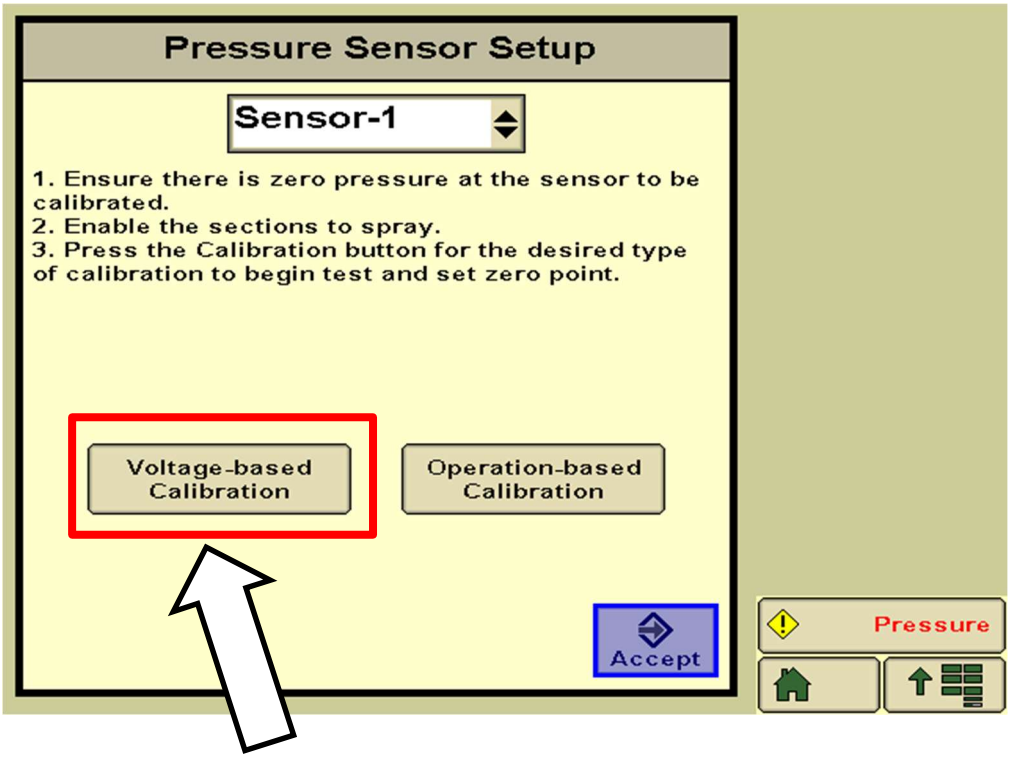
18. Select **Pressure Sensor Setup**.



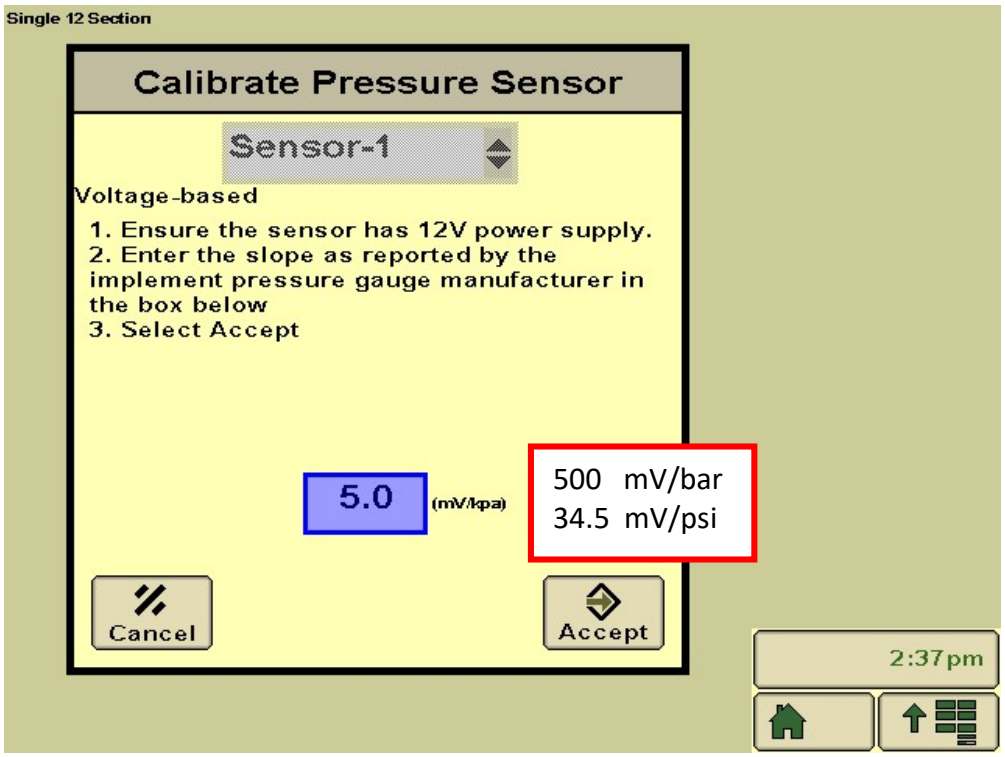
19. Select **Calibrate Pressure Sensor**



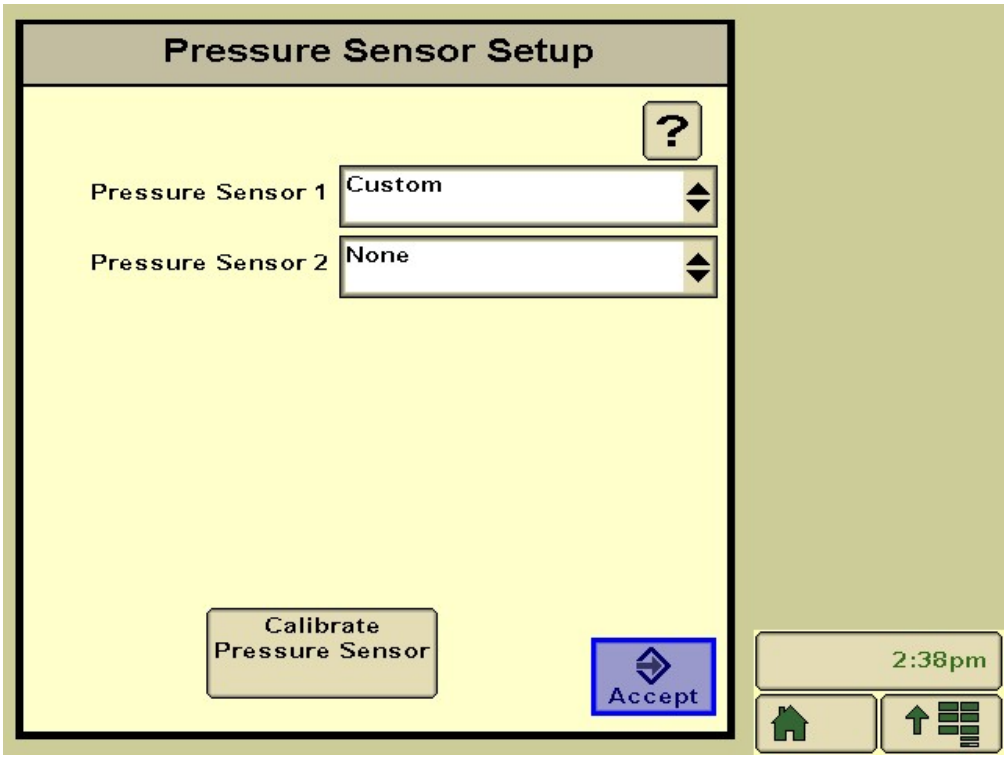
20. Ensure pump is **NOT** running and then select **Voltage-based Calibration**.



21. Enter Pressure Sensor Calibration factor 5mV/kPa : 500mV/bar : 34.5mV/psi
Press **Accept**.

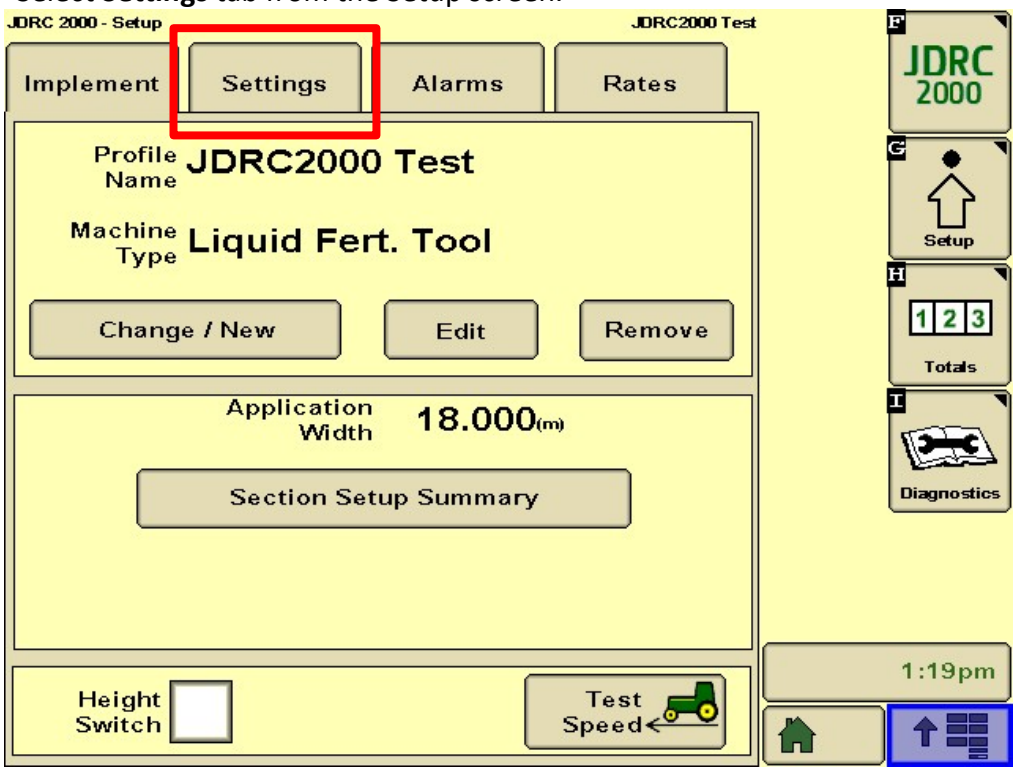


22. Press **Accept** to save settings and return to the setup screen.

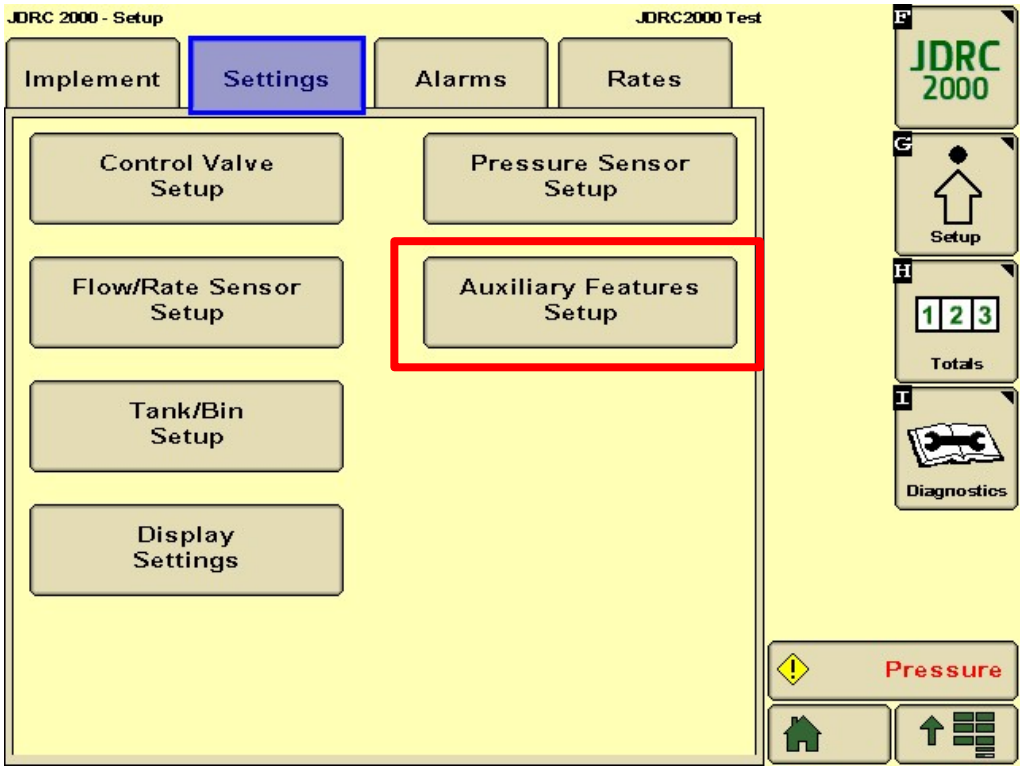


RPM Sensor Integration

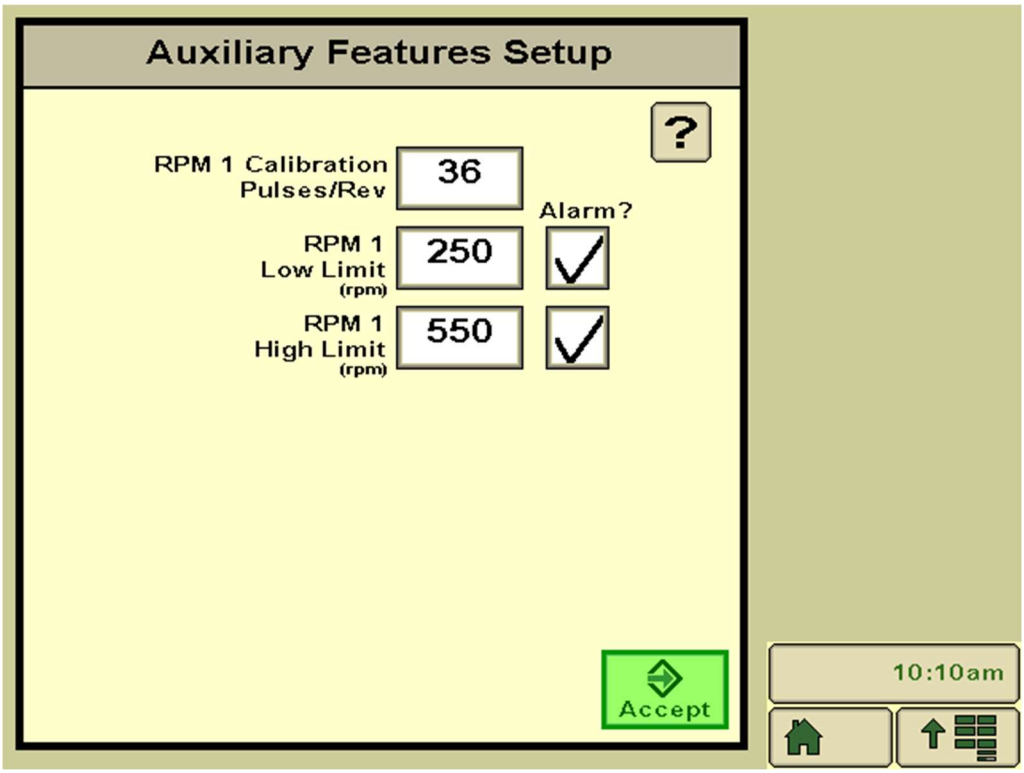
1. Select **Settings** tab from the Setup screen.



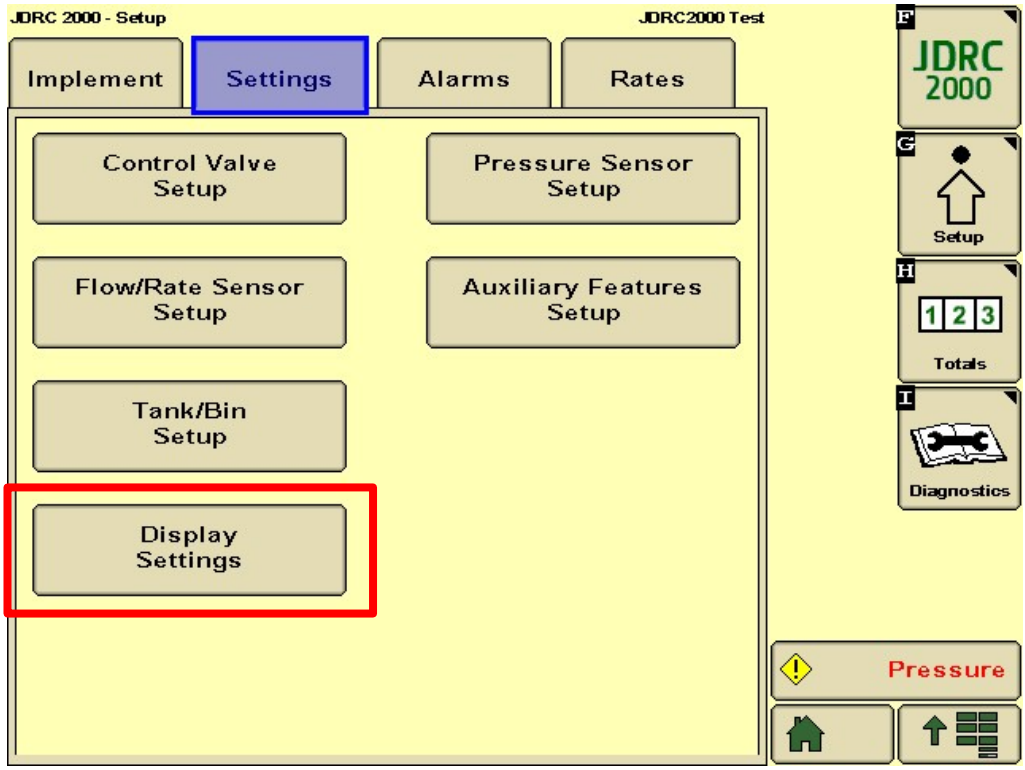
2. Select **Auxiliary Features Setup**.



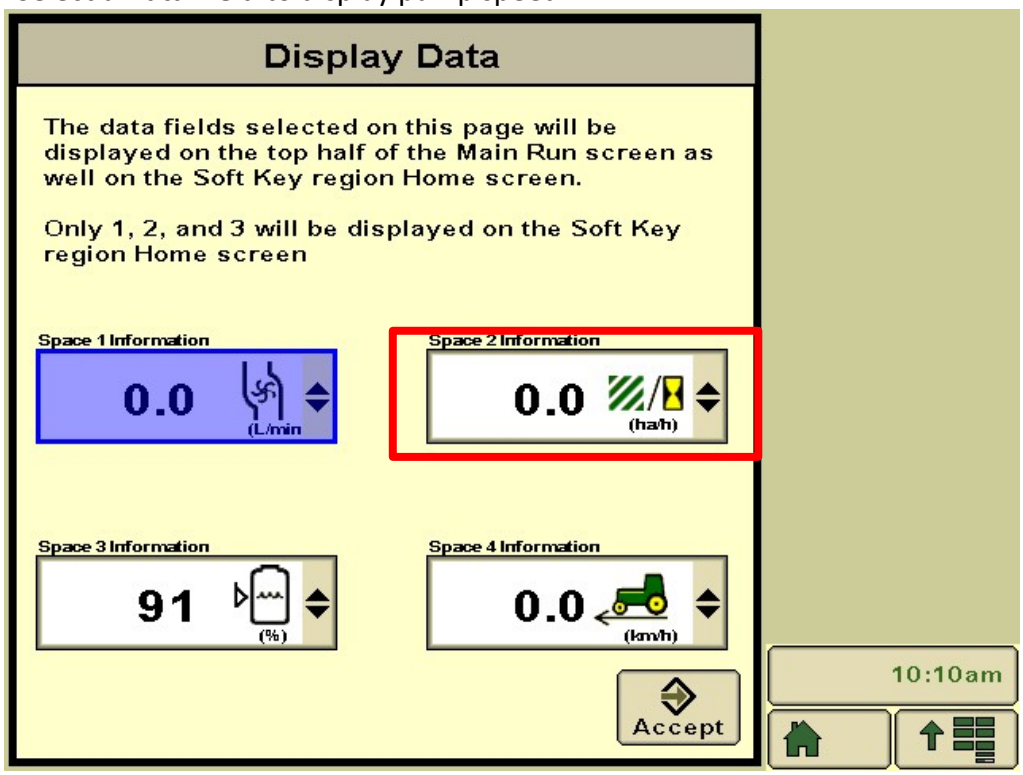
3. Enter **36** for RPM Calibration Pulses/Rev and **250** & **550** for Low & High RPM Alarm limits respectively. Press **Accept** to save settings and to return to Setup screen.



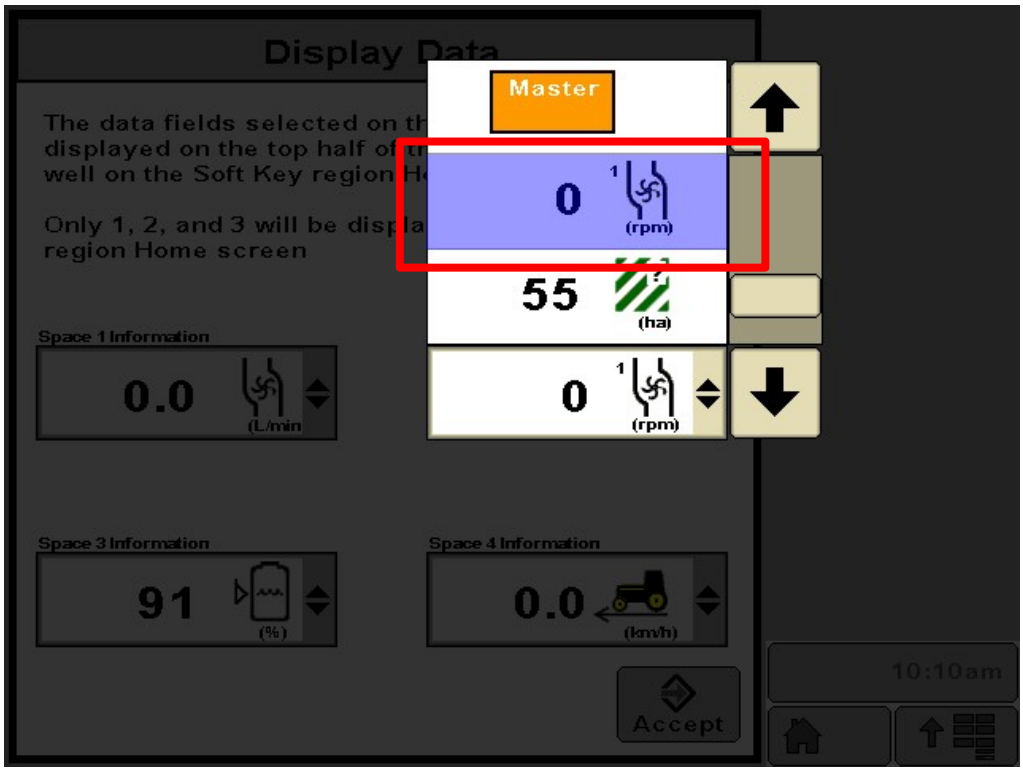
4. To configure the screen to display Pump speed, select **Display Settings**.



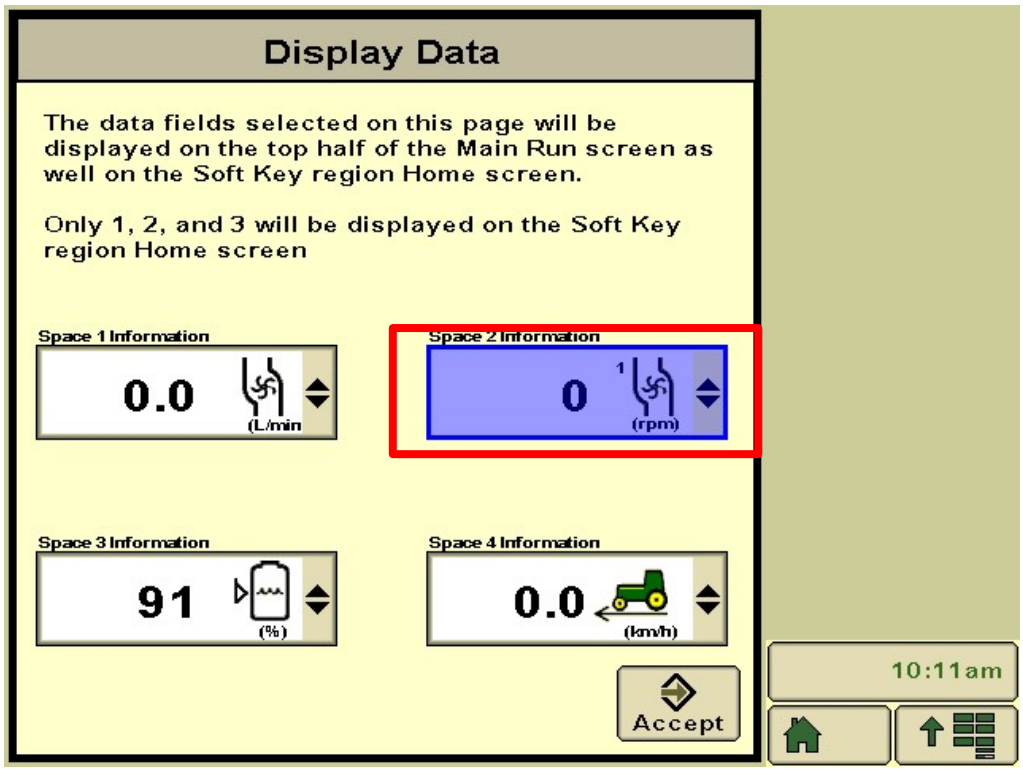
5. Select a **Data Field** to display pump speed.



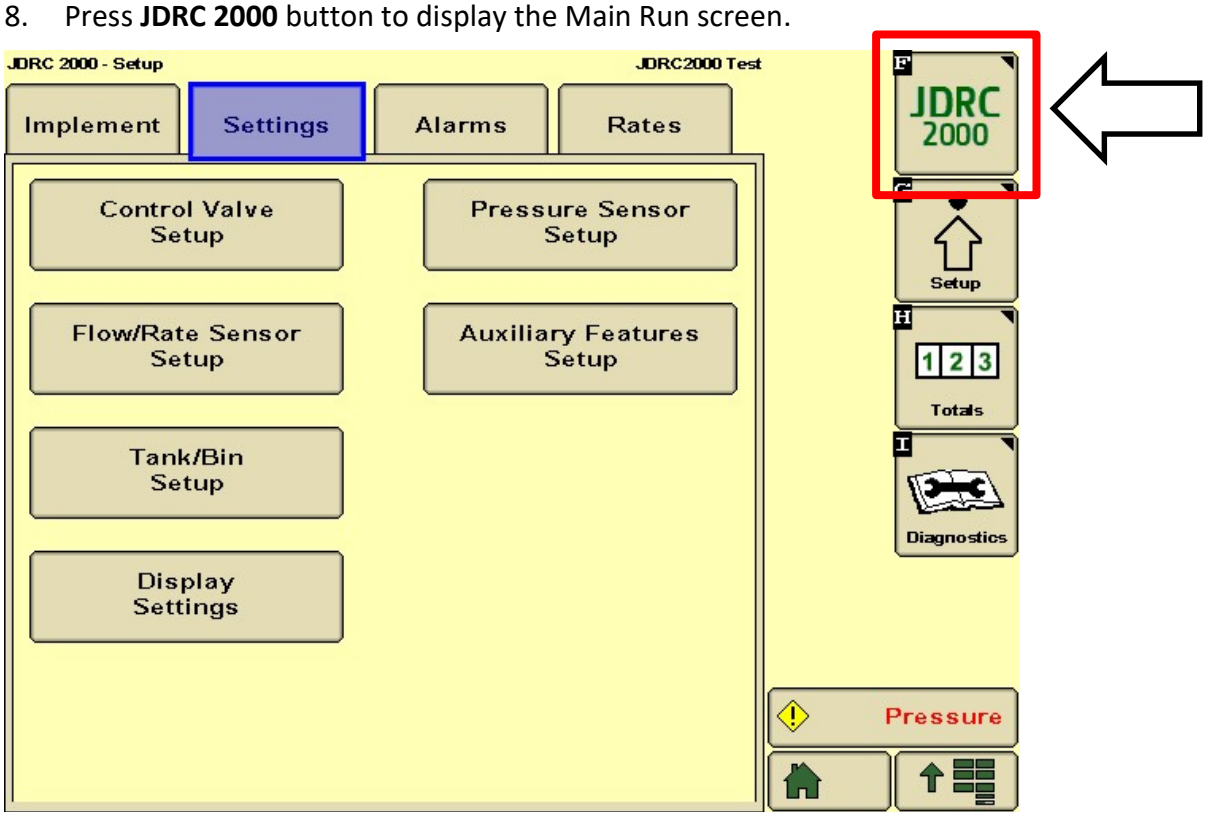
6. Scroll down the menu and select **Pump Speed** (RPM) option.



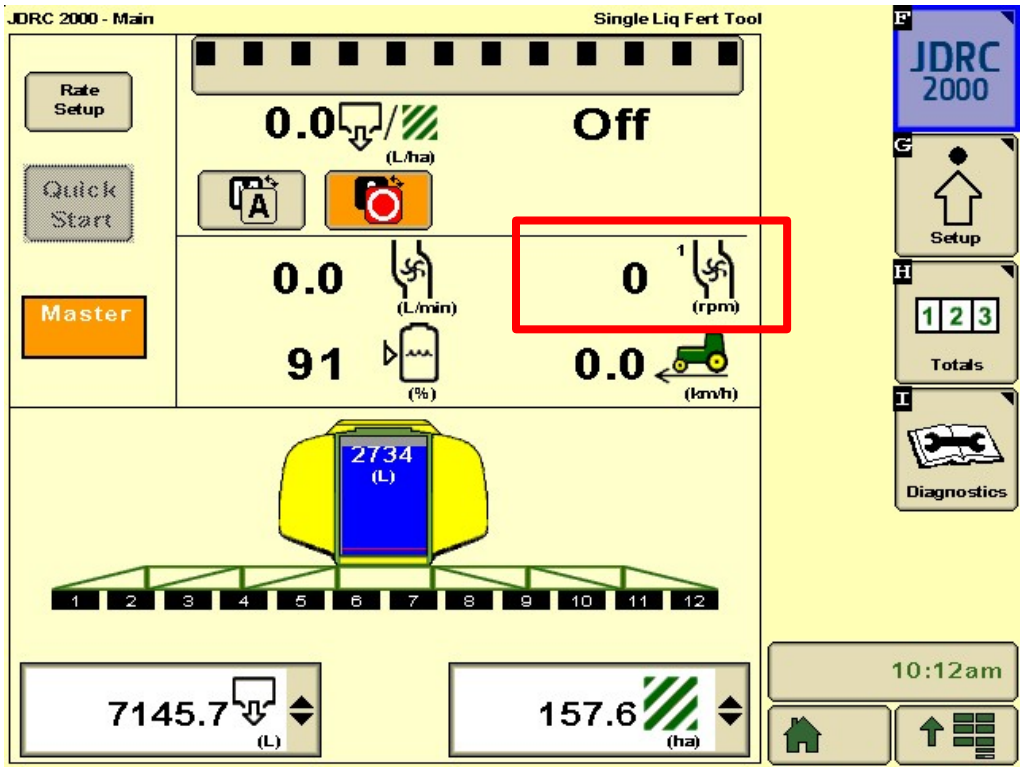
7. **Pump Speed** should now be displayed in the data field. Press **Accept** to save settings and return to Set up screen.



8. Press **JDRC 2000** button to display the Main Run screen.



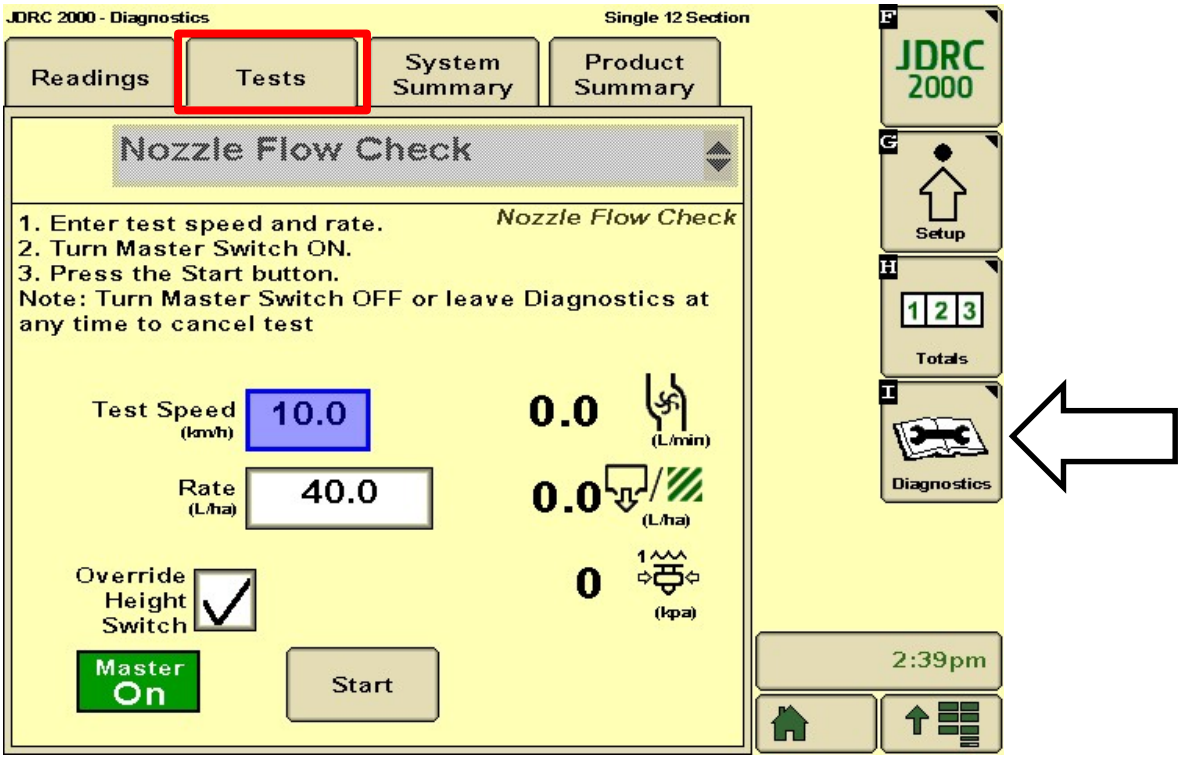
9. **Pump Speed** should now be displayed in the Main Run screen.



System Set Up Verification Tests

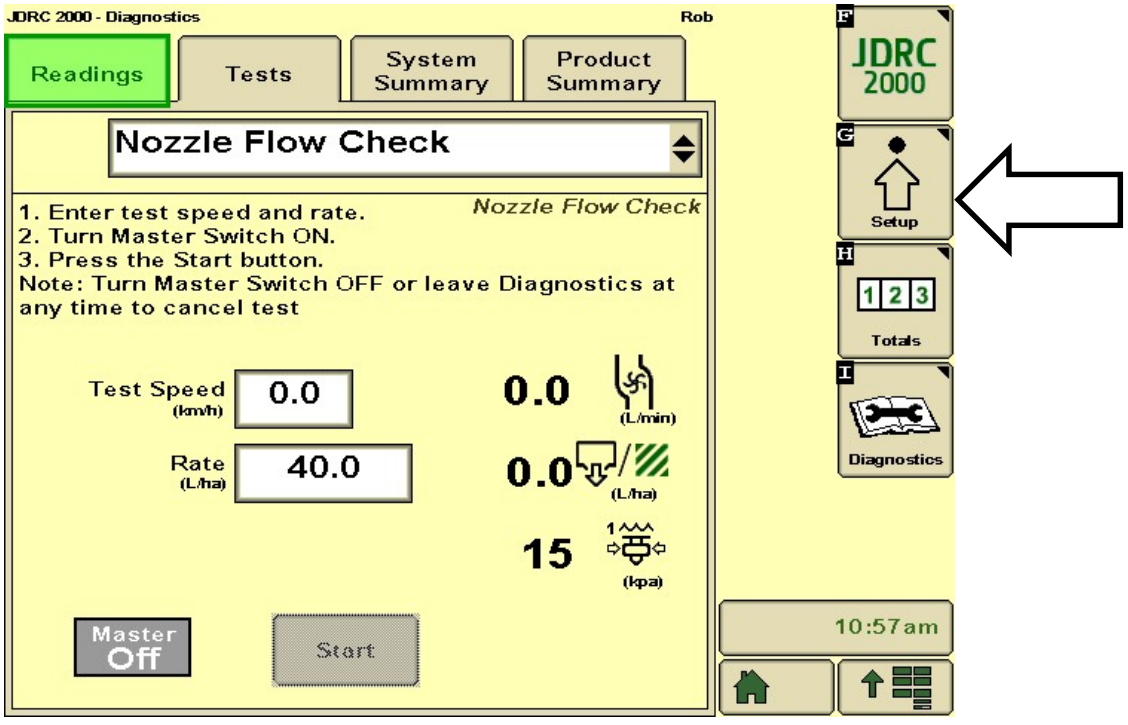
Enter **Diagnostics** screen and select **Tests** tab.

1. Start the pump and select **Nozzle Flow Check** from the drop-down menu to test control. Use typical speed and application rate to start the test then vary the speed and application rates to ensure the control system is performing correctly across the entire set up range. Turn the master switch (foot switch) off to terminate the test.

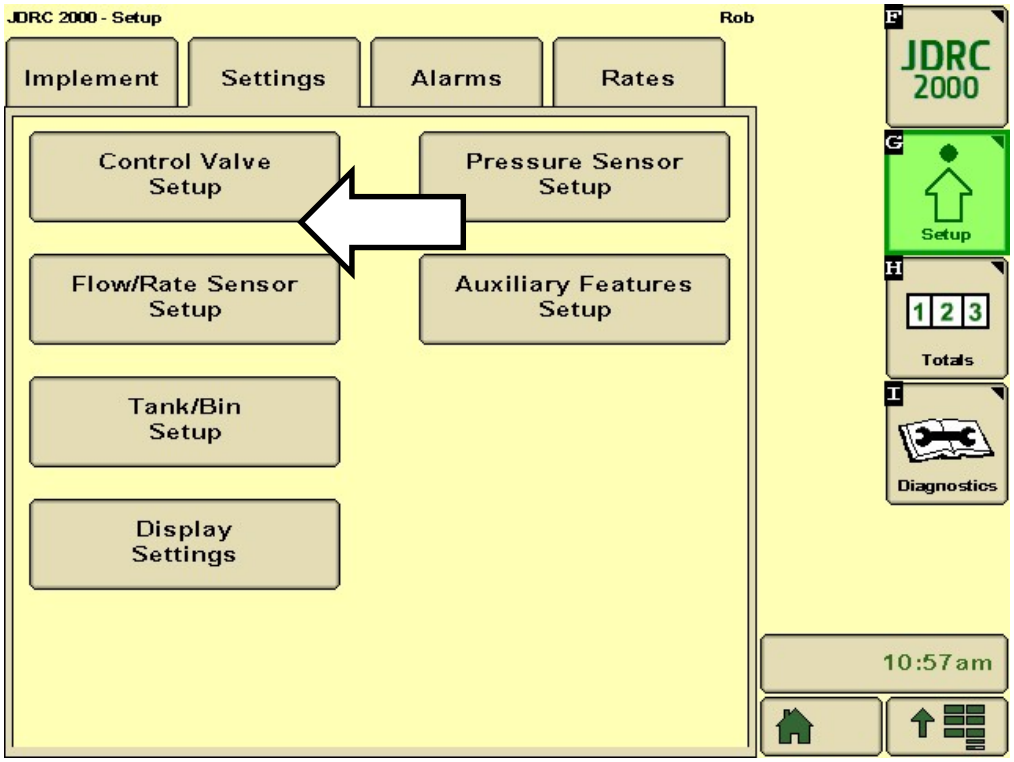


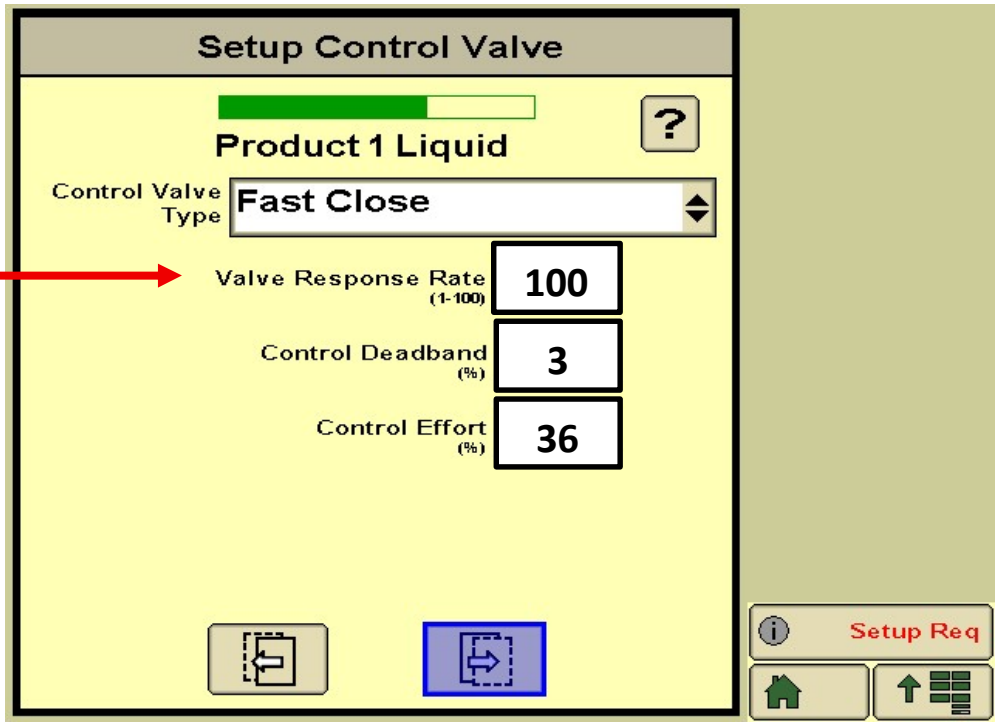
If rate control is erratic or slow, go to **Control Valve Setup** screen and tune parameters based on instructions on p.26

2. Select **Setup**



3. Select Control Valve Setup





NOTE: This Control Valve Calibration setting is for a Standard KZ L03085. For Modules with other Control Valves **SEE Calibration settings on Page 3 at the start of this guide**.

System Stability and Application Consistency

Regulator-Valve control parameters can be specific depending on the individual system set-up and flow/pressure dynamics.

If the system is unstable or is unable to maintain a consistent application rate, set up parameters can be adjusted to improve performance. Return to Control Valve set up page and adjust control parameters. Refer to help for further guidance

Valve Response Rate:
How fast the actuator will respond to being off-rate. How fast the valve will move, this can generally be left at 100 but if fluctuation is persistent, reduce to 85.

Control Deadband:
A range of being off-rate (higher and lower) that the actuator will tolerate before adjusting. A lower value will keep it tighter on rate, but can result in "chatter" or unnecessary small adjustments that can lead to "hunting" around the target rate.

Control Effort:
How far the actuator will move with each adjustment step. **This is crucial for performance**. A lower value can result in slower times getting to rate, while too high a value will lead to "hunting" around the target rate. Start low when tuning and bring up in small steps until hunting is observed, then drop down to a previous steady value.