

Seed-Squirter®



Quick Start Guide



APPLICATION SYSTEMS
FOR PROFESSIONALS

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INTRODUCTION

The Seed-Squirter® liquid delivery system is designed to apply a specific amount of liquid product at a specific location relative to each seed in the furrow. The correct amount of liquid product can now be delivered where the seed needs it...giving each seed a better shot at germination.

Application Based

To reduce seed burn and improve stand counts, the operator supplies initial setup information via a VT display so Seed-Squirter® can determine how close to the seed to apply the liquid product. By concentrating the liquid product where the seed needs it, Seed-Squirter® reduces wasted product between the seeds at wider seed spacings.

Results

Improved plant vigor and less wasted liquid product both drive more profit to the producer's bottom line with Seed-Squirter®.

Other Manuals

The Seed-Squirter® Quick Start Guide is for use with the companion Seed-Squirter® Operator and Maintenance Manual.

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Seed-Squirter® may be covered by one or more of U.S. Patents. For more information, visit www.BlendedPulse.com.

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SAFETY

This manual contains important information on how to safely, efficiently and correctly operate the Seed-Squirter® System. Following these instructions will help keep personnel safe, reduce downtime and increase the reliability and life of the equipment, its components and related systems.







- Review the Safety Information in the applicable system, tractor, planter and ancillary equipment manual(s).
- Follow the instructions (in this manual) for each step thoroughly to make sure that the work conditions are safe in and around the tractor, planter and ancillary equipment.
- It is important for all individuals working with chemicals to understand the potential risks, necessary safety precautions, and proper response in the event of accidental contact.
- Review the applicable system, tractor, planter, and ancillary equipment manual(s) for chemical safety information.
- Review and understand procedures for obtaining and using Safety Data Sheets (SDS) and the required Personal Protective Equipment (PPE) for when working around hazardous chemicals and sharp edges and objects on applicable tractor, planter and ancillary equipment.
- Use the procedure in the appropriate Agricultural Equipment Manual for connecting, disconnecting, and jump starting the machine's battery.
- Please keep this guide and all other documentation in an accessible location known to all operator personnel. Keep sparks and flames away from the battery. Battery gas can explode and cause serious injury. **Do not smoke in battery charging area.**



Make sure that all personnel have read this manual and thoroughly understand safe operating procedures.

QUICK START GUIDE

Icon Descriptions

Icon	Icon Description - Left Side of the Seed-Squirter® Screen
	When the Seed-Squirter® system is OFF the SEED-SQUIRTER® icon background will be red.
	When the Seed-Squirter® system is in any mode other than OFF the SEED-SQUIRTER® icon will have a green background.
Icon	Icon Description - Right Side of the Seed-Squirter® Screen
	The ALARM icon shows when there is an alarm in the system. Touch this icon to view and silence current alarms.
	Touch this icon to go to the HOME Screen.
	Touch this icon to go to the PLACEMENT SETTINGS Screen.
	Touch this icon to go to the TIP CALIBRATION Screen.
	Touch this icon to go to the DIAGNOSTIC Screen.
	Touch this icon to go to the TANK VOLUME Screen.
	Touch this icon to go to the ACTIVE SEED VALVE SENSOR Screen.
	Touch this icon to go to the SENSOR SETTINGS Screen.
	Touch this icon to go to the PUMP SETTINGS Screen.

HOME Screen

The **HOME** Screen is the main user interface that provides central control of the Seed-Squirter® system.

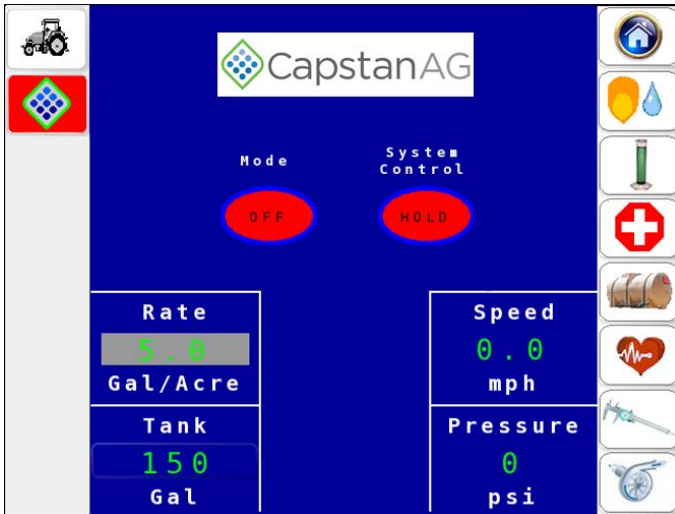
Icon	Description
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Touch the **HOME** icon to see the ground speed, system pressure, tank volume, and rate values on the **HOME** Screen.

- (1) Touch and toggle the **MODE** to select:
AUTO | MAN | OPEN | OFF.
- (2) Touch and toggle the **SYSTEM CONTROL** to select:
RUN | HOLD functions.

NOTE: As a safety feature, to protect the pump from unexpectedly ramping up or the nozzle valves firing incorrectly, the pump will automatically disengage when switching between modes.



PLACEMENT SETTINGS Screen

Icon	Description
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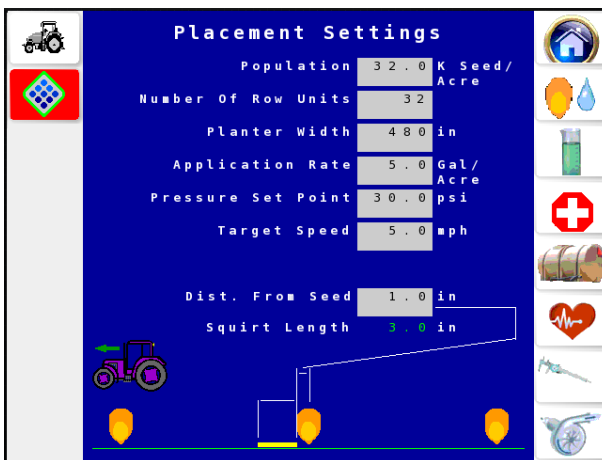


Touch the **SEED/DROPLET** icon to set this information.


Settings	Defaults	Units of Measure
Population	32.0	No. Seed per Acre
Number of Row Units	32	
Planter Width	480	Inch
Application Rate	5.0	Gallon per Acre
Pressure Set Point	30.0	PSI
Target Speed	5.0	MPH
Distance from the Seed	1.0	Inch

NOTE: A warning will show on the **PLACEMENT SETTINGS** Screen when the operator-entered values do not match or align with other settings. Read the warning and touch **ACCEPT** or **CANCEL** to continue.

Use the **PLACEMENT SETTINGS** Screen to enter/edit the placement and location of the shot in relation to the location of the seed.

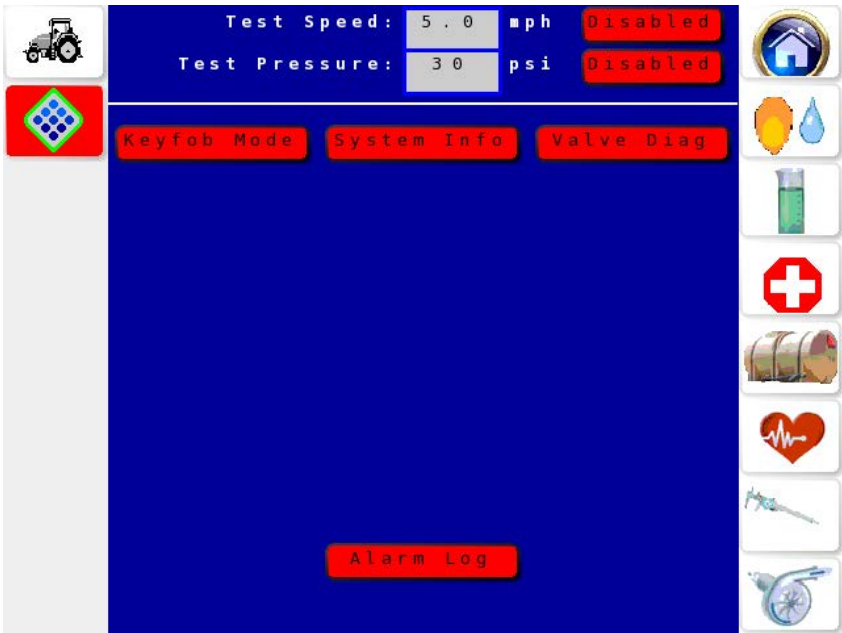


DIAGNOSTIC Screen

Icon	Description
	Touch the DIAGNOSTIC icon.

On the **DIAGNOSTIC** Screen, the operator can:

- Enable test speed and/or pressure for diagnostics and troubleshooting.
- Activate Key FOB operation.
- See system information.
- Run valve diagnostics.
- See alarm logs.



Select and toggle any of the red icons on the **DIAGNOSTIC** screen. The selected icon will turn green when activated. Make sure that the **MODE** icon on the **HOME** screen reads **OFF** to use the Key FOB and valve diagnostics.

Purge Operation

The operator can prime, purge the air or flush the Seed-Squirter® plumbing system from the **DIAGNOSTIC** Screen with the **Key FOB Mode** activated.

Procedure

Purge
All
Valves

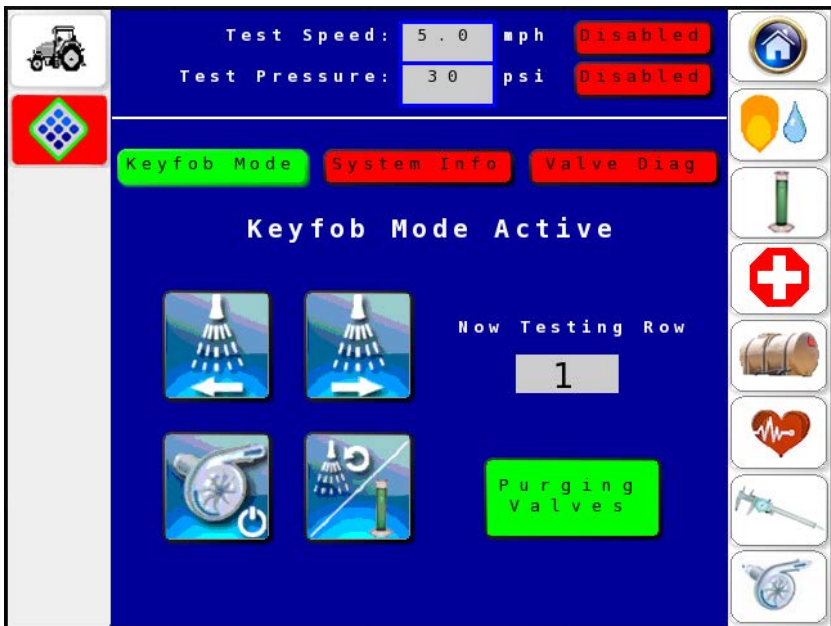
Touch the red **PURGE ALL VALUES** icon.

Purging
Valves

The red **PURGE ALL VALUES** icon will turn green and all nozzle valves will open 100%, allowing a constant liquid flow from the product tank, through the plumbing system and discharging through the nozzle valves.

The purge will end when:

- Touch the green **PURGING VALUES** icon.
- Touch a **KEY FOB** icon on the screen.
- Press any of the top four buttons on the Key FOB.
- Leave the **DIAGNOSTIC** Screen.



How to Activate the Key FOB Controls

Procedure



Touch the **DIAGNOSTIC** icon.

Keyfob Mode

Touch the red **KEYFOB MODE** icon on the **DIAGNOSTIC** Screen to show the Key FOB function icons.

Keyfob Mode

Key FOB Mode Active will blink on the **DIAGNOSTIC** Screen and the red icon will turn green.

NOTE: At the start of every planting day, an operator should (at the very least) run the purge all valves operation to check the system for air or contamination.

How to operate the Key FOB Controls


The operator can use the Key FOB or the Seed-Squirter® screen in the cab to clear any plugged rows, remove air from the system, and test row-by-row to make sure that all rows are still working properly.

Icon	Description
	<p>(1) Pulse the Nozzles Right to Left</p> <p>(2) Engage/disengage the pump</p>
	<p>(3) Pulse the Nozzles Left to Right</p> <p>(4) Repeat Current Nozzle Pulse</p>
	<p>NOTE: The Repeat Current Nozzle Pulse button has a dual function. During the tip calibration, it is used to start and stop the tip calibration catch test.</p>

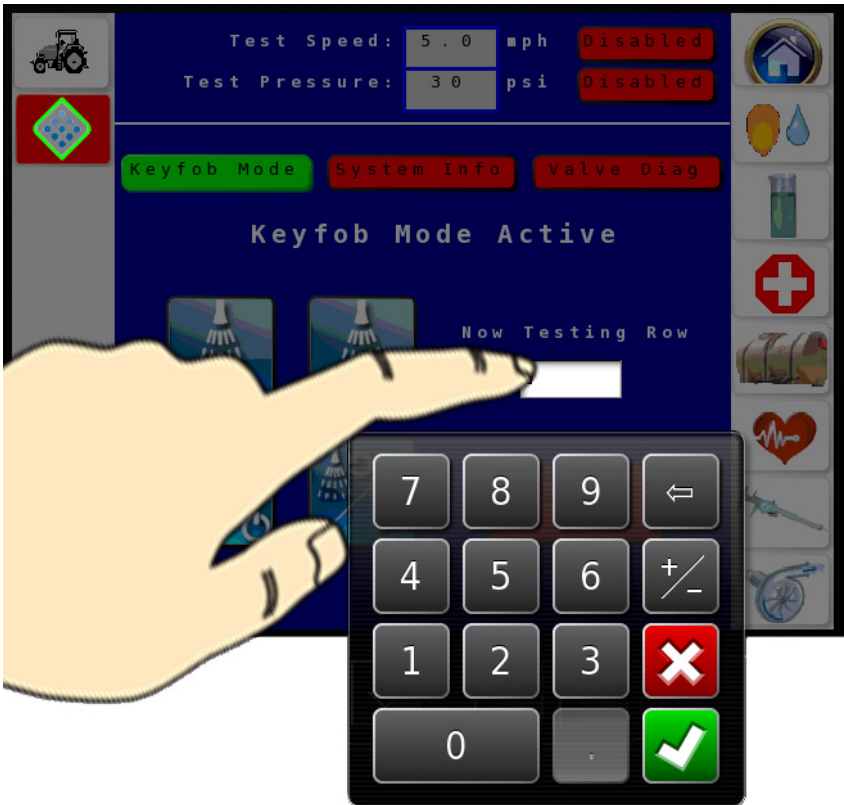
The row number being tested can be changed from the **DIAGNOSTIC** Screen with Key FOB Controls activated.

1

Touch the inside of the “Now Testing Row” display box to enable the keypad. Touch/edit the row number being tested.

Touch the  icon to save the value.


NOTE: If the **MODE** is not set to **OFF** on the **HOME** Screen, a warning will show when enabling the Key FOB Mode.



How to Do the Tip Calibration Catch Test

The tip calibration is used to compensate for different viscosities and fluid dynamics.

Procedure

1.  Touch the **TIP CALIBRATION** icon on the **HOME** Screen.
2. View and change the tip calibration information as needed. Changing values on the **TIP CALIBRATION** Screen will also change the same values in the **PLACEMENT SETTINGS** Screen or vice versa.
3. Make sure that the tip size is correct. The spray tip size is verified by looking at the outside surface of the tip near the spray end.
4. Place the calibration pitcher directly under the spray nozzle on Row #1 of the planter.

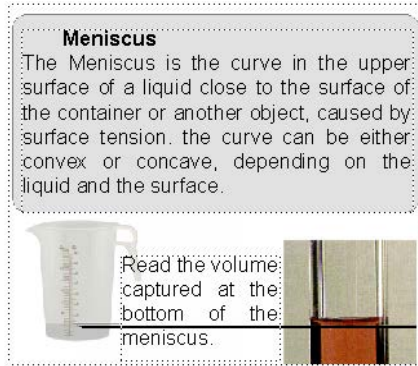


5. With the planter hydraulics engaged, touch the **START** icon on the **TIP CALIBRATION** Screen or press button (1) on the Key FOB to begin the tip calibration catch test.




You can start and stop the tip calibration catch test as needed using the **TIP CALIBRATION** Screen or Key FOB.

6. Once the test is complete and liquid product is captured:
Read the calibration pitcher at the bottom of the meniscus.




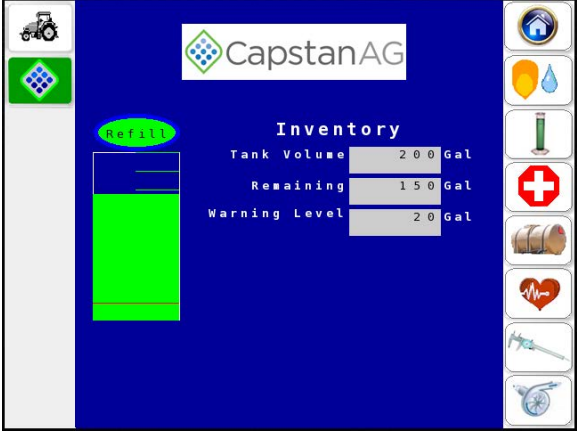
NOTE: Reading the calibration pitcher at or above the meniscus will cause an inaccurate GPA measurement.

7. Touch the inside of the **CAPTURED VOLUME** box. A keypad will show. Enter amount of fluid caught. Touch the  icon to save the amount.
8. Once a **CAPTURED VOLUME** is entered, touch **ACCEPT** or **DECLINE**.
- A new Product 1 Cal% will be calculated. Touch **ACCEPT** to select new value or **DECLINE** to return to previous Product 1 Cal%.
9. Repeat the catch test until the correct catch volume is caught.

NOTE: If the **MODE** is not set to OFF on the **HOME** Screen, a warning will show when accessing the **TIP CALIBRATION** Screen.

TANK VOLUME Screen

This screen can be accessed by touching the **TANK** icon or by touching the **TANK VOLUME** box on the **HOME** Screen.

Icon	Description
	<p>View the tank volume information, change the tank volume, and set the tank volume and set the warning level.</p>
	

How to Field Operate the Seed-Squirter® System

Icon	Description
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Select the **HOME** Screen icon.

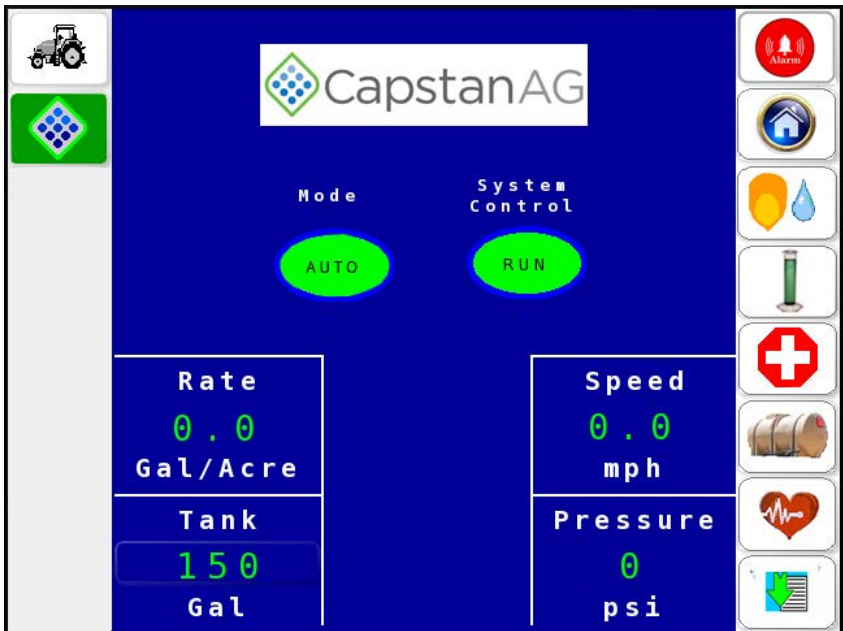


Touch the **MODE** icon and toggle to **AUTO**. In Auto mode, the system automatically adjusts the pressure, and activates the nozzle valves when seeds are sensed.

NOTE: This mode should be used for normal field operation.



Touch the **SYSTEM CONTROL** icon and toggle to **RUN**. With the planter hydraulics engaged, the liquid product pump will engage and raise the pressure to the pressure set point.



How to Put the Seed-Squirter® System in HOLD Mode

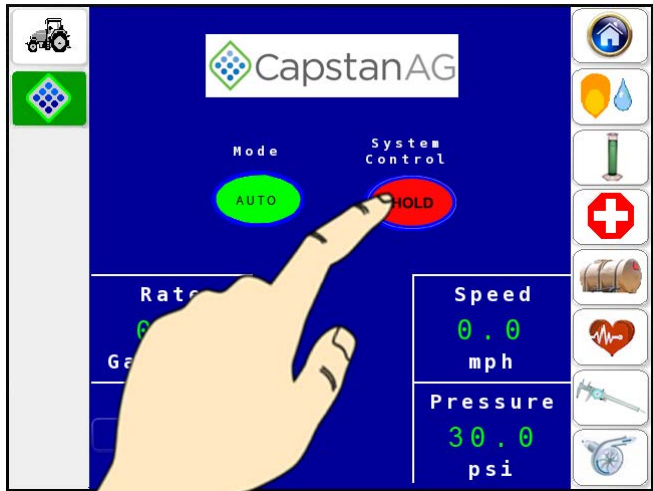
Icon	Description
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Touch the **HOME** Screen icon.



Touch and toggle the **SYSTEM CONTROL** icon to **HOLD**. The pump will disengage and nozzle valves will not pulse.

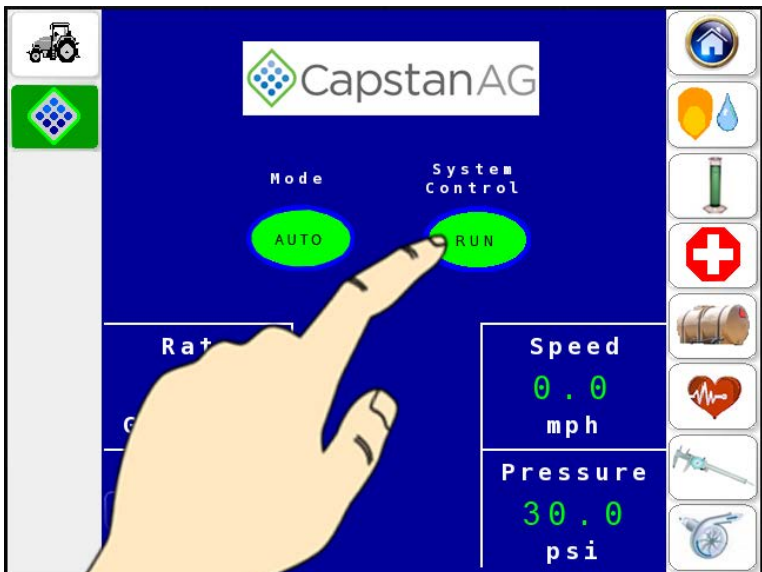


Field Verify Seed and Shot Placement

A field check should be completed at the initial trip to the field and again whenever the distance to the seed is changed.

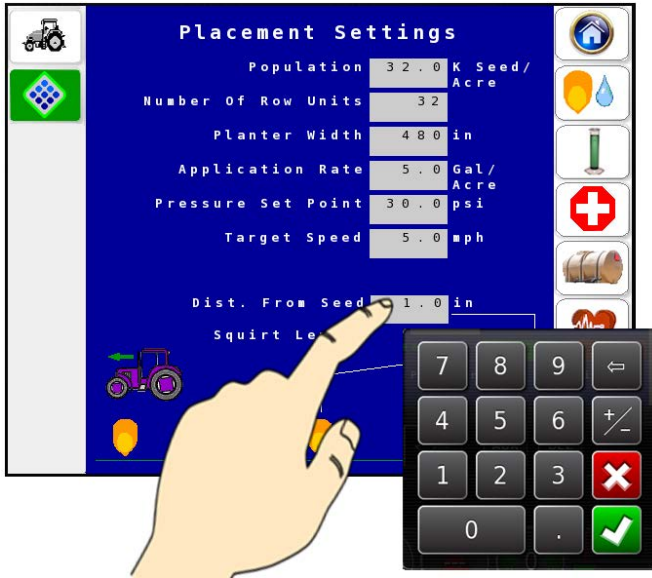
Procedure

1. At the back of the planter, use tie-down straps to secure up the closing wheels and shallow up the side gauge wheel depth on the rows to be checked. (Recommend on a twin row to perform check procedures on rows next to each other. i.e. row 1 and 2).
2. Use the excess from the tie-down strap, or a bungee strap to hold the seed firmer out of the furrow.
3. Once everything is out of the furrow and off the dirt and secured, return to the tractor cab.
4. On the Seed-Squirter® **HOME** Screen, make sure that the Mode is set to **AUTO** and System Control is set to **RUN**.



5. Resume planting for the desired test distance, using the same settings and speeds as normal planting.
6. When the test distance is reached, stop the tractor.

7. Visually check the placement of the shot relative to the seed in the furrow.
 - a. If the placement needs adjustment, change the Distance to Seed value on the **PLACEMENT SETTINGS** Screen.



- b. Repeat the field test to make sure of the correct placement of the shot relative to the seed.
8. When the placement of the shot relative to the seed is correct, remove all straps and adjust the side gauge wheel depth back to normal operating depth. (See the manufacturer's specific planter manual for assistance.)

NOTE: Repeat the field check periodically or when the rate and/or distance to the seed is changed.

MANUAL Mode



MANUAL Mode is used for troubleshooting or continuing to run when a pressure sensor has failed.

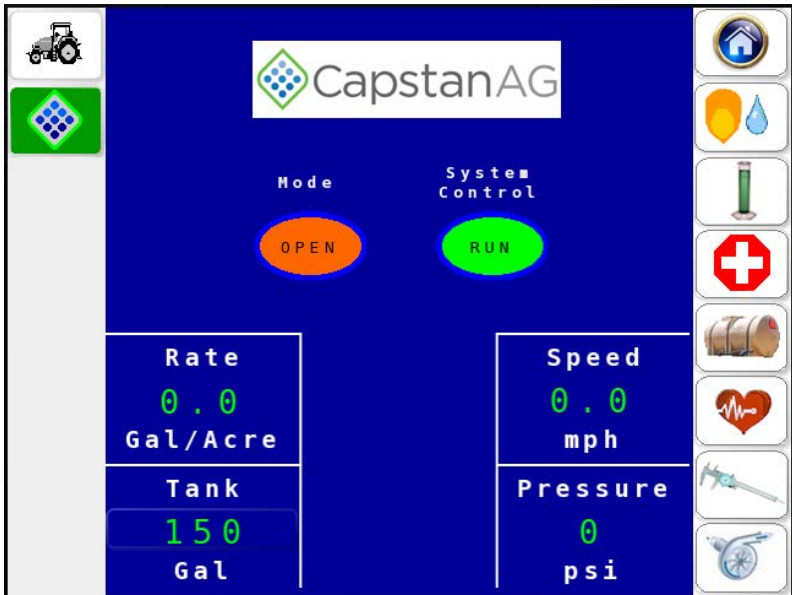
For more information about the manual mode, see the Seed-Squirter® Operator and Maintenance Manual.

How to run the Seed-Squirter® System in OPEN Mode

Use the **OPEN** mode to apply a constant stream of product. Orifice inserts are required to achieve the desired GPA. (Use orifice rate charts to size the orifices correctly, or contact your local dealer.) The system automatically adjusts to maintain the pressure set-point. This pressure set point can be changed on **PLACEMENT SETTINGS** Screen.

NOTE: Install the orifice plates when running in **OPEN** Mode only. Remove the orifice plates if wanting to run in Auto or Manual Mode.

Icon	Description
	On the HOME Screen, touch and toggle the MODE icon to select ON .
	Touch and toggle the SYSTEM CONTROL icon to select RUN .



Active Seed/Valve Sensor Indicators

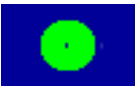
Use this screen to make sure that the nozzle valves and seed sensors are working correctly while the planter is operating.

Icon	Description
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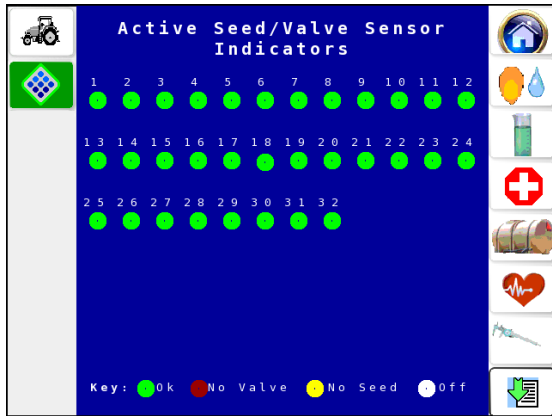


Touch the **HEART** icon to make sure that all of the rows are working in the **ACTIVE SEED/VALVE SENSOR** Screen. See troubleshooting for help with failed rows.

Icon	Key to Indicator Colors
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Indicates the seed sensor and nozzle valve are connected and operating.



Indicates that rows are disabled or OFF. These rows will not operate.



Indicates the seeds are not being detected by the Seed-Squirter® controller, while the nozzle valve is connected and operational.



Indicates nozzle valve is not being detected by the Seed-Squirter® controller, while the seed sensor is operational.

How to Turn OFF the Seed-Squirter® System

Icon	Description
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When the Mode is switched to **OFF**, the system disengages (pump and nozzle valves), and all alarms are deactivated.

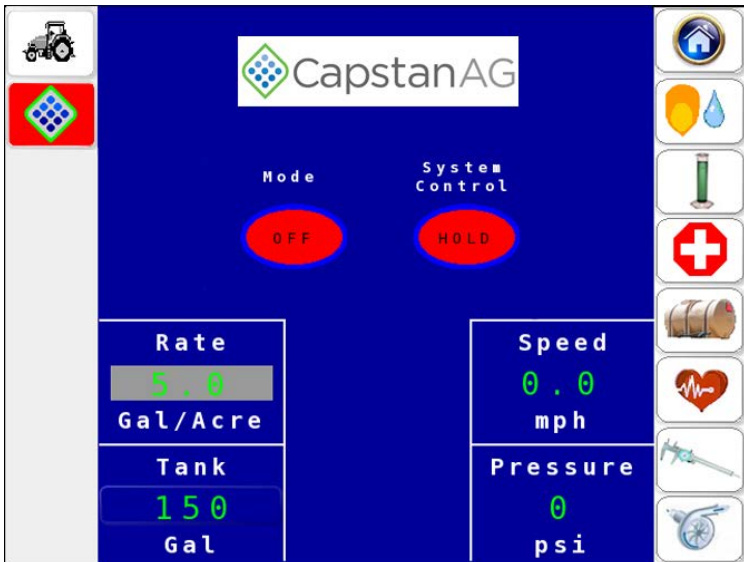
Choose the **OFF** Mode when the Seed-Squirter® system is not being used.



Touch and toggle the **MODE** icon to select **OFF**.



System Control defaults to **HOLD** when the **MODE** icon is toggled.



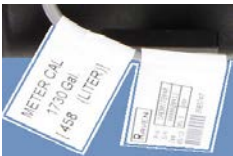
SENSOR SETTINGS Screen

Icon	Description
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Touch the **SENSOR SETTINGS** icon.

NOTE: All settings are locked on this screen except the Flowmeter Cal. Locked screens are intended only for qualified Service Technician access and use.



The Flowmeter Cal value entered must match the flowmeter (label) on the planter. The Flowmeter Cal Value IS NOT locked and must be set by the operator.

Sensor Setting	Default
Pressure Sensor Voltage Low	0.5
Pressure Sensor Voltage High	5.0
Pressure Sensor Low	0.0
Pressure Sensor High	100.0
Radar Cal	60.0
Row Fail Rate	1
Flowmeter Cal	1740

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