

# SSC6100 CAN ULTRA Spreader Control Operation Manual



Firmware Version  
1.11.1035





## Welcome

Congratulations on your purchase of a FORCE America<sup>®</sup>, Inc. SSC6100 Spreader Control. This manual will guide you through the process of using your new spreader control.

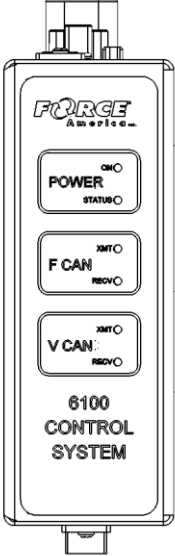
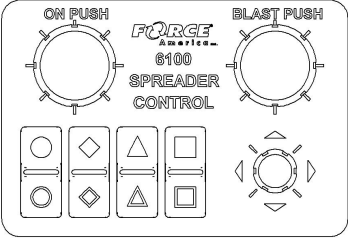
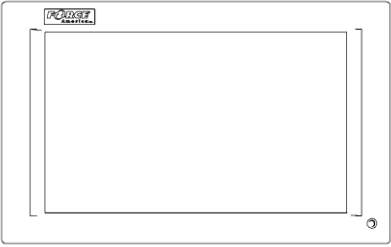
## Table of Contents

<b>Welcome .....</b>	<b>i</b>
<b>Table of Contents .....</b>	<b>i</b>
<b>Hardware .....</b>	<b>1</b>
Core Module (PN: 1104694).....	4
Operator Interface (PN: 1104696) .....	6
20 Port Valve Module (PN: 1018887) .....	7
10 Port Valve Module (PN: 1101182) .....	9
7-Inch LCD Display (PN: 1104695) .....	11
6100 Event Logging Authentication Module (PN: 1016063) .....	12
Direct Liquid Application Module (PN: 1018830) .....	13
<b>Powering up the SSC6100 .....</b>	<b>15</b>
<b>System Operation.....</b>	<b>18</b>
The Spreader Power Off Screen .....	18
The Operation Screen.....	19
Monitoring System Status.....	74
Entering Menus .....	75
<b>Implements Menu .....</b>	<b>76</b>
<b>Material Selection Menu .....</b>	<b>78</b>
<b>Data Menu .....</b>	<b>81</b>
Viewing a Report.....	85
Summary Report .....	86
Detailed Report .....	87
Error Log.....	88
<b>Unload Menu.....</b>	<b>89</b>
Granular Unload.....	90
Tow Granular Unload.....	93
Prewet Unload .....	96
Tow Prewet Unload.....	99
Direct Unload.....	102
<b>Setting Sim Speed.....</b>	<b>108</b>
<b>Distance Measure .....</b>	<b>109</b>
<b>Joysticks .....</b>	<b>111</b>
<b>Switches.....</b>	<b>113</b>

**Automatic Recall of Joystick Functions..... 113**  
**Enable or Disable a Joystick ..... 113**  
**Change a Joystick to an Alternate Function ..... 114**  
**Run a Low Current Function ..... 114**  
**Powering Down the SSC6100.....115**  
**Troubleshooting and Error Conditions .....116**  
**Header Bar Warnings ..... 116**  
**Error Windows ..... 120**  
**In-Line Errors ..... 127**  
**The Emergency Stop Warning Screen..... 133**  
**Joystick Error Codes..... 134**  
**Licensing and Source Code Availability .....135**  
**FORCE America Contact Information.....135**  
**Appendix A – GNU General Public License, Version 2 .....136**

## Hardware

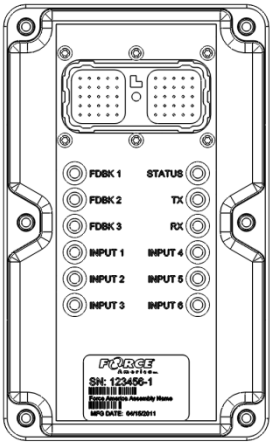
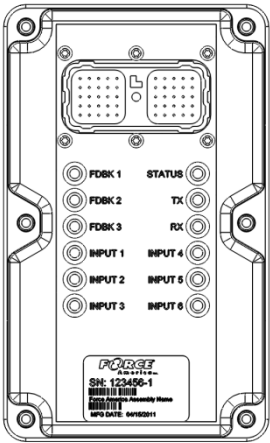
Every SSC6100 comes with at least 4 components:

<p>Core Module (PN: 1104694)</p>	
<p>Operator Interface (PN: 1104696)</p>	
<p>7-Inch LCD Display (PN: 1104695)</p>	

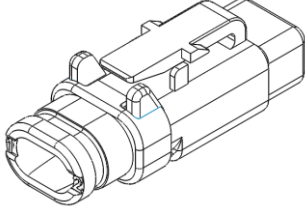
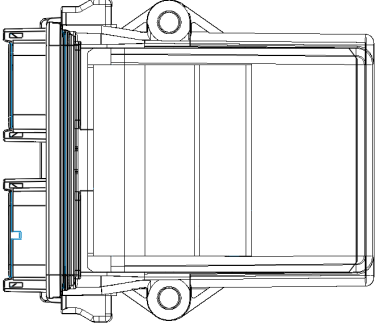
20 Port Valve Module  
(PN: 1018887)

or

10 Port Valve Module  
(PN: 1101182)



In addition, your spreader control may ship with one or more of the following optional components:

<p>6100 Event Logging Authentication Module, 6100-ELA-Module (PN: 1016063)</p>	 A perspective view of a small, rectangular electronic module with a multi-pin connector on one end and a mounting bracket on the other.
<p>Direct Liquid Application Module (PN: 1018830)</p>	 A perspective view of a larger, rectangular electronic module with a complex mounting bracket featuring multiple screws and a circular component on top.



For more information on hardware pinouts and connections, refer to Schematic 3388, included in the SSC6100 Binder.

## Core Module (PN: 1104694)

The Core Module is the heart of the SSC6100 system. It acts as the central point of communication for all CAN devices, processing all the inputs and redirecting them to the appropriate outputs.

The Core Module is mounted vertically on the floor of the vehicle. Its LEDs face up towards the driver to present status information.

The top of the Core Module has 6 status LEDs, as shown in Figure 1:

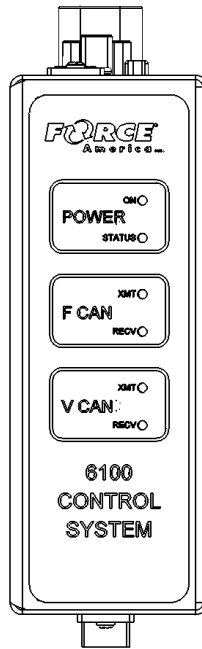


Figure 1: Top of the Core Module

Label	LED	Function
Power	On	This LED displays the presence of the vehicle's ignition switch. This LED is lit when the vehicle's ignition switch is in the powered position and is unlit when it is off.
	Status	This LED confirms the operating status of the SSC6100 hardware. This light should blink if the SSC6100 hardware initialized successfully.
FCAN	XMT	This LED blinks when the Core Module transmits data on the CAN bus.
	RCV	This LED blinks when the Core Module receives data from the CAN bus.
VCAN	XMT	This LED blinks when the Core Module transmits data on the CAN bus.



Label	LED	Function
	RECV	This LED blinks when the Core Module receives data from the CAN bus.

The front of the Core Module has a single USB port, which can be used to import and export calibration files or material usage reports. The ports on the back of the core module are used as connectors to the Operator Interface, 20 Port Valve Module, 10 Port Valve Module, LCD Display, and temperature sensor.



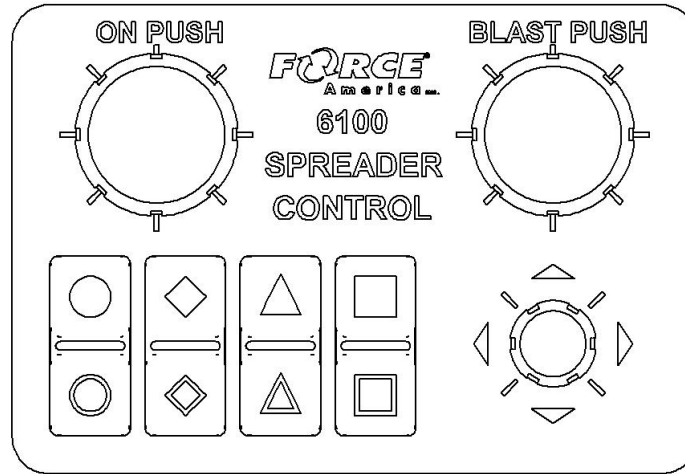
For more information on the ports on the back of the Core Module, refer to the installation drawing included in the SSC6100 Binder.



Do not attempt to connect the DVI connector on the Core Module to any other device besides a Force America 7 Inch LCD Display. You may damage your equipment.

## Operator Interface (PN: 1104696)

The Operator Interface lets you control all the aspects of the SSC6100.



**Figure 2: Operator Interface**

The Operator Interface has two single-axis encoders, one triple-axis encoder, and eight “soft switches” that act as pushbuttons for SSC6100 functions. The functions that they control change depending on what portion of the SSC6100 system is active. See System Operation on page 18.

## 20 Port Valve Module (PN: 1018887)

The 20 Port Valve Module acts as the primary driver of outputs for an SSC6100 system. It contains a 50 pin Deutsch connector with a harness for feedback inputs to the Core Module, as well as LEDs to inform you of the Valve Module's operational status.

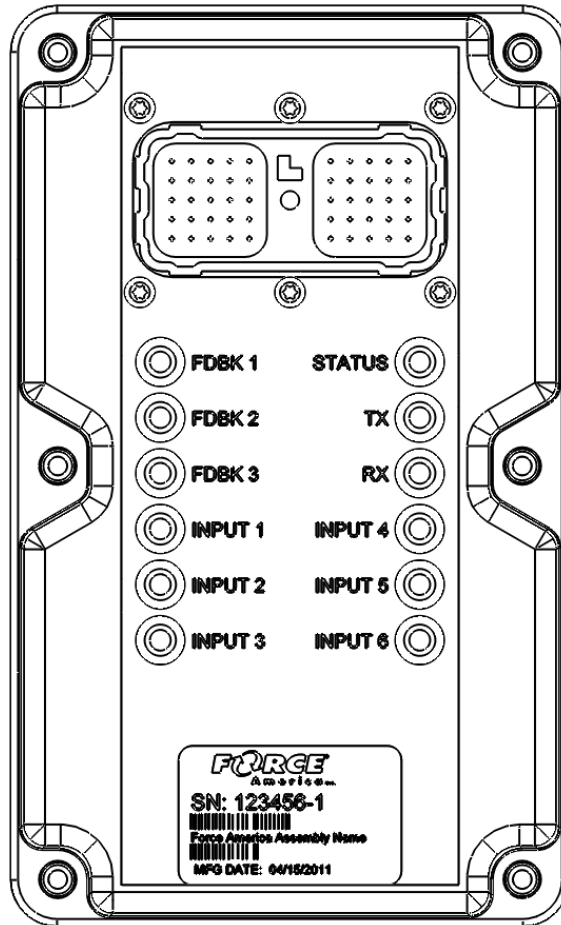


Figure 3: 20 Port Valve Module

LED	Function
STATUS	This LED displays the presence of CAN power to the valve module. This LED blinks when the valve module is powered and is unlit when it is not.
TX	This LED blinks when the Valve Module transmits data on the CAN bus.
RX	This LED blinks when the Valve Module receives data from the CAN bus.

LED	Function
INPUT 1	The INPUT 1 LED will light when the valve module detects a grounding signal from a connected sensor. In many systems, this is connected to a Low Filter Bypass sensor.
INPUT 2	The INPUT 2 LED will light when the valve module detects a grounding signal from a connected sensor. In many systems, this is connected to a High Filter Bypass sensor.
INPUT 3	The INPUT 3 LED will light when the valve module detects a grounding signal from a connected sensor. In many systems, this is connected to an Oil Level sensor.
INPUT 4	The INPUT 4 LED will light when the valve module detects a grounding signal from a connected sensor. In many systems, this is connected to an Oil Temperature sensor.
INPUT 5	The INPUT 5 LED will light when the valve module detects a grounding signal from a connected sensor. In many systems, this is connected to a Body Up sensor.
INPUT 6	The INPUT 6 LED will light when the valve module detects a sourcing signal from a connected sensor.
FDBK 1	The FDBK 1 LED will flash when the Valve Module receives pulses from a connected feedback sensor. In many systems, this feedback input is connected to Auger / Conveyor Feedback.
FDBK 2	The FDBK 2 LED will flash when the Valve Module receives pulses from a connected feedback sensor. In many systems, this feedback input is connected to Prewet Feedback.
FDBK 3	The FDBK 3 LED will flash when the Valve Module receives pulses from a connected feedback sensor. In many systems, this feedback input is connected to Direct or Spinner Feedback.

## 10 Port Valve Module (PN: 1101182)

The 10 Port Valve Module acts as the primary driver of outputs for an SSC6100 system. It contains a 50 pin Deutsch connector with a harness for feedback inputs to the Core Module, as well as LEDs to inform you of the Valve Module's operational status.

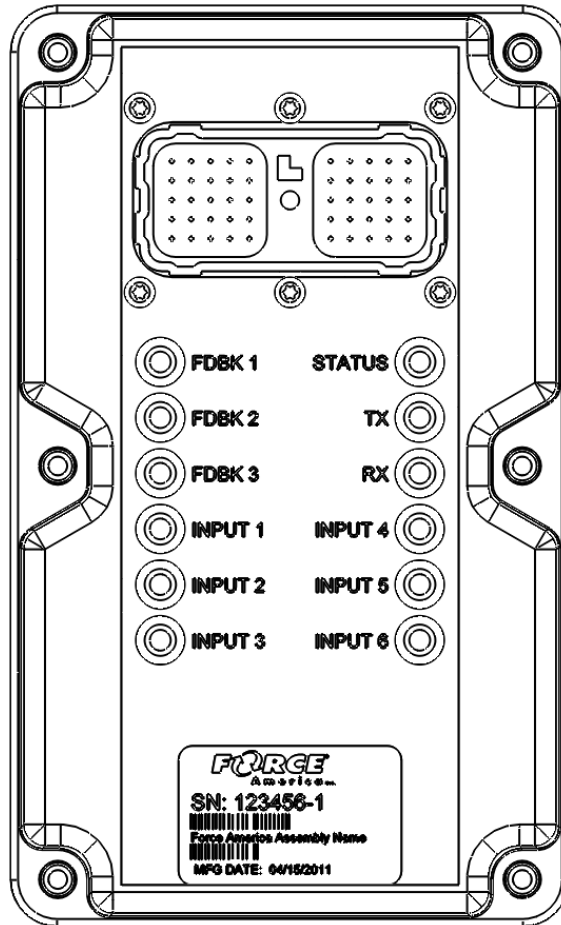


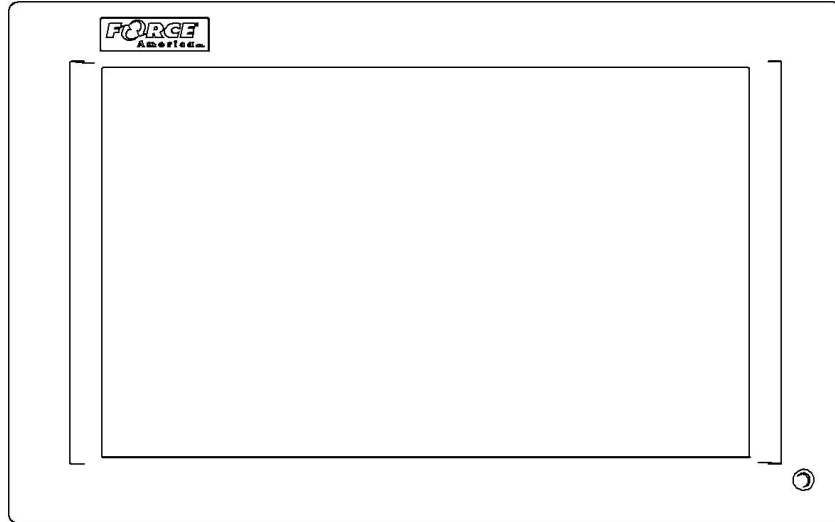
Figure 4: 10 Port Valve Module

LED	Function
STATUS	This LED displays the presence of CAN power to the valve module. This LED blinks when the valve module is powered and is unlit when it is not.
TX	This LED blinks when the Valve Module transmits data on the CAN bus.
RX	This LED blinks when the Valve Module receives data from the CAN bus.

LED	Function
INPUT 1	The INPUT 1 LED will light when the valve module detects a grounding signal from a connected sensor. In many systems, this is connected to a Low Filter Bypass sensor.
INPUT 2	The INPUT 2 LED will light when the valve module detects a grounding signal from a connected sensor. In many systems, this is connected to a High Filter Bypass sensor.
INPUT 3	The INPUT 3 LED will light when the valve module detects a grounding signal from a connected sensor. In many systems, this is connected to an Oil Level sensor.
INPUT 4	The INPUT 4 LED will light when the valve module detects a grounding signal from a connected sensor. In many systems, this is connected to an Oil Temperature sensor.
INPUT 5	The INPUT 5 LED will light when the valve module detects a grounding signal from a connected sensor. In many systems, this is connected to a Body Up sensor.
INPUT 6	The INPUT 6 LED will light when the valve module detects a sourcing signal from a connected sensor.
FDBK 1	The FDBK 1 LED will flash when the Valve Module receives pulses from a connected feedback sensor. In many systems, this feedback input is connected to Auger / Conveyor Feedback.
FDBK 2	The FDBK 2 LED will flash when the Valve Module receives pulses from a connected feedback sensor. In many systems, this feedback input is connected to Prewet Feedback.
FDBK 3	The FDBK 3 LED will flash when the Valve Module receives pulses from a connected feedback sensor. In many systems, this feedback input is connected to Direct or Spinner Feedback.

## 7-Inch LCD Display (PN: 1104695)

The LCD Display shows all of the interactive content, including operation status, configuration options, material usage reports, and error codes.



**Figure 5: LCD Display**

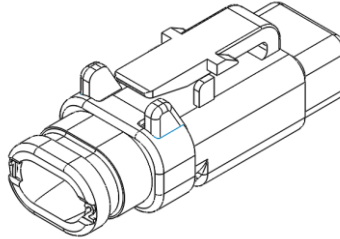
The LCD has a bi-color LED which can light up green or red. It also has a buzzer to signal system startup, system shutdown, or an operational error.

The following table describes the LED and buzzer states during startup, shutdown, and while the system is running.

Status	During Startup & Shutdown	System Running
<b>LED:</b> Solid Green <b>Buzzer:</b> Silent	--	Normal Operation
<b>LED:</b> Blinking Red <b>Buzzer:</b> Beeps Once	Normal Operation	CAN Communication Error
<b>LED:</b> Off <b>Buzzer:</b> Silent	No Power to LCD	No Power to LCD

## **6100 Event Logging Authentication Module (PN: 1016063)**

The 6100 Event Logging Authentication Module, 6100 ELA Module, is an optional component for the SSC6100 that configures the system to use AVL Event Logging. It provides security information and your unique group ID to the spreader control so that it can communicate with the AVL module.



**Figure 6: 6100 Event Logging Authentication Module**

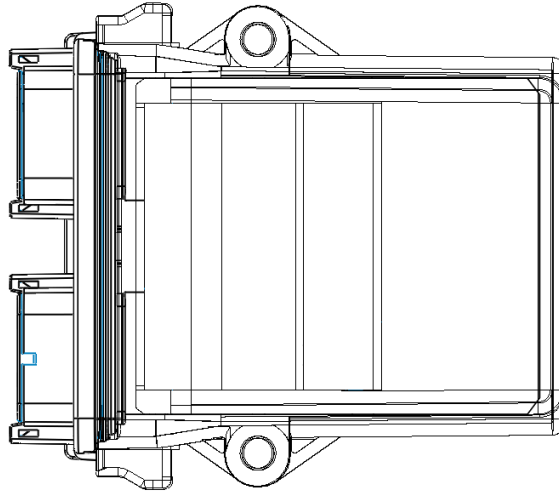
If Event Logging is set to AVL in Calibration, you will see the DGID item in the Version Menu. It will display your Digital Group ID code, a unique identifier for your operation and AVL provider, which can be used to re-order 6100 ELA Modules.

If the 6100 ELA module is disconnected but is required by the system, an Event Logging Authentication Module Communication Error will appear. See Troubleshooting and Error Conditions on page 116 for more information.



## Direct Liquid Application Module (PN: 1018830)

The Direct Liquid Application (DLA) Module runs the main direct liquid pump and lane ball valves, and receives feedback from direct sensors.



**Figure 7: Direct Liquid Application Module**

The DLA Module has LEDs to inform you of the input and output states.

LED Label	Function
<b>TX</b>	The TX LED blinks when the DLA Module transmits data on the CAN bus.
<b>RX</b>	The RX LED blinks when the DLA Module receives data from the CAN bus.
<b>Status</b>	The Status LED confirms the operating status of the DLA Module. This light should blink regularly if the DLA Module initialized successfully.
<b>Input 1</b>	The Input 1 LED will blink when the DLA Module receives pulses from a connected feedback sensor.
<b>Input 2</b>	The Input 2 LED is reserved for future use.
<b>Input 3</b>	The Input 3 LED will be lit when the DLA Module receives a low liquid warning from a low liquid sensor.
<b>Out 1</b>	The Out 1 LED will be lit when the DLA Module is running the main direct valve via PWM.
<b>Out 2</b>	The Out 2 LED will be lit when the DLA Module is running the left lane.

LED Label	Function
<b>Out 3</b>	The Out 3 LED will be lit when the DLA Module is running the center lane.
<b>Out 4</b>	The Out 4 LED will be lit when the DLA Module is running the right lane.
<b>Out 5</b>	The Out 5 LED is reserved for future use.

## Powering up the SSC6100

Upon applying either remote or dashkey power to the SSC6100, the 1104695 LCD Display will beep once and its status LED will illuminate orange or blink red. On the 1104694 Core Module, the Power On and Power Status lights will be lit.

As the system boots, it will display the SSC6100 logo on-screen with a blue-on-gray progress bar at the bottom. The progress bar will scroll from left to right as the system starts up. See Figure 8.



Figure 8: SSC6100 Boot Screen

After booting, the SSC6100 shall test the ESTOP wiring for faults. You will see the Testing ESTOP... screen, shown in Figure 9.

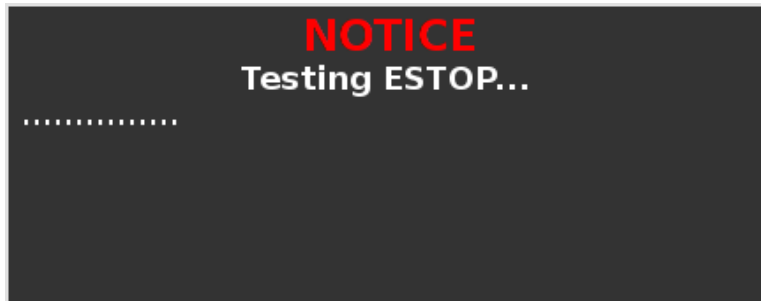


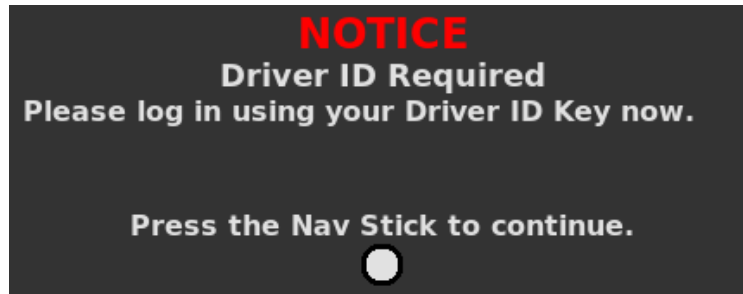
Figure 9: Testing ESTOP... Window

After the ESTOP test, if no errors occurred, the system will return to normal operation. Joysticks will be activated after the ESTOP test is complete.

If an ESTOP Miswired Error or a CAN Device ESTOP Miswired Error occurs, shut down the vehicle and the spreader control, then follow the steps outlined in Troubleshooting and Error Conditions on page 116.

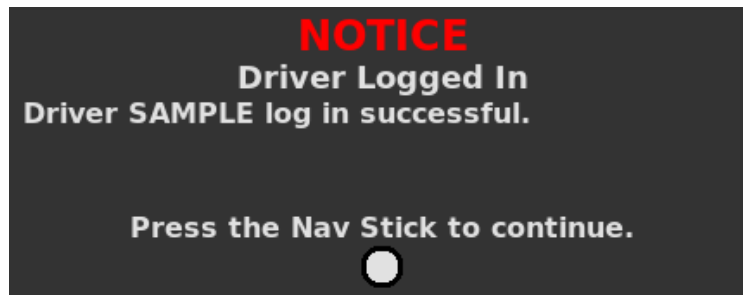
When the SSC6100 has completed booting and testing ESTOP, it will display either the Spreader Power Off Screen or the Operation Screen, depending on the status of the spreader power switch. The status LED on the 1104695 LCD Display should be lit solid green.

If this system is configured to require a Driver ID, you may see this message on startup:



**Figure 10: Driver ID Required Notice**

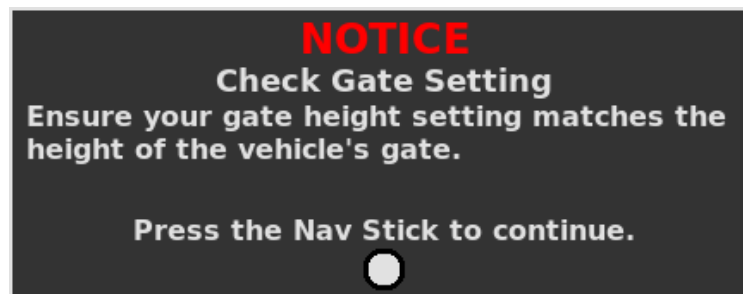
Place the black Driver Key on the security port to login to the spreader control. Upon a successful login a welcome message similar to the following message will be displayed. The logged in Driver ID will replace the SAMPLE text.



**Figure 11: Driver Logged In Notice**

Press the Navigation Stick to acknowledge the login. The Driver ID will then be reported with all event strings, if enabled, from the spreader control. If an unsuccessful attempt was made to login to the spreader control an error message will appear on the screen. See Troubleshooting and Error Conditions on page 116 for more information.

If this system is configured with an Adjustable Gate, you may see this message on startup:



**Figure 12: Check Gate Setting Warning**

Press the Navigation Stick to acknowledge the warning. Then, verify that the Material Selection → Gate Height value is set to the height of the gate on the back of the vehicle. The value set in the Material Selection menu can be seen in the Gate Height data item.

If your system is equipped with AVL or PreCise Event Logging, you may see one of the following authentication screens on startup:



**Figure 13: Authenticating with AVL Device Window**



**Figure 14: Authenticating with PreCise MRM Device Window**

If the connection completes successfully, a connection icon will appear in the Header Bar and you will be able to operate your spreader control.

If the connection cannot be made to the event logging device, an error message will appear on the screen. See Troubleshooting and Error Conditions on page 116 for more information.

If the connection completes successfully and you are using a PreCise MRM device, you may see the following screen:



**Figure 15: Transferring Queued Event Data to a PreCise MRM Device**

When this screen is visible, the 6100 is transferring data from a previous spreading session. This data was unable to be transferred previously due to a connection error. Do not operate the spreader until all of the queued data is transferred, or the event logging system will not collect all of the data.

## System Operation

### The Spreader Power Off Screen



**Figure 16: Spreader Power Off Screen**

The Spreader Power Off Screen appears when the SSC6100 system is running, but its power switch has been placed in the off position. It shows a FORCE America logo in the lower right-corner and the Header Bar at the top of the screen.

System Status Messages and System Status Icons will still appear in the Header Bar when the Spreader Power Off screen is shown. All of the spreader-related outputs on the valve module will be shut down.

To switch between the Spreader Power Off and Operation Screens, toggle the spreader power switch.

## The Operation Screen

The Operation Screen is the main screen of the SSC6100, and provides controls for all of the system functions as well as access to the Data, Calib, Unload, and Material Selection menus.

The Operation Screen is divided into four distinct parts:



Figure 17: SSC6100 Operation Screen

### The Header Bar

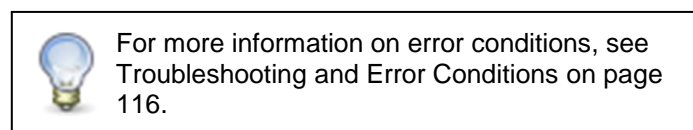
The Header Bar always runs across the top of the screen. It contains a series of system status messages, system status icons, and the current date and time of the system.



Figure 18: The Header Bar

System Status Messages will be displayed on the left side of the Header Bar. If two or more system status messages are active, the messages will alternate between each other at a rate of one message every two seconds. In Figure 18 above, a Body Up condition has occurred, showing the Body Up system status message in the header bar. System status messages can originate from multiple sources. Those sources include error or warning conditions based on the inputs and operation of various system features such as the auto recall or float operation. In addition the source of the header bar message can be related to the state of an input as defined in the HW Config file, which can also determine the color and text of the displayed message.

System Status Icons will be displayed to the right of the system status messages. In Figure 18 above, a Body Up condition and an AVL Authentication Error have occurred, showing the Body Up and AVL Authentication Error system status icons in the header bar.



System Time and Date will be displayed on the right side of the Header Bar. These are configured in Calibration and reflect the current time and date, including any Daylight Savings Time changes your time zone supports.



## The Data Items

Along the right-hand side of the Operation Screen are five Data Items which display real-time information about your vehicle's status. They can be set to one of the following options:

Data Item	Function	Availability Requires
	Displays a blank data item.	Always available.
	Displays the auger sensor's revolutions per minute.	Granular must be enabled on the base truck or the attached implement.
	Displays the duty cycle percentage being applied to the auger forward output.	Granular must be enabled on the base truck or the attached implement.
	Displays the duty cycle percentage being applied to the auger reverse output.	The auger reverse output must be enabled on the base truck or the attached implement and Auger Reverse must be enabled in Calibration.
	Displays Spinner 1's revolutions per minute.	Granular and the primary spinner must be enabled on the base truck or the attached implement.
	Displays the duty cycle percentage being applied to the primary spinner output.	Granular and the primary spinner must be enabled on the base truck or attached implement.
	Displays the duty cycle percentage being applied to the secondary spinner output.	Granular and the secondary spinner must be enabled on the base truck or the attached implement.
	Displays the duty cycle percentage being applied to the primary cross output.	Granular and the primary cross auger must be enabled on the base truck or the attached implement.
	Displays the duty cycle percentage being applied to the secondary cross output.	Granular and the secondary cross auger must be enabled on the base truck or the attached implement.
	Displays the prewet sensor's revolutions per minute.	Granular and prewet must be enabled on the base truck or the attached implement.
	Displays the duty cycle percentage being applied to the prewet output.	Granular and prewet must be enabled on the base truck or the attached implement.

Data Item	Function	Availability Requires
<b>DIRECT</b> 0 RPM	Displays the direct liquid sensor's revolutions per minute.	Direct must be enabled on the base truck or the attached implement.
<b>DIRECT</b> 0 %	Displays the duty cycle percentage being applied to the direct output.	Direct must be enabled on the base truck or the attached implement.
<b>TOW AUGER</b> 0 RPM	Displays the tow plow auger sensor's revolutions per minute.	Tow plow granular must be enabled on the attached tow plow implement.
<b>TOW AUGER</b> 0 %	Displays the duty cycle being applied to the tow plow auger output.	Tow plow granular must be enabled on the attached tow plow implement.
<b>TOW SPNR</b> 0 %	Displays the duty cycle being applied to the tow plow spinner output.	Tow Plow granular must be enabled on the attached tow plow implement.
<b>TOW PWT</b> 0 RPM	Displays the tow plow prewet sensor's revolutions per minute.	Tow plow granular and tow plow prewet must be enabled on the attached tow plow implement.
<b>TOW PWT</b> 0 %	Displays the duty cycle being applied to the tow plow prewet output.	Tow plow granular and tow plow prewet must be enabled on the attached tow plow implement.
<b>TOW DIR</b> 0 RPM	Displays the tow plow direct liquid sensor's revolutions per minute.	Tow plow direct must be enabled on the attached tow plow implement.
<b>TOW DIR</b> 0 %	Displays the duty cycle percentage being applied to the tow plow direct output.	Tow plow direct must be enabled on the attached tow plow implement.
<b>AIR TEMP</b> 32 F	Displays the current air temperature as measured by the temperature sensor.	Temperature Sensor must be set to PreCise MRM, Roadwatch, or Vaisala in Calibration.
<b>ROAD TEMP</b> 32 F	Displays the current road temperature as measured by the temperature sensor.	Temperature Sensor must be set to PreCise MRM, Roadwatch, or Vaisala in Calibration.
<b>HUMIDITY</b> 37%	Displays the current relative humidity as measured by the temperature sensor.	The Temperature Sensor must be set to PreCise MRM in Calibration.
<b>DEW POINT</b> 32 F	Displays the current dew point temperature.	The Temperature Sensor must be set to PreCise MRM in Calibration.

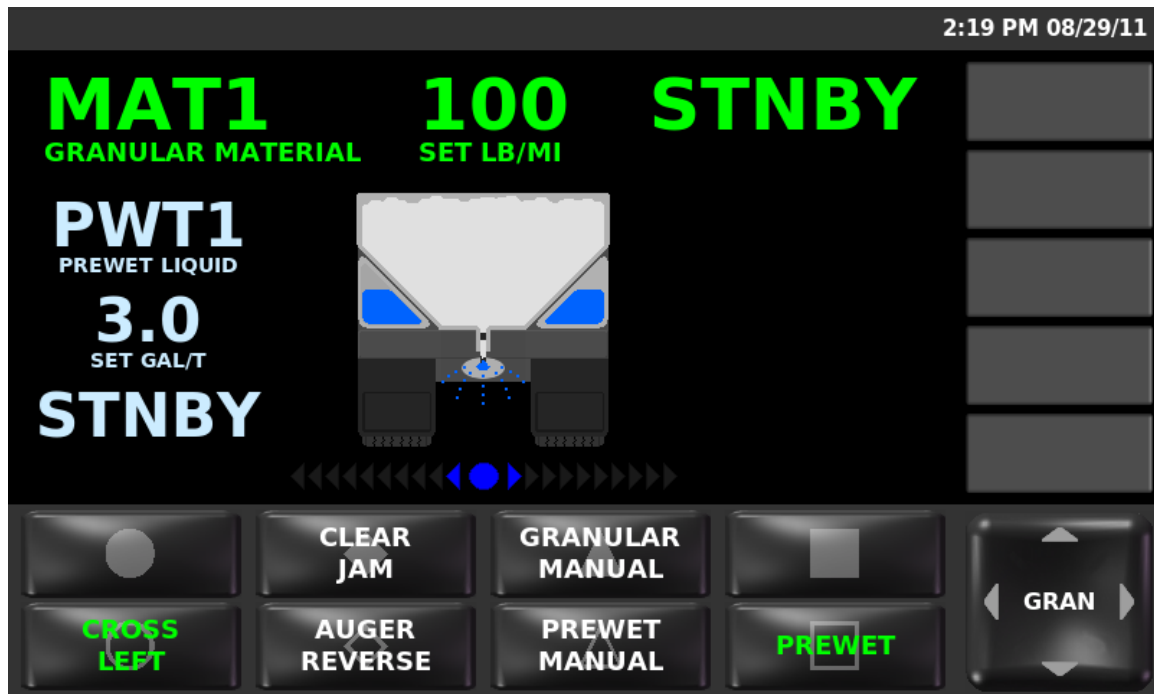
Data Item	Function	Availability Requires
<b>PRESSURE 1</b> 0 PSI	Displays the pressure measured by the listed Pressure Transmitter.	A pressure transmitter must be defined in the Hardware Configuration File and connected to the appropriate valve module.
<b>GATE HT</b> 4.0 in	Displays the gate height as set in the Material Selection menu.	Gate Mode must be set to Adjustable Gate in Calibration.
<b>VALVE POS</b> 0.0 V	Displays the current position of the directional spinner position actuator as measured by its sensor.	Directional Spinner must be enabled on the vase truck or the attached implement.
<b>BATTERY</b> 0.0 V	Displays the amount of voltage supplied to the SSC6100 system from the vehicle battery.	Always available.
<b>TIME</b> 3:53 PM	Displays the current time.	Always available.
<b>SPEED</b> 0 MPH	Displays the current speed of the vehicle as measured by the speedometer sensor.	Always available.
<b>SIM SPEED</b> 0 MPH	Displays the current speed of the vehicle as set by the Set Sim Speed menu item.	Sim Speed must be enabled in Calibration.
<b>DISTANCE</b> 0 ft	Displays the distance traveled since the distance measure operation was started.	Distance Measure must be enabled and Sim Speed disabled in Calibration.
<b>FLOAT</b> 100%	Displays the output setting that the adjustable power float will be run at when it is active.	The hardware configuration file must contain an adjustable power float.

### The Main Window

The main window always displays spreader data based on the application modes enabled on the base truck or attached implements.

- Granular / Prewet Application Mode
- Direct Liquid Application Mode
- Simultaneous Granular / Prewet / Direct Liquid Application Mode
- Directional Spinner Mode
- Aux Power Mode
- Tow Plow Application Mode
- No Application Mode

### Granular / Prewet Application Mode



**Figure 19: Granular and Prewet Application Mode**

This mode occurs when the base truck or the attached implement enable the Granular option and Direct Liquid is disabled.

The green granular row contains information about your granular material, its set rate, and its actual output rate. The granular row is always visible.

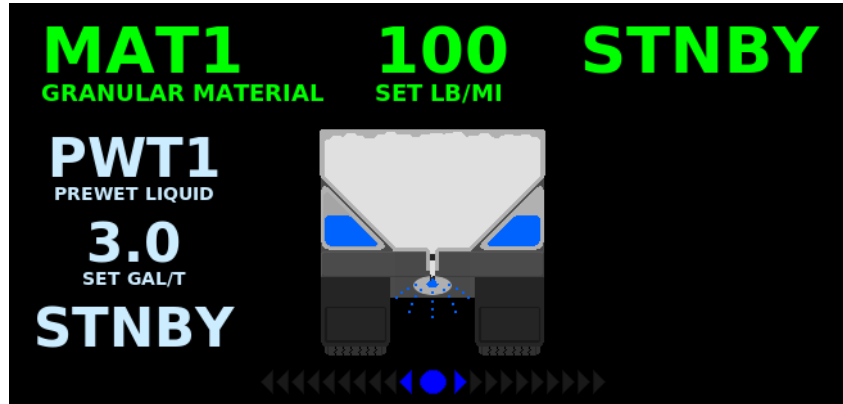
The very light blue prewet column contains information about your prewet material, its set rate, and its actual output rate. The prewet column will only appear when Prewet is enabled on the base truck or the attached implement. It is light blue when Prewet is activated and light gray when Prewet is not activated.

The blue spinner row is a series of ten triangles describing the set rate and output of the spinner. The higher the set rate of the spinner, the more triangles are lit blue instead of gray. Each pair of triangles corresponds to a 10% increase in spinner output. The spinner row is always visible.

In Granular / Prewet Application Mode, the GRAN, MENU, and UTIL soft switch panes will be available.

## Applying Material in Granular / Prewet Application Mode

When your SSC6100 system starts up, it will always be in Standby, as shown in Figure 20. Standby deactivates all outputs. You will need to remove your system from Standby before it will apply material.



**Figure 20: Granular / Prewet Application Mode in Standby**

The spreader can apply granular material only (called Dry Granular Application), or can apply a prewet liquid to the granular material before spreading (Prewetted Granular Application).

The SSC6100 can apply granular and prewet liquid material in one of three loop modes:

### Open-Loop Mode

Open-Loop Mode uses ground speed information from the vehicle's speedometer to spread material uniformly across its route. As the vehicle changes its speed, the auger and prewet pump adjust their output to ensure steady material application. The system will automatically stop spreading material when the vehicle comes to a stop.


### Closed-Loop Mode

Closed-Loop Mode is identical to open-loop mode, but uses an extra feedback sensor from the auger and prewet pump to monitor output rates. Materials spread in closed-loop mode are spread more accurately than in open-loop mode.

### Manual Mode

Manual Mode does not vary its output rate with vehicle speed. Instead, granular or prewet liquid material is applied at a constant rate. The auger, spinner, and prewet pump will continue to run when the vehicle comes to a stop. Materials spread in manual mode are spread less accurately than in open-loop or closed-loop mode.


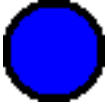

These modes can be mixed and matched between subsystems. For example, you can run your auger in closed-loop mode and your prewet pump in open-loop mode. These options are available in the Calibration Menu.



Prewet will not run in Closed or Open Loop Mode when granular material is in Manual Mode. For best results, always use Prewet Manual Mode when using Granular Manual Mode.

If enabled in Calibration, Manual Mode is activated or deactivated using a soft switch on the GRAN Soft Switch Pane. Deactivating manual mode returns the subsystem to its previous mode, either closed-loop or open-loop mode.

All actions on the SSC6100 are activated using the Operator Interface. The table below describes each button and its actions while in Granular / Prewet Application Mode.

Input	Action	Function
<b>Green On/Standby Knob</b> 	Twist Left	Decrease the auger set rate.
	Twist Right	Increase the auger set rate.
	Pushbutton	Place system in Standby. Remove system from Standby.
<b>Blue Blast Knob</b> 	Twist Left	Decrease the spinner set rate.
	Twist Right	Increase the spinner set rate.
	Pushbutton	Blast granular material. Cancel Blast.
<b>Gray Nav Stick</b> 	Twist Left	Decrease the prewet set rate.
	Twist Right	Increase the prewet set rate.
	Up	Highlight previous data item.
	Down	Highlight next data item.
	Left	View previous data item display or previous soft switch pane.
	Right	View next data item display or next soft switch pane.
	Pushbutton	None.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To spread granular material in closed-loop or open-loop mode:**

- STEP 1: Twist the On / Standby knob to adjust your granular set rate (pounds per mile or kilograms per kilometer).
- STEP 2: Twist the Blast knob to adjust your spinner set rate.
- STEP 3: Press the On / Standby knob to remove the spreader control from standby. Granular material will spread.
- STEP 4: Press the On / Standby knob to place the spreader control back in standby.

**To spread granular material in manual mode:**

- STEP 1: Press the soft switch labeled “Granular Manual” on the GRAN pane to activate granular manual application. The soft switch will turn green when activated.
- STEP 2: Twist the On / Standby knob to adjust your granular output percentage.
- STEP 3: Twist the Blast knob to adjust your spinner set rate.
- STEP 4: Press the On / Standby knob to remove the spreader control from standby. Granular material will spread.
- STEP 5: Press the On / Standby knob to place the spreader control back in standby.

**To spread granular and prewet material in closed-loop or open-loop mode:**

- STEP 1: Press the soft switch labeled “Prewet” on the GRAN pane to enable prewet liquid application. The soft switch will turn green when activated.
- STEP 2: Twist the On / Standby knob to adjust your granular set rate (pounds per mile or kilograms per kilometer).
- STEP 3: Twist the Blast knob to adjust your spinner set rate.
- STEP 4: Twist the Nav Stick to adjust your prewet set rate (gallons per ton or liters per ton).
- STEP 5: Press the On / Standby knob to remove the spreader control from standby. Granular and prewet material will spread.
- STEP 6: Press the On / Standby knob to place the spreader control back in standby.

**To spread granular material in closed-loop or open-loop mode with manual prewet:**

- STEP 1: Press the soft switch labeled “Prewet” on the GRAN pane to enable prewet liquid application. The soft switch will turn green when activated.
- STEP 2: Press the soft switch labeled “Prewet Manual” on the GRAN pane to activate prewet liquid manual application. The soft switch will turn green when activated.
- STEP 3: Twist the On / Standby knob to adjust your granular set rate (pounds per mile or kilograms per kilometer).
- STEP 4: Twist the Blast knob to adjust your spinner set rate.
- STEP 5: Twist the Nav Stick to adjust your prewet output percentage.
- STEP 6: Press the On / Standby knob to remove the spreader control from standby. Granular and prewet material will spread.
- STEP 7: Press the On / Standby knob to place the spreader control back in standby.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To spread granular and prewet material in manual mode:**

- STEP 1: Press the soft switch labeled “Prewet” on the GRAN pane to enable prewet liquid application. The soft switch will turn green when activated.
- STEP 2: Press the soft switch labeled “Prewet Manual” on the GRAN pane to activate prewet liquid manual application. The soft switch will turn green when activated.
- STEP 3: Press the soft switch labeled “Granular Manual” on the GRAN pane to activate granular manual application. The soft switch will turn green when activated.
- STEP 4: Twist the On / Standby knob to adjust your granular output percentage.
- STEP 5: Twist the Blast knob to adjust your spinner set rate.
- STEP 6: Twist the Nav Stick to adjust your prewet output percentage.
- STEP 7: Press the On / Standby knob to remove the spreader control from standby. Granular and prewet material will spread.
- STEP 8: Press the On / Standby knob to place the spreader control back in standby.



### Blast in Granular / Prewet Application Mode

Blast is a spreader feature that runs the granular, spinner, and prewet outputs (if enabled) at a set rate for a set amount of time or distance. Usually it is configured to run at the maximum output setting in order to “Blast” a portion of road with extra material.

By default, Blast is set to spread Granular Material for ten seconds at 1000 pounds per mile or 1000 kilograms per kilometer.

If Granular Manual Mode is activated and Blast is in Distance mode, Blast will only be activated while the Blast button is held.

When Blast is activated, the granular row will display the word “BLAST” instead of the material name. See Figure 21.

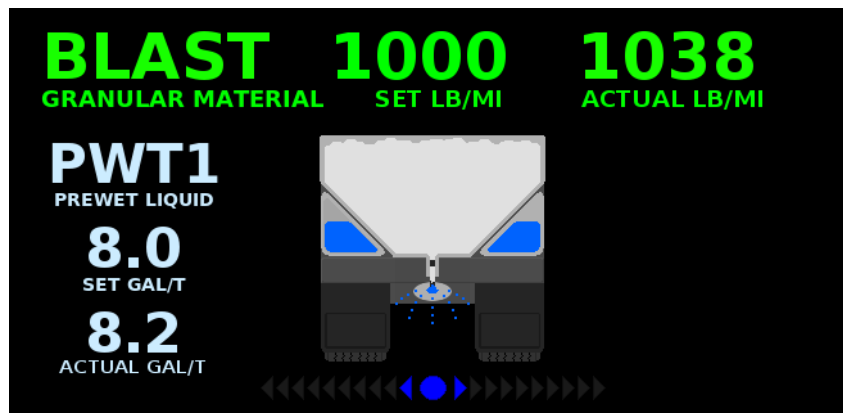


Figure 21: Granular / Prewet Application Mode in Blast



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

#### To activate Blast:

- STEP 1: Press the Blue Blast Knob on the Operator Interface. The system will blast for its configured amount of time or distance and return to normal operation. The Blast feature works whether or not the system is in Standby.

#### To deactivate Blast before it automatically shuts off:

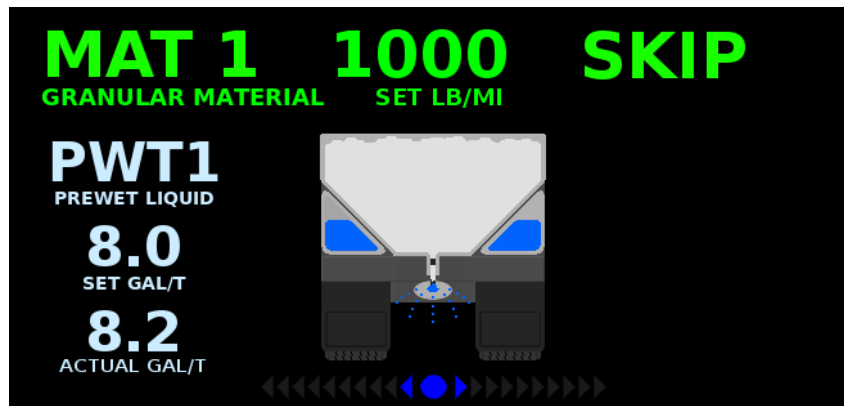
- STEP 1: While the system is Blasting, press the Blue Blast Knob on the Operator Interface. The Blast feature will shut off and return to its previous operation (spreading or standby).

### Skip Mode in Granular / Prewet Application Mode

Skip Mode is a spreader feature that deactivates the auger / conveyor and optionally the spinner for a set amount of distance. Usually it is configured to only deactivate the auger / conveyor and leave the spinner running to ensure it does not get overloaded with material.

By default, Skip Mode is set to alternate between spreading and skipping the auger / conveyor every 250 feet.

When Skip Mode is activated, the granular row will display the word “SKIP” instead of the actual application rate. See Figure 22.



**Figure 22: Granular / Prewet Application Mode in Skip Mode**



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

#### To activate Skip Mode:

- STEP 1: Switch to the GRAN soft switch pane.
- STEP 2: Press the soft switch labeled “Skip Mode”. Its text will turn from white to green to show that Skip Mode is active. Skip Mode can be activated whether or not the system is in Standby.

#### To deactivate Skip Mode:

- STEP 1: Switch to the GRAN soft switch pane.
- STEP 2: Press the soft switch labeled “Skip Mode”. Its text will turn from green to white to show that Skip Mode is inactive. Skip Mode can be deactivated whether or not the system is in Standby.

## Direct Liquid Application Mode



**Figure 23: Direct Liquid Multi-Lane Application Mode**

This mode occurs when the Granular option is not enabled on the base truck and the attached implement and Direct Liquid is enabled on the base truck or the attached implement.

The light blue direct column contains information about your direct material, its set rate, and its actual output rate. The direct column is always visible.

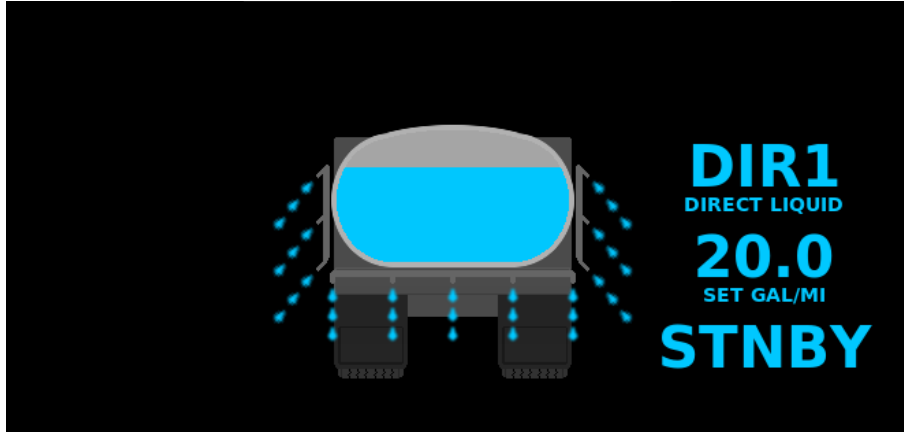
The vehicle representation to the left of the direct column represents the current spreading options selected for the spreader. It is comprised of a vehicle, a direct liquid tank, and a series of spray bars. If Multi-Lane is enabled, left, right, and center spray bars will be visible (as shown in Figure 23); if Multi-Lane is disabled, only the center spray bar will be shown.

If liquid droplets are shown coming out of a lane's spray bar, that means the lane will spread material when the system is out of standby. If liquid droplets are not shown, that means the lane will not spread material when the system is out of standby. In Figure 23 above, all three lanes will be spreading direct liquid when the system is taken out of standby.

In Direct Application Mode, the DIRECT, MENU, and UTIL soft switch panes will be available.

### Applying Material in Direct Application Mode

When your SSC6100 system starts up, it will always be in Standby, as shown in Figure 24. Standby deactivates all outputs. You will need to remove your system from Standby before it will apply material.



**Figure 24: Direct Liquid Multi-Lane Application Mode in Standby**

The SSC6100 spreader can apply direct material in one of three loop modes:

#### **Open-Loop Mode**

Open-Loop Mode uses ground speed information from the vehicle's speedometer to spread material uniformly across its route. As the vehicle changes its speed, the direct pump adjusts its output to ensure steady material application. The system will automatically stop spreading material when the vehicle comes to a stop.

#### **Closed-Loop Mode**


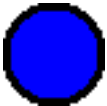

Closed-Loop Mode is identical to open-loop mode, but uses an extra feedback sensor from the direct pump to monitor output rates. Materials spread in closed-loop mode are spread more accurately than in open-loop mode.

#### **Manual Mode**

Manual Mode does not vary its output rate with vehicle speed. Instead, direct liquid material is applied at a constant rate. The direct pump will continue to run when the vehicle comes to a stop. Materials spread in manual mode are spread less accurately than in open-loop or closed-loop mode.

If enabled in Calibration, Manual Mode is activated or deactivated using a soft switch on the DIRECT Soft Switch pane. Deactivating manual mode returns the direct liquid system to its previous mode, either closed-loop or open-loop mode.

All actions on the SSC6100 are activated using the Operator Interface. The table below describes each button and its actions while in Direct Application Mode.

Input	Action	Function
<b>Green On/Standby Knob</b> 	Twist Left	None
	Twist Right	None
	Pushbutton	Place system in Standby. Remove system from Standby.
<b>Blue Blast Knob</b> 	Twist Left Twist Right	None.
	Pushbutton	Blast direct liquid material. Cancel Blast.
<b>Gray Nav Stick</b> 	Twist Left Twist Right	None.
	Up	Highlight previous data item.
	Down	Highlight next data item.
	Left	View previous data item or soft switch pane.
	Right	View next data item or soft switch pane.
	Pushbutton	None.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To spread direct liquid material in closed-loop or open-loop mode:**

- STEP 1: Twist the On / Standby knob to adjust your direct liquid set rate (gallons per mile or liters per kilometer). Press the soft switches labeled “Rate ↑” and “Rate ↓” on the DIRECT pane to adjust your direct liquid set rate (gallons per mile or liters per kilometer).
- STEP 2: If you use Multi-Lane, press the Left, Center, or Right Lane soft switches to activate those lanes. The soft switch will turn green and liquid droplets will appear in the main window when the lane is activated.
- STEP 3: Press the On / Standby knob to remove the spreader control from standby. Direct liquid material will spread.
- STEP 4: Press the On / Standby knob to place the spreader control back in standby.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To spread direct liquid material in manual mode:**

- STEP 1: Press the soft switch labeled “Direct Manual” on the DIRECT pane to activate direct manual application. The soft switch will turn green when activated.
- STEP 2: Press the soft switches labeled “Rate ↑” and “Rate ↓” on the DIRECT pane to adjust your direct liquid output percentage.
- STEP 3: If you use Multi-Lane, press the Left, Center, or Right Lane soft switches to activate those lanes. The soft switch will turn green and liquid droplets will appear in the main window when the lane is activated.
- STEP 4: Press the On / Standby knob to remove the spreader control from standby. Direct liquid material will spread.
- STEP 5: Press the On / Standby knob to place the spreader control back in standby.

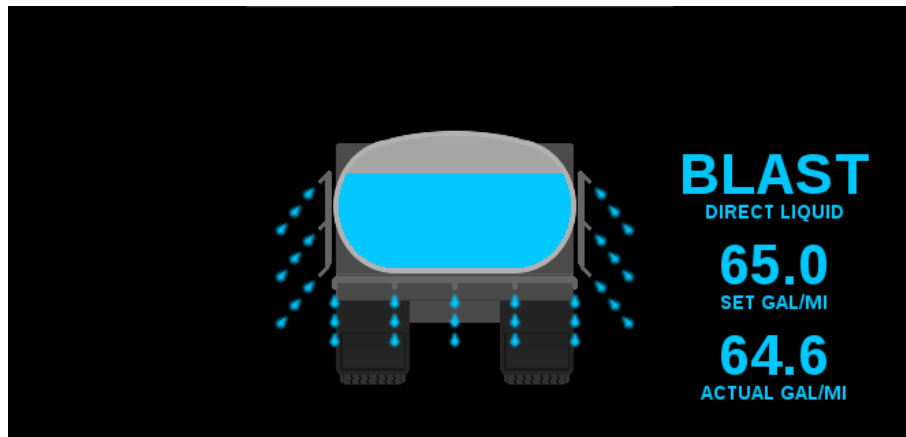
### Blast in Direct Liquid Application Mode

Blast is a spreader feature that runs the direct outputs at a set rate for a set amount of time or distance. Usually it is configured to run at the maximum output setting in order to “Blast” a portion of road with extra material.

By default, Blast is set to spread Direct Material for ten seconds at 65 gallons per mile or 140 liters per kilometer.

If Direct Manual Mode is activated and Blast is in Distance mode, Blast will only be activated while the Blast button is held.

When Blast is activated, the direct row will display the word “BLAST” instead of the material name. See Figure 25.



**Figure 25: Direct Liquid Multi-Lane Application Mode in Blast**



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

#### To activate Blast:

- STEP 1: Press the Blue Blast Knob on the Operator Interface. The system will blast for its configured amount of time or distance and return to normal operation. The Blast feature works whether or not the system is in Standby.

#### To deactivate Blast before it automatically shuts off:

- STEP 1: While the system is Blasting, press the Blue Blast Knob on the Operator Interface. The Blast feature will shut off and return to its previous operation (spreading or standby).

### Simultaneous Granular / Prewet / Direct Application Mode



**Figure 26: Simultaneous Granular / Prewet / Direct Application Mode**

This mode occurs when the Granular and Direct Liquid application modes are enabled on the base truck or attached implement.

The green granular row contains information about your granular material, its set rate, and its actual output rate. It is green when Granular is activated and light gray when Granular is not activated.

The very light blue prewet column to the left of the vehicle contains information about your prewet material, its set rate, and its actual output rate. The prewet column will only appear when Prewet is enabled on the base truck or the attached implement. It is very light blue when Prewet is activated and light gray when Prewet is not activated.

The light blue direct column to the right of the vehicle contains information about your direct material, its set rate, and its actual output rate. It is light blue when Direct is activated and light gray when Direct is not activated.

The blue spinner row beneath the vehicle is a series of ten triangles describing the set rate and output of the spinner. The higher the set rate of the spinner, the more triangles are lit blue instead of gray. Each pair of triangles corresponds to a 10% increase in spinner output. The spinner row is always visible.

The vehicle representation below the granular row represents the current spreading options selected for the spreader. It is comprised of a vehicle, a granular bin, a prewet liquid tank (blue tank on left), a direct liquid tank (light blue tank on right), a spinner, and a series of spray bars.

If Multi-Lane is enabled, left, right, and center spray bars will be visible (as shown in Figure 26); if Multi-Lane is disabled, only one spray bar will be shown.



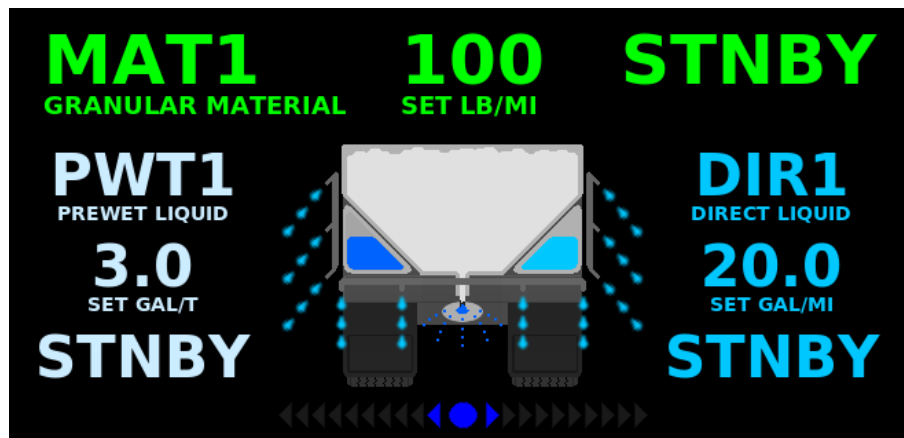
If Multi-Lane is enabled, the liquid droplets coming from the spray bars are always associated with the status of the lane soft switches on the DIRECT pane. If liquid droplets are shown coming out of a lane's spray bar, that means the lane will spread material when the system is out of standby. If liquid droplets are not shown, that means the lane will not spread material when the system is out of standby. In Figure 26 above, all three lanes are active.

In Granular / Direct Simultaneous Application Mode, the GRAN, DIRECT, MENU, and UTIL soft switch panes will be available.

Granular, Direct, and Prewet applications can all be activated and deactivated separately via soft switches. See The Soft Switches on page 63 for more information.

### Applying Material in Granular / Direct Simultaneous Application Mode

When your SSC6100 system starts up, it will always be in Standby, as shown in Figure 27. Standby deactivates all outputs. You will need to remove your system from Standby before it will apply material.



**Figure 27: Simultaneous Granular / Prewet / Direct Application Mode in Standby**

The SSC6100 spreader can apply granular, prewet, and direct material in one of three loop modes:

#### Open-Loop Mode

Open-Loop Mode uses ground speed information from the vehicle's speedometer to spread material uniformly across its route. As the vehicle changes its speed, the auger, prewet pump, and direct pump adjust their output to ensure steady material application. The system will automatically stop spreading material when the vehicle comes to a stop.

#### Closed-Loop Mode


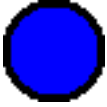

Closed-Loop Mode is identical to open-loop mode, but uses an extra feedback sensor from the auger, prewet pump, and direct pump to monitor output rates. Materials spread in closed-loop mode are spread more accurately than in open-loop mode.

#### Manual Mode

Manual Mode does not vary its output rate with vehicle speed. Instead, granular, prewet, and direct liquid material are applied at a constant rate. The auger, prewet pump, and direct pump will continue to run when the vehicle comes to a stop. Materials spread in manual mode are spread less accurately than in open-loop or closed-loop mode.

If enabled in Calibration, Manual Mode for each material is activated or deactivated using a soft switch on the GRAN or DIRECT Soft Switch pane. Deactivating manual mode returns the granular, prewet, or direct system to its previous mode, either closed-loop or open-loop mode.

All actions on the SSC6100 are activated using the Operator Interface. The table below describes each button and its actions while in Granular / Direct Simultaneous Application Mode.

Input	Action	Function
<b>Green On/Standby Knob</b> 	Twist Left	Decrease the granular set rate.
	Twist Right	Increase the granular set rate.
	Pushbutton	Place system in Standby. Remove system from Standby.
<b>Blue Blast Knob</b> 	Twist Left	Decrease the spinner set rate.
	Twist Right	Increase the spinner set rate.
	Pushbutton	Blast active materials. Cancel Blast.
<b>Gray Nav Stick</b> 	Twist Left	Decrease the prewet set rate.
	Twist Right	Increase the prewet set rate.
	Up	Highlight previous data item.
	Down	Highlight next data item.
	Left	View previous data item or soft switch pane.
	Right	View next data item or soft switch pane.
	Pushbutton	None.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To spread granular material in closed-loop or open-loop mode:**

- STEP 1: Press the soft switch labeled “Granular” on the GRAN pane to activate granular application. The soft switch will turn green when activated.
- STEP 2: Twist the On / Standby knob to adjust your granular set rate (pounds per mile or kilograms per kilometer).
- STEP 3: Twist the Blast knob to adjust your spinner set rate.
- STEP 4: Press the On / Standby knob to remove the spreader control from standby. Granular material will spread.
- STEP 5: Press the On / Standby knob to place the spreader control back in standby.

**To spread granular material in manual mode:**

- STEP 1: Press the soft switch labeled “Granular” on the GRAN pane to activate granular application. The soft switch will turn green when activated.
- STEP 2: Press the soft switch labeled “Granular Manual” on the GRAN pane to activate granular manual application. The soft switch will turn green when activated.
- STEP 3: Twist the On / Standby knob to adjust your granular output percentage.
- STEP 4: Twist the Blast knob to adjust your spinner set rate.
- STEP 5: Press the On / Standby knob to remove the spreader control from standby. Granular material will spread.
- STEP 6: Press the On / Standby knob to place the spreader control back in standby.

**To spread granular and prewet material in closed-loop or open-loop mode:**

- STEP 1: Press the soft switch labeled “Granular” on the GRAN pane to activate granular application. The soft switch will turn green when activated.
- STEP 2: Press the soft switch labeled “Prewet” on the GRAN pane to enable prewet liquid application. The soft switch will turn green when activated.
- STEP 3: Twist the On / Standby knob to adjust your granular set rate (pounds per mile or kilograms per kilometer).
- STEP 4: Twist the Blast knob to adjust your spinner set rate.
- STEP 5: Twist the Nav Stick to adjust your prewet set rate (gallons per ton or liters per ton).
- STEP 6: Press the On / Standby knob to remove the spreader control from standby. Granular and prewet material will spread.
- STEP 7: Press the On / Standby knob to place the spreader control back in standby.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To spread granular material in closed-loop or open-loop mode with manual prewet:**

- STEP 1: Press the soft switch labeled “Granular” on the GRAN pane to activate granular application. The soft switch will turn green when activated.
- STEP 2: Press the soft switch labeled “Prewet” on the GRAN pane to enable prewet liquid application. The soft switch will turn green when activated.
- STEP 3: Press the soft switch labeled “Prewet Manual” on the GRAN pane to activate prewet liquid manual application. The soft switch will turn green when activated.
- STEP 4: Twist the On / Standby knob to adjust your granular set rate (pounds per mile or kilograms per kilometer).
- STEP 5: Twist the Blast knob to adjust your spinner set rate.
- STEP 6: Twist the Nav Stick to adjust your prewet output percentage.
- STEP 7: Press the On / Standby knob to remove the spreader control from standby. Granular and prewet material will spread.
- STEP 8: Press the On / Standby knob to place the spreader control back in standby.

**To spread granular and prewet material in manual mode:**

- STEP 1: Press the soft switch labeled “Granular” on the GRAN pane to activate granular application. The soft switch will turn green when activated.
- STEP 2: Press the soft switch labeled “Granular Manual” on the GRAN pane to activate granular manual application. The soft switch will turn green when activated.
- STEP 3: Press the soft switch labeled “Prewet” on the GRAN pane to enable prewet liquid application. The soft switch will turn green when activated.
- STEP 4: Press the soft switch labeled “Prewet Manual” on the GRAN pane to activate prewet liquid manual application. The soft switch will turn green when activated.
- STEP 5: Twist the On / Standby knob to adjust your granular output percentage.
- STEP 6: Twist the Blast knob to adjust your spinner set rate.
- STEP 7: Twist the Nav Stick to adjust your prewet output percentage.
- STEP 8: Press the On / Standby knob to remove the spreader control from standby. Granular and prewet material will spread.
- STEP 9: Press the On / Standby knob to place the spreader control back in standby.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To spread direct liquid material in closed-loop or open-loop mode:**

- STEP 5: Press the soft switch labeled “Direct” on the DIRECT pane to activate direct application. The soft switch will turn green when activated.
- STEP 6: Press the soft switches labeled “Rate ↑” and “Rate ↓” on the DIRECT pane to adjust your direct liquid set rate (gallons per mile or liters per kilometer).
- STEP 7: If you use Multi-Lane, press the soft switches labeled “Left Lane”, “Center Lane”, or “Right Lane” on the DIRECT pane to activate those lanes. The soft switch will turn green and liquid droplets will appear in the main window when the lane is activated.
- STEP 8: Press the On / Standby knob to remove the spreader control from standby. Direct liquid material will spread.
- STEP 9: Press the On / Standby knob to place the spreader control back in standby.

**To spread direct liquid material in manual mode:**

- STEP 1: Press the soft switch labeled “Direct” on the DIRECT pane to activate direct application. The soft switch will turn green when activated.
- STEP 2: Press the soft switch labeled “Direct Manual” on the DIRECT pane to activate direct manual application. The soft switch will turn green when activated.
- STEP 3: Press the soft switches labeled “Rate ↑” and “Rate ↓” on the DIRECT pane to adjust your direct liquid output percentage.
- STEP 4: If you use Multi-Lane, press the soft switches labeled “Left Lane”, “Center Lane”, or “Right Lane” on the DIRECT pane to activate those lanes. The soft switch will turn green and liquid droplets will appear in the main window when the lane is activated.
- STEP 5: Press the On / Standby knob to remove the spreader control from standby. Direct liquid material will spread.
- STEP 6: Press the On / Standby knob to place the spreader control back in standby.

### Blast in Granular / Direct Simultaneous Application Mode

Blast is a spreader feature that runs the granular and direct outputs at a set rate for a set amount of time or distance. Usually it is configured to run at the maximum output setting in order to “Blast” a portion of road with extra material.

If Simultaneous Mode is activated, the Granular Blast options will apply to both granular and direct materials. The Direct Blast settings will not be used.

By default, Blast is set to spread Granular Material for ten seconds at 1000 pounds per mile or 1000 kilograms per kilometer.

By default, Blast is set to spread Direct Material for ten seconds at 65 gallons per mile or 140 liters per kilometer.

If Granular Manual Mode is activated and Blast is in Distance mode, Blast will only be activated while the Blast button is held.

When Blast is activated, the granular row will display the word “BLAST” instead of the material name. See Figure 28.

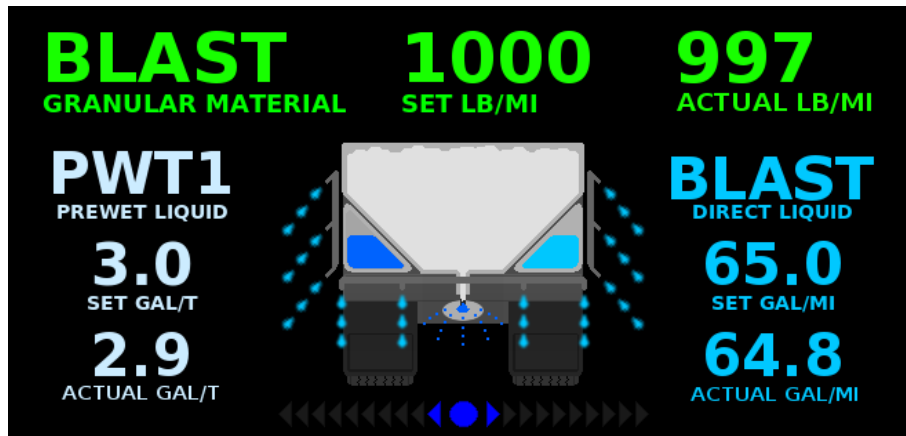
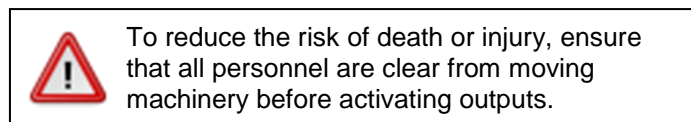


Figure 28: Simultaneous Granular / Prewet / Direct Application Mode in Blast



#### To activate Blast:

- STEP 1: Press the Blue Blast Knob on the Operator Interface. The system will blast for its configured amount of time or distance and return to normal operation. The Blast feature works whether or not the system is in Standby.

#### To deactivate Blast before it automatically shuts off:

- STEP 1: While the system is Blasting, press the Blue Blast Knob on the Operator Interface. The Blast feature will shut off and return to its previous operation (spreading or standby).

### Skip Mode in Granular / Prewet Application Mode

Skip Mode is a spreader feature that deactivates the auger / conveyor and optionally the spinner for a set amount of distance. Usually it is configured to only deactivate the auger / conveyor and leave the spinner running to ensure it does not get overloaded with material.

By default, Skip Mode is set to alternate between spreading and skipping the auger / conveyor every 250 feet.

When Skip Mode is activated, the granular row will display the word “SKIP” instead of the actual application rate. See Figure 29.

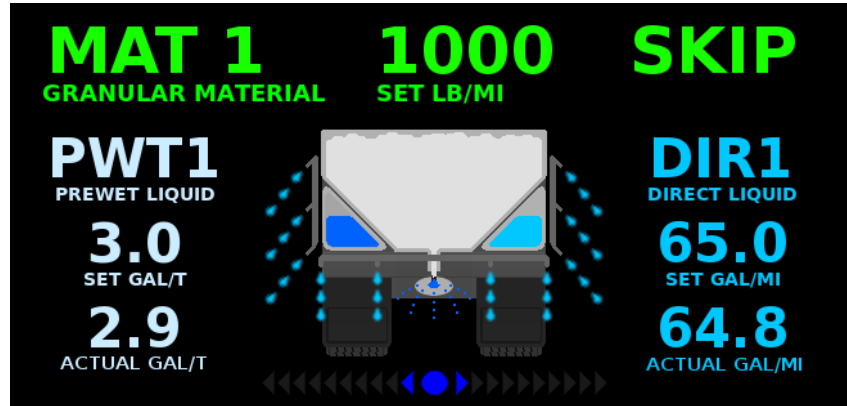


Figure 29: Simultaneous Granular / Prewet / Direct Application Mode in Skip Mode



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

#### To activate Skip Mode:

- STEP 1: Switch to the GRAN soft switch pane.
- STEP 2: Press the soft switch labeled “Skip Mode”. Its text will turn from white to green to show that Skip Mode is active. Skip Mode can be activated whether or not the system is in Standby.

#### To deactivate Skip Mode:

- STEP 1: Switch to the GRAN soft switch pane.
- STEP 2: Press the soft switch labeled “Skip Mode”. Its text will turn from green to white to show that Skip Mode is inactive. Skip Mode can be deactivated whether or not the system is in Standby.

## Directional Spinner Mode



**Figure 30: Directional Spinner Application Mode**

This mode occurs when the Directional Spinner option is enabled on the base truck or the attached implement.

The green granular row contains information about your granular material, its set rate, and its actual output rate. It is green when Granular is activated and light gray when Granular is not activated.

The very light blue prewet column to the left of the vehicle contains information about your prewet material, its set rate, and its actual output rate. The prewet column will only appear when Prewet is enabled on the base truck or the attached implement. It is very light blue when Prewet is activated and light gray when Prewet is not activated.

The light blue direct column to the right of the vehicle contains information about your direct material, its set rate, and its actual output rate. The direct column will only appear when Direct is enabled on the base truck or the attached implement. It is light blue when Direct is activated and light gray when Direct is not activated.

The directional spinner row beneath the vehicle is a series of nineteen circles representing the spread width and spread pattern of the directional spinner. The more circles that are lit green, the faster the spinner will rotate, increasing the spread width. The directional spinner row is always visible.

The vehicle representation below the granular row represents the current spreading options selected for the spreader. It is comprised of a vehicle, a granular bin, a prewet liquid tank (blue tank on left), a direct liquid tank (light blue tank on right), a directional spinner, and a series of spray bars.



If Multi-Lane is enabled, left, right, and center spray bars will be visible (as shown in Figure 30); if Multi-Lane is disabled, only one spray bar will be shown.

If Multi-Lane is enabled, the liquid droplets coming from the spray bars are always associated with the status of the lane soft switches on the DIRECT pane. If liquid droplets are shown coming out of a lane's spray bar, that means the lane will spread material when the system is out of standby. If liquid droplets are not shown, that means the lane will not spread material when the system is out of standby. In above, all three lanes are active.

In Directional Spinner Application Mode, the GRAN, DIRECT, RATES, MENU, and UTIL soft switch panes will be available.

Granular, Direct, and Prewet applications can all be activated and deactivated separately via soft switch. See The Soft Switches on page 63 for more information.

### Applying Material in Directional Spinner Application Mode

When your SSC6100 system starts up, it will always be in Standby, as shown in Figure 31. Standby deactivates all outputs. You will need to remove your system from Standby before it will apply material.

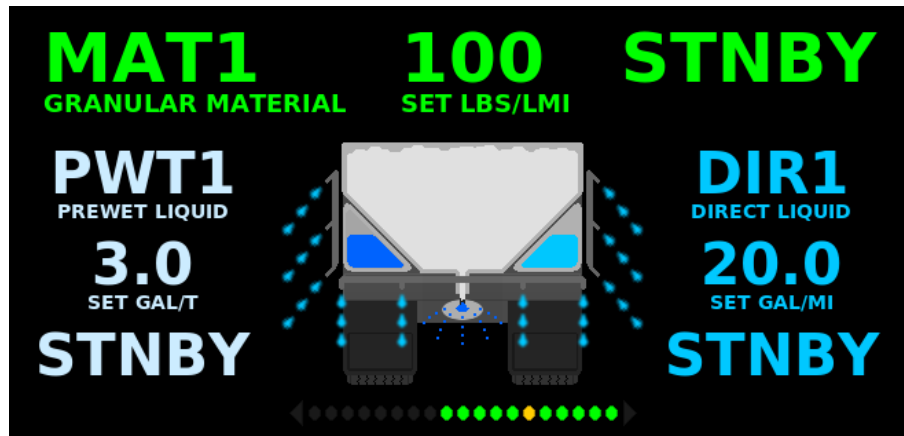


Figure 31: Directional Spinner Application Mode in Standby

The SSC6100 spreader can apply granular, prewet, and direct material in one of three loop modes:

#### Open-Loop Mode

Open-Loop Mode uses ground speed information from the vehicle's speedometer to spread material uniformly across its route. As the vehicle changes its speed, the auger, prewet pump, and direct pump adjust their output to ensure steady material application. The system will automatically stop spreading material when the vehicle comes to a stop.

#### Closed-Loop Mode

Closed-Loop Mode is identical to open-loop mode, but uses an extra feedback sensor from the auger, prewet pump, and direct pump to monitor output rates. Materials spread in closed-loop mode are spread more accurately than in open-loop mode.




#### Manual Mode

Manual Mode does not vary its output rate with vehicle speed. Instead, granular, prewet, and direct liquid material are applied at a constant rate. The auger, prewet pump, and

direct pump will continue to run when the vehicle comes to a stop. Materials spread in manual mode are spread less accurately than in open-loop or closed-loop mode.

If enabled in Calibration, Manual Mode for each material is activated or deactivated using a soft switch on the GRAN or DIRECT Soft Switch pane. Deactivating manual mode returns the granular, prewet, or direct system to its previous mode, either closed-loop or open-loop mode.

All actions on the SSC6100 are activated using the Operator Interface. The table below describes each button and its actions while in Directional Spinner Application Mode.

Input	Action	Function
<b>Green On/Standby Knob</b> 	Twist Left	Move the spread width pattern towards the driver side of the vehicle.
	Twist Right	Move the spread width pattern towards the passenger side of the vehicle.
	Pushbutton	Place system in Standby. Remove system from Standby.
<b>Blue Blast Knob</b> 	Twist Left	Decrease the directional spinner spread width.
	Twist Right	Increase the directional spinner spread width.
	Pushbutton	Blast active materials. Cancel Blast.
<b>Gray Nav Stick</b> 	Twist Left Twist Right	None.
	Up	Highlight previous data item.
	Down	Highlight next data item.
	Left	View previous data item or soft switch pane.
	Right	View next data item or soft switch pane.
	Pushbutton	None.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To spread granular material in closed-loop or open-loop mode:**

- STEP 1: Press the soft switch labeled “Granular” on the GRAN pane to activate granular application. The soft switch will turn green when activated.
- STEP 2: Press the soft switches labeled “Gran Rate ↑” and “Gran Rate ↓” on the RATES pane to adjust your granular set rate (pounds per lane-mile or kilograms per lane-kilometer).
- STEP 3: Twist the blue Blast knob to increase or decrease your spread width.
- STEP 4: Twist the green On / Standby knob to position your spread pattern left or right.
- STEP 5: Press the On / Standby knob to remove the spreader control from standby. Granular material will spread.
- STEP 6: Press the On / Standby knob to place the spreader control back in standby.

**To spread granular material in manual mode:**

- STEP 1: Press the soft switch labeled “Granular” on the GRAN pane to activate granular application. The soft switch will turn green when activated.
- STEP 2: Press the soft switch labeled “Granular Manual” on the GRAN pane to activate granular manual application. The soft switch will turn green when activated.
- STEP 3: Press the soft switches labeled “Gran Rate ↑” and “Gran Rate ↓” on the RATES pane to adjust your granular set rate (pounds per lane-mile or kilograms per lane-kilometer).
- STEP 4: Twist the blue Blast knob to increase or decrease your spread width.
- STEP 5: Twist the green On / Standby knob to position your spread pattern left or right.
- STEP 6: Press the On / Standby knob to remove the spreader control from standby. Granular material will spread.
- STEP 7: Press the On / Standby knob to place the spreader control back in standby.

**To spread granular and prewet material in closed-loop or open-loop mode:**

- STEP 1: Press the soft switch labeled “Granular” on the GRAN pane to activate granular application. The soft switch will turn green when activated.
- STEP 2: Press the soft switch labeled “Prewet” on the GRAN pane to enable prewet liquid application. The soft switch will turn green when activated.
- STEP 3: Press the soft switches labeled “Gran Rate ↑” and “Gran Rate ↓” on the RATES pane to adjust your granular set rate (pounds per lane-mile or kilograms per lane-kilometer).
- STEP 4: Press the soft switches labeled “Prewet Rate ↑” and “Prewet Rate ↓” on the RATES pane to adjust your prewet set rate (pounds per lane-mile or kilograms per lane-kilometer).
- STEP 5: Twist the blue Blast knob to increase or decrease your spread width.
- STEP 6: Twist the green On / Standby knob to position your spread pattern left or right.
- STEP 7: Press the On / Standby knob to remove the spreader control from standby. Granular and prewet material will spread.
- STEP 8: Press the On / Standby knob to place the spreader control back in standby.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To spread granular material in closed-loop or open-loop mode with manual prewet:**

- STEP 1: Press the soft switch labeled “Granular” on the GRAN pane to activate granular application. The soft switch will turn green when activated.
- STEP 2: Press the soft switch labeled “Prewet” on the GRAN pane to enable prewet liquid application. The soft switch will turn green when activated.
- STEP 3: Press the soft switch labeled “Prewet Manual” on the GRAN pane to activate prewet liquid manual application. The soft switch will turn green when activated.
- STEP 4: Press the soft switches labeled “Gran Rate ↑” and “Gran Rate ↓” on the RATES pane to adjust your granular set rate (pounds per lane-mile or kilograms per lane-kilometer).
- STEP 5: Twist the blue Blast knob to increase or decrease your spread width.
- STEP 6: Twist the green On / Standby knob to position your spread pattern left or right.
- STEP 7: Press the soft switches labeled “Prewet Rate ↑” and “Prewet Rate ↓” on the RATES pane to adjust your prewet output percentage.
- STEP 8: Press the On / Standby knob to remove the spreader control from standby. Granular and prewet material will spread.
- STEP 9: Press the On / Standby knob to place the spreader control back in standby.

**To spread granular and prewet material in manual mode:**

- STEP 1: Press the soft switch labeled “Granular” on the GRAN pane to activate granular application. The soft switch will turn green when activated.
- STEP 2: Press the soft switch labeled “Granular Manual” on the GRAN pane to activate granular manual application. The soft switch will turn green when activated.
- STEP 3: Press the soft switch labeled “Prewet” on the GRAN pane to enable prewet liquid application. The soft switch will turn green when activated.
- STEP 4: Press the soft switch labeled “Prewet Manual” on the GRAN pane to activate prewet liquid manual application. The soft switch will turn green when activated.
- STEP 5: Press the soft switches labeled “Granular Rate ↑” and “Granular Rate ↓” on the RATES pane to adjust your granular output percentage.
- STEP 6: Twist the blue Blast knob to increase or decrease your spread width.
- STEP 7: Twist the green On / Standby knob to position your spread pattern left or right.
- STEP 8: Press the soft switches labeled “Prewet Rate ↑” and “Prewet Rate ↓” on the RATES pane to adjust your prewet output percentage.
- STEP 9: Press the On / Standby knob to remove the spreader control from standby. Granular and prewet material will spread.
- STEP 10: Press the On / Standby knob to place the spreader control back in standby.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To spread direct liquid material in closed-loop or open-loop mode:**

- STEP 1: Press the soft switch labeled “Direct” on the DIRECT pane to activate direct application. The soft switch will turn green when activated.
- STEP 2: Press the soft switches labeled “Direct Rate ↑” and “Direct Rate ↓” on the DIRECT pane to adjust your direct liquid set rate (gallons per lane-mile or liters per lane-kilometer).
- STEP 3: If you use Multi-Lane, press the soft switches labeled “Left Lane”, “Center Lane”, or “Right Lane” on the DIRECT pane to activate those lanes. The soft switch will turn green and liquid droplets will appear in the main window when the lane is activated.
- STEP 4: Press the On / Standby knob to remove the spreader control from standby. Direct liquid material will spread.
- STEP 5: Press the On / Standby knob to place the spreader control back in standby.

**To spread direct liquid material in manual mode:**

- STEP 1: Press the soft switch labeled “Direct” on the DIRECT pane to activate direct application. The soft switch will turn green when activated.
- STEP 2: Press the soft switch labeled “Direct Manual” on the DIRECT pane to activate direct manual application. The soft switch will turn green when activated.
- STEP 3: Press the soft switches labeled “Direct Rate ↑” and “Direct Rate ↓” on the DIRECT pane to adjust your direct output percentage.
- STEP 4: If you use Multi-Lane, press the soft switches labeled “Left Lane”, “Center Lane”, or “Right Lane” on the DIRECT pane to activate those lanes. The soft switch will turn green and liquid droplets will appear in the main window when the lane is activated.
- STEP 5: Press the On / Standby knob to remove the spreader control from standby. Direct liquid material will spread.
- STEP 6: Press the On / Standby knob to place the spreader control back in standby.

### Blast in Directional Spinner Application Mode

Blast is a spreader feature that runs the granular and direct outputs at a set rate for a set amount of time or distance. Usually it is configured to run at the maximum output setting in order to “Blast” a portion of road with extra material.

The Granular Blast time and distance options will apply to both granular and direct materials. The Direct Blast settings will not be used.

By default, Blast is set to spread Granular Material for ten seconds at 1000 pounds per mile or 1000 kilograms per kilometer.

By default, Blast is set to spread Direct Material for ten seconds at 65 gallons per mile or 140 liters per kilometer.

If Granular Manual Mode is activated and Blast is in Distance mode, Blast will only be activated while the Blast button is held.

When Blast is activated, the granular row will display the word “BLAST” instead of the material name. See Figure 32.

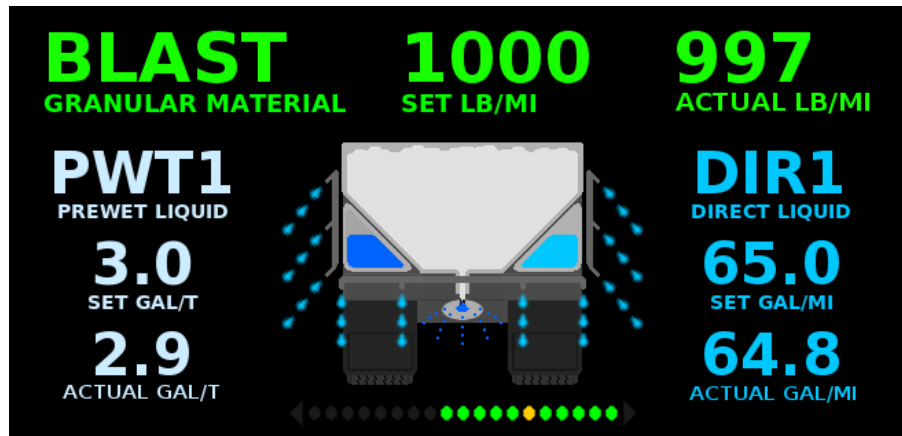
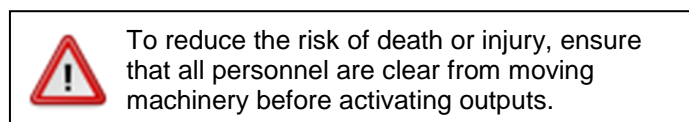


Figure 32: Directional Spinner Application Mode in Blast



#### To activate Blast:

- STEP 1: Press the Blue Blast Knob on the Operator Interface. The system will blast for its configured amount of time or distance and return to normal operation. The Blast feature works whether or not the system is in Standby.

#### To deactivate Blast before it automatically shuts off:

- STEP 1: While the system is Blasting, press the Blue Blast Knob on the Operator Interface. The Blast feature will shut off and return to its previous operation (spreading or standby).

## Tow Plow Application Mode

The 6100 Spreader Control is capable of applying a material from the truck and an attached trailer or tow plow at the same time. The system can apply dry granular, prewetted granular or direct material from the truck while applying dry granular, prewetted granular or direct from the tow plow.

The tow plow application mode occurs when there is an attached tow plow implement that enables granular and the optional prewet or direct. When applying material in the tow plow application mode a single application rate per application source will apply to both the truck and the tow plow systems.



**Figure 33: Truck and Tow Plow Granular and Prewet Application Mode**

The green granular row to the left of the vehicle and tow plow icons contains information about your granular material and its set rate. It is green when granular application is active and gray when it is not active.

The light blue prewet row to the left of the vehicle and tow plow icons contains information about your prewet material and its set rate. It is light blue when Prewet is activated and light gray when Prewet is not activated.

The green vehicle granular status is to the right of the vehicle icon. It will only be displayed when the vehicle granular is off, in standby, or running in closed loop. When running in closed loop mode the status will reflect the actual granular application rate.

The light blue vehicle prewet status is to the right of the vehicle icon. It will only be displayed when the prewet option is enabled and the vehicle prewet is off, in standby, or running in closed loop. When running in closed loop mode the status will reflect the actual prewet application rate.

The blue vehicle spinner row is a series of ten triangle pairs, directly below the vehicle icon, describing the set rate and output of the spinner. The higher the set rate of the vehicle spinner,

the more triangles are lit blue instead of gray. Each pair of triangles corresponds to a 10% increase in vehicle spinner output. The spinner row is always visible. If this spinner cannot be operated when a tow plow is connected, it will be automatically disabled. When a spinner is disabled, the entire spinner row turns gray.

The green tow plow granular status is to the right of the orange tow plow icon. It will only be displayed when the tow plow granular is off, in standby, or running in closed loop. When running in closed loop mode the status will reflect the actual granular tow plow application rate.

The light blue tow plow prewet status is to the right of the orange tow plow icon. It will only be displayed when the tow plow prewet option is enabled and the tow plow prewet is off, in standby, or running in closed loop. When running in closed loop mode the status will reflect the actual prewet tow plow application rate.

The blue tow plow spinner row is a series of ten triangle pairs, directly below the orange tow plow icon. It describes the set rate and output of the tow plow spinner. The higher the set rate of the tow plow spinner, the more triangles are lit blue instead of gray. Each pair of triangles corresponds to a 10% increase in tow plow spinner output. The spinner row is always visible. If this spinner cannot be operated when a tow plow is connected, it will be automatically disabled. When a spinner is disabled, the entire spinner row turns gray.



**Figure 34: Truck Direct with Tow Plow Direct Application Mode**

The light blue direct row to the left of the vehicle and tow plow icons contains information about your direct material and its set rate. It is light blue when Direct is activated and light gray when Direct is not activated.

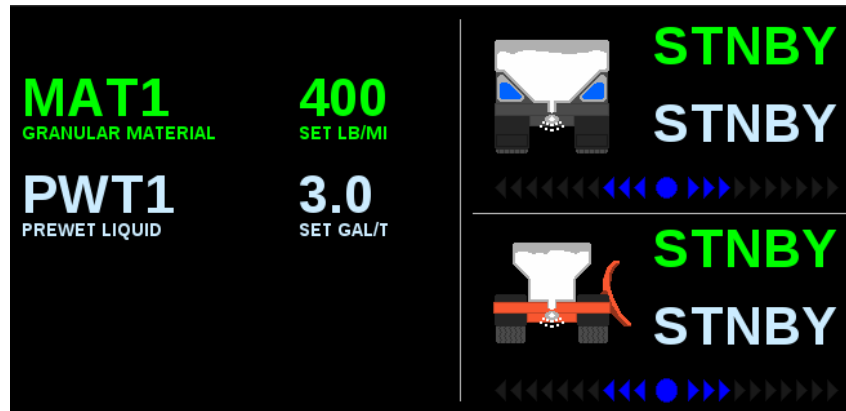
The system does not support simultaneous application when in tow plow application mode. The light blue vehicle direct status is to the right of the vehicle icon. It will only be displayed when the vehicle direct is off, in standby, or running in closed loop. When running in closed loop mode the status will reflect the actual direct application rate.



The light blue tow plow direct status is to the right of the tow plow icon. It will only be displayed when the tow plow direct is off, in standby, or running in closed loop. When running in closed loop mode the status will reflect the actual tow plow direct application rate.

### Applying Material in Tow Plow Application Mode

When your SSC6100 system starts up, it will always be in Standby, as shown in Figure 35. Standby deactivates all outputs. You will need to remove your system from Standby before it will apply material.



**Figure 35: Tow Plow Granular / Prewet Application Mode in Standby**

The SSC6100 can apply granular, prewet liquid and direct liquid material in one of three loop modes:

#### Open-Loop Mode

Open-Loop Mode uses ground speed information from the vehicle's speedometer to spread material uniformly across its route. As the vehicle changes its speed, the auger and prewet pump adjust their output to ensure steady material application. The system will automatically stop spreading material when the vehicle comes to a stop.

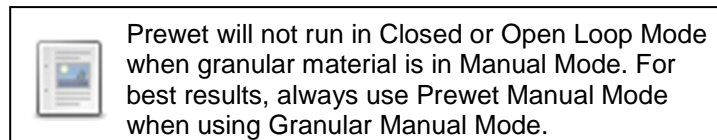
#### Closed-Loop Mode

Closed-Loop Mode is identical to open-loop mode, but uses an extra feedback sensor from the auger and prewet pump to monitor output rates. Materials spread in closed-loop mode are spread more accurately than in open-loop mode.

#### Manual Mode


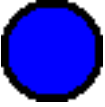

Manual Mode does not vary its output rate with vehicle speed. Instead, granular or prewet liquid material is applied at a constant rate. The auger, spinner, and prewet pump will continue to run when the vehicle comes to a stop. Materials spread in manual mode are spread less accurately than in open-loop or closed-loop mode.

These modes can be mixed and matched between subsystems but cannot be mixed between the standard truck and the tow plow. For example, you can run your auger in closed-loop mode and your prewet pump in open-loop mode. The mode that is used to apply the granular or liquid material on the truck is the same mode that is used to apply the granular or liquid material on the tow plow. These options are available in the Calibration Menu.



If enabled in Calibration, Manual Mode is activated or deactivated using a soft switch on the GRAN, DIRECT or TOW PLOW Soft Switch Pane for the desired application type. Deactivating manual mode returns the subsystem to its previous mode, either closed-loop or open-loop mode.

All actions on the SSC6100 are activated using the Operator Interface. The table below describes each button and its actions while in Tow Plow Application Mode.

Input	Action	Function
<b>Green On/Standby Knob</b> 	Twist Left	Decrease the auger set rate.
	Twist Right	Increase the auger set rate.
	Pushbutton	Place system in Standby. Remove system from Standby.
<b>Blue Blast Knob</b> 	Twist Left	Decrease the spinner set rate.
	Twist Right	Increase the spinner set rate.
	Pushbutton	Blast granular material. Cancel Blast.
<b>Gray Nav Stick</b> 	Twist Left	Decrease the prewet set rate.
	Twist Right	Increase the prewet set rate.
	Up	Highlight previous data item.
	Down	Highlight next data item.
	Left	View previous data item display or previous soft switch pane.
	Right	View next data item display or next soft switch pane.
	Pushbutton	None.

In Tow Plow Application Mode, in addition to the truck based soft switches an additional TOW PLOW soft switch pane will be available.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To spread granular material in closed-loop or open-loop mode:**

- STEP 1: Press the soft switch labeled “Granular” on the GRAN pane to activate granular application for the truck system. The soft switch will turn green when activated.
- STEP 2: Press the soft switch labeled “Tow Granular” on the TOW PLOW pane to activate granular application for the tow plow system. The soft switch will turn green when activated.
- STEP 3: Twist the On / Standby knob to adjust your granular set rate (pounds per mile or kilograms per kilometer).
- STEP 4: Twist the Blast knob to adjust your spinner set rate.
- STEP 5: Press the On / Standby knob to remove the spreader control from standby. Granular material will spread.
- STEP 6: Press the On / Standby knob to place the spreader control back in standby.

**To spread granular material in manual mode:**

- STEP 1: Press the soft switch labeled “Granular Manual” on the GRAN or TOW PLOW pane to activate granular manual application. The soft switch will turn green when activated.
- STEP 2: Twist the On / Standby knob to adjust your granular output percentage.
- STEP 3: Twist the Blast knob to adjust your spinner set rate.
- STEP 4: Press the On / Standby knob to remove the spreader control from standby. Granular material will spread.
- STEP 5: Press the On / Standby knob to place the spreader control back in standby.

**To spread granular and prewet material in closed-loop or open-loop mode:**

- STEP 1: Press the soft switch labeled “Prewet” on the GRAN pane to enable prewet liquid application for the truck system. The soft switch will turn green when activated.
- STEP 2: Press the soft switch labeled “Tow Prewet” on the TOW PLOW pane to enable prewet liquid application for the tow plow system. The soft switch will turn green when activated.
- STEP 3: Twist the On / Standby knob to adjust your granular set rate (pounds per mile or kilograms per kilometer).
- STEP 4: Twist the Blast knob to adjust your spinner set rate.
- STEP 5: Twist the Nav Stick to adjust your prewet set rate (gallons per ton or liters per ton).
- STEP 6: Press the On / Standby knob to remove the spreader control from standby. Granular and prewet material will spread.
- STEP 7: Press the On / Standby knob to place the spreader control back in standby.

**To spread granular material in closed-loop or open-loop mode with manual prewet:**

- STEP 1: Press the soft switch labeled “Prewet” on the GRAN pane to enable prewet liquid application for the truck system. The soft switch will turn green when activated.

- STEP 2: Press the soft switch labeled “Tow Prewet” on the TOW PLOW pane to enable prewet liquid application for the tow plow system. The soft switch will turn green when activated.
- STEP 3: Press the soft switch labeled “Prewet Manual” on the GRAN or TOW PLOW pane to activate prewet liquid manual application. The soft switch will turn green when activated.
- STEP 4: Twist the On / Standby knob to adjust your granular set rate (pounds per mile or kilograms per kilometer).
- STEP 5: Twist the Blast knob to adjust your spinner set rate.
- STEP 6: Twist the Nav Stick to adjust your prewet output percentage.
- STEP 7: Press the On / Standby knob to remove the spreader control from standby. Granular and prewet material will spread.
- STEP 8: Press the On / Standby knob to place the spreader control back in standby.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To spread granular and prewet material in manual mode:**

- STEP 1: Press the soft switch labeled “Prewet” on the GRAN pane to enable prewet liquid application for the truck system. The soft switch will turn green when activated.
- STEP 2: Press the soft switch labeled “Tow Prewet” on the TOW PLOW pane to enable prewet liquid application for the tow plow system. The soft switch will turn green when activated.
- STEP 3: Press the soft switch labeled “Prewet Manual” on the GRAN or TOW PLOW pane to activate prewet liquid manual application. The soft switch will turn green when activated.
- STEP 4: Press the soft switch labeled “Granular Manual” on the GRAN or TOW PLOW pane to activate granular manual application. The soft switch will turn green when activated.
- STEP 5: Twist the On / Standby knob to adjust your granular output percentage.
- STEP 6: Twist the Blast knob to adjust your spinner set rate.
- STEP 7: Twist the Nav Stick to adjust your prewet output percentage.
- STEP 8: Press the On / Standby knob to remove the spreader control from standby. Granular and prewet material will spread.
- STEP 9: Press the On / Standby knob to place the spreader control back in standby.

**To spread direct liquid material in closed-loop or open-loop mode:**

- STEP 1: Press the soft switch labeled “Direct” on the DIRECT pane to activate direct application for the truck system. The soft switch will turn green when activated.
- STEP 2: Press the soft switch labeled “Tow Direct” on the TOW PLOW pane to activate direct application for the tow plow system. The soft switch will turn green when activated.
- STEP 3: Press the soft switches labeled “Direct Rate ↑” and “Direct Rate ↓” on the DIRECT pane to adjust your direct liquid set rate (gallons per lane-mile or liters per lane-kilometer).
- STEP 4: If you use Multi-Lane, press the soft switches labeled “Left Lane”, “Center Lane”, or “Right Lane” on the DIRECT or TOW PLOW pane to activate those lanes. The

soft switch will turn green and liquid droplets will appear in the main window when the lane is activated.

STEP 5: Press the On / Standby knob to remove the spreader control from standby. Direct liquid material will spread.

STEP 6: Press the On / Standby knob to place the spreader control back in standby.

**To spread direct material in manual mode:**

STEP 1: Press the soft switch labeled “Direct” on the DIRECT pane to activate direct application. The soft switch will turn green when activated.

STEP 2: Press the soft switch labeled “Direct Manual” on the DIRECT or TOW PLOW pane to activate direct manual application. The soft switch will turn green when activated.

STEP 3: Press the soft switches labeled “Direct Rate ↑” and “Direct Rate ↓” on the DIRECT pane to adjust your direct output percentage.

STEP 4: If you use Multi-Lane, press the soft switches labeled “Left Lane”, “Center Lane”, or “Right Lane” on the DIRECT pane to activate those lanes. The soft switch will turn green and liquid droplets will appear in the main window when the lane is activated.

STEP 5: Press the On / Standby knob to remove the spreader control from standby. Direct liquid material will spread.

STEP 6: Press the On / Standby knob to place the spreader control back in standby.

### Blast in Tow Plow Application Mode

Blast is a spreader feature that runs the granular, spinner, prewet and direct outputs (if enabled) of the vehicle and tow plow at a set rate for a set amount of time or distance. Usually it is configured to run at the maximum output setting in order to “Blast” a portion of road with extra material.

If granular and direct application modes are active in any combination, the Granular Blast options will apply to both granular and direct materials. The Direct Blast settings will not be used.

By default, Blast is set to spread Granular Material for ten seconds at 1000 pounds per mile or 1000 kilograms per kilometer.

If Granular Manual Mode is activated and Blast is in Distance mode, Blast will only be activated while the Blast button is held.

When Blast is activated, the granular row and optional direct row will display the word “BLAST” instead of the material name. See Figure 36.

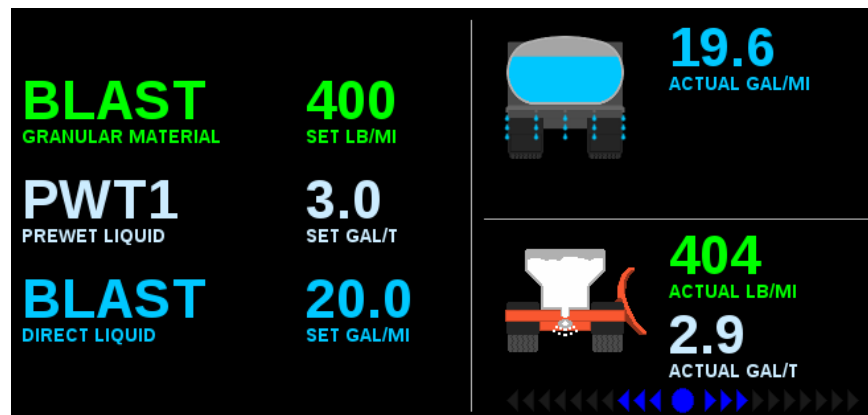


Figure 36: Tow Plow Application Mode in Blast



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

#### To activate Blast:

- STEP 1: Press the Blue Blast Knob on the Operator Interface. The system will blast for its configured amount of time or distance and return to normal operation. The Blast feature works whether or not the system is in Standby.

#### To deactivate Blast before it automatically shuts off:

- STEP 1: While the system is Blasting, press the Blue Blast Knob on the Operator Interface. The Blast feature will shut off and return to its previous operation (spreading or standby).

### Skip Mode in Tow Plow Application Mode

Skip Mode is a spreader feature that deactivates the auger / conveyor and optionally the spinner for a set amount of distance. Usually it is configured to only deactivate the auger / conveyor and leave the spinner running to ensure it does not get overloaded with material. The skip mode feature will apply to both the truck system and the tow plow system if enabled.

By default, Skip Mode is set to alternate between spreading and skipping the auger / conveyor every 250 feet.

When Skip Mode is activated, the granular row will display the word “SKIP” instead of the actual application rate. See Figure 37.

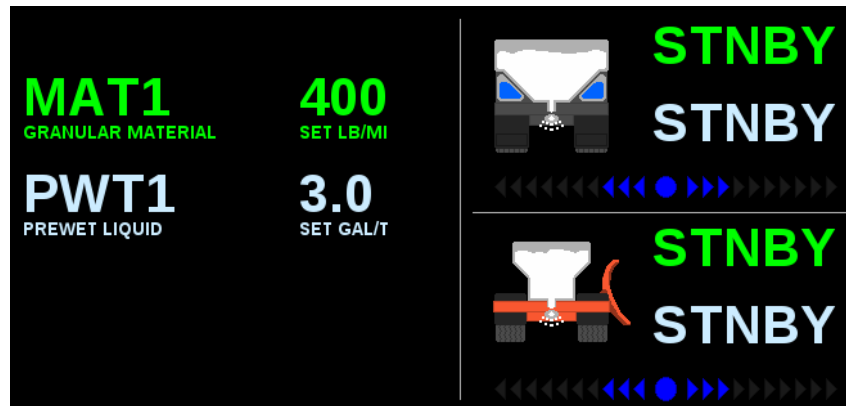


Figure 37: Tow Plow Application Mode in Skip Mode



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

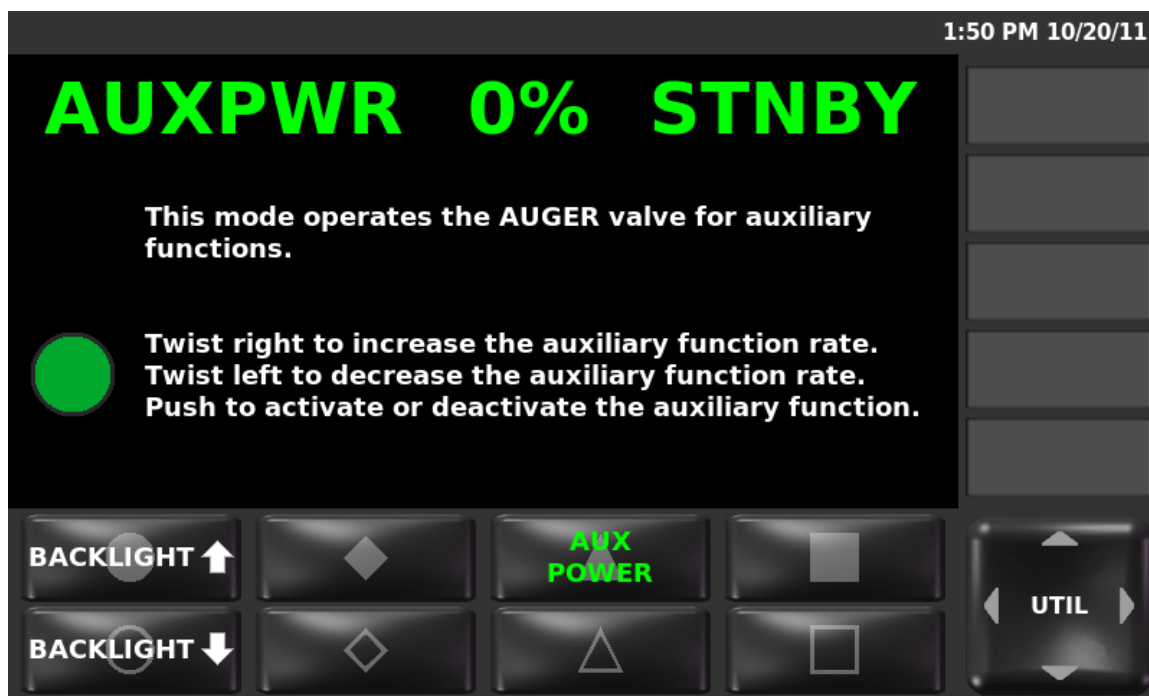
#### To activate Skip Mode:

- STEP 1: Switch to the GRAN soft switch pane.
- STEP 2: Press the soft switch labeled “Skip Mode”. Its text will turn from white to green to show that Skip Mode is active. Skip Mode can be activated whether or not the system is in Standby.

#### To deactivate Skip Mode:

- STEP 1: Switch to the GRAN soft switch pane.
- STEP 2: Press the soft switch labeled “Skip Mode”. Its text will turn from green to white to show that Skip Mode is inactive. Skip Mode can be deactivated whether or not the system is in Standby.

## Aux Power Mode



**Figure 38: Aux Power Mode**

This mode occurs when the Aux Power option in Calibration is enabled and the Aux Power soft switch has been activated.


The green Aux Power row shows the set percentage for the auger output and whether or not the system is in Standby.

Beneath the Aux Power row is text explaining how to run the Auger hydraulic valve using Aux Power mode.

When Aux Power mode is active, only the MENU and UTIL soft switch panes will be available.



All actions on the SSC6100 are activated using the Operator Interface. The table below describes each button and its actions while in Aux Power Mode.

Input	Action	Function
<b>Green On/Standby Knob</b>  	Twist Left	Decrease the Aux Power set percentage.
	Twist Right	Increase the Aux Power set percentage.
	Pushbutton	Place system in Standby. Remove system from Standby.

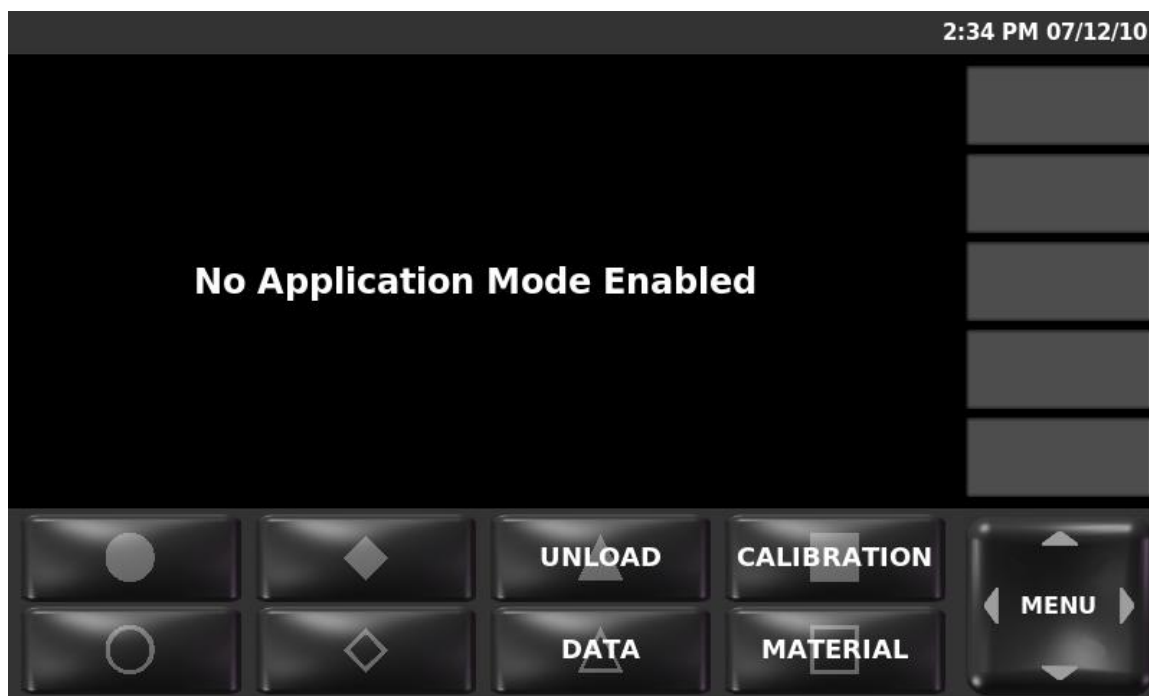


To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To run a hydraulic function connected to the Auger output using Aux Power mode:**

- STEP 1: Twist the On / Standby knob to adjust your Aux Power set rate.
- STEP 2: Press the On / Standby knob to remove the spreader control from standby. The function connected to the Auger output will run.
- STEP 3: Press the On / Standby knob to place the spreader control back in standby.

### No Application Mode



**Figure 39: No Application Mode**

This mode occurs when the base truck and attached truck and tow plow implements do not enable any application options.

In this mode, no spreader functions will run. 9-Axis Joystick functions will still operate normally. Only the MENU and UTIL soft switch panes will be available.

## The Soft Switches

The Soft Switches are located on the bottom left of the SSC6100's display. The buttons on these panes are used to activate or deactivate spreader functions on the fly. Soft switches directly correspond to the buttons on the Operator Interface. For example, pressing the Filled Circle button on the Operator Interface will activate the spreader function shown on the Filled Circle soft switch on the display.

Soft switches can be pressed at any time during normal operation, whether the spreader is applying material or in standby. Functions that activate outputs will not be run during standby.

The soft switches are grouped into six groups, called Soft Switch Panes. These panes are:

- The Granular / Prewet Pane (GRAN)
- The Direct Pane (DIRECT)
- The Rates Pane (RATES)
- The Tow Plow Pane (TOW PLOW)
- The Menu Pane (MENU)
- The Utility Pane (UTIL)
- The Utility 2 Pane (UTIL2)

Each pane has its own unique soft switches designed to affect spreader operation. You can tell which pane you are on by the name displayed in the lower right corner of the operation screen.

You can switch between soft switch panes at any time by moving the Nav Stick down until the Soft Switch pane is highlighted, then moving the Nav Stick left or right. They are placed left-to-right as GRAN, DIRECT, RATES, TOW PLOW, MENU, UTIL, and UTIL2.

Moving the Nav Stick left from the GRAN Pane does nothing. Moving the Nav Stick right from the UTIL2 Pane also does nothing.








The Menu and Utility Panes will always be available. The Granular / Prewet Pane and Direct Pane will be available if the appropriate options are enabled on the base truck or attached implements. The Rates Pane will only be available when Directional Spinner is enabled. The Tow Plow Pane will only be available when Tow Plow is enabled. The Utility 2 pane will only be available if the hardware configuration file contains the appropriate items.



## GRAN Pane

The Granular / Prewet Pane contains the soft switches that adjust all granular and prewet operation.



The Granular / Prewet Pane is only visible when Granular is enabled on the base truck or attached truck implement.

Soft Switch	Function	Availability Requires
	Activates or deactivates Skip Mode when in Granular & Prewet or Simultaneous Modes.	Skip Mode must be enabled in Calibration.  Directional Spinner and Mixed Material must not be enabled.
	Displays the active direction of the cross auger/conveyor (left or right). Pressing the soft switch changes the cross direction.	Cross Auger and Dual Direction Cross must be enabled on the base truck or the attached implement.
		
	Momentarily activates Clear Jam. Runs the main auger/conveyor at 100% in the opposite direction until the soft switch is released.	Clear Jam must be enabled in Calibration.
	Activates or deactivates Auger Reverse. Causes the main auger/conveyor to rotate in the reverse direction.	Auger Reverse must be enabled in Calibration.
	Activates or deactivates Granular Manual mode. See page 25.	Granular Manual Mode must be enabled in Calibration.
	Activates or deactivates Prewet Manual mode. See page 25.	Prewet Manual Mode must be enabled in Calibration.








Soft Switch	Function	Availability Requires
	Activates or deactivates granular output. See page 25.	Granular must be enabled on the base truck or the attached implement.
	Activates or deactivates prewet output. See page 25.	Prewet must be enabled on the base truck or the attached implement.

## DIRECT Pane

The Direct Pane contains the soft switches that adjust all direct liquid operation.



The Direct Pane is only visible when Direct is enabled on the base truck or the attached truck implement.





Soft Switch	Function	Availability Requires
	Increases the Direct Set Rate by 1 rate.	Granular and direct must be enabled on the base truck or the attached implement.
	Decreases the Direct Set Rate by 1 rate.	Granular and direct must be enabled on the base truck or the attached implement.
	Activates or deactivates direct left lane application.	Multi-Lane must be enabled on the base truck or the attached implement.
	Activates or deactivates direct center lane application.	Multi-Lane must be enabled on the base truck or the attached implement.
	Activates or deactivates direct right lane application.	Multi-Lane must be enabled on the base truck or the attached implement.
	Activates or deactivates Direct Manual mode. See page 31.	Direct Manual Mode must be enabled in Calibration.
	Activates or deactivates direct output. See page 31.	Granular and direct must be enabled on the base truck or the attached implement.

## RATES Pane

The Rates Pane contains the soft switches that increase and decrease your granular and prewet set rates.



The Rates Pane is only visible when Directional Spinner is enabled on the base truck or the attached implement.







Soft Switch	Function	Availability Requires
	Increases the Granular Set Rate by 1 rate.	Granular must be enabled on the base truck or the attached implement.
	Decreases the Granular Set Rate by 1 rate.	Granular must be enabled on the base truck or the attached implement.
	Increases the Prewet Set Rate by 1 rate.	Granular and prewet must be enabled on the base truck or the attached implement.
	Decreases the Prewet Set Rate by 1 rate.	Granular and prewet must be enabled on the base truck or the attached implement.

### TOW PLOW (Granular) Pane

The Tow Plow Pane contains the soft switches that adjust tow plow granular and prewet operation.



The Tow Plow Pane is only visible when Tow Plow is enabled on the attached tow plow implement.

Soft Switch	Function	Availability Requires
	Increases the tow plow spinner spread width. See page 51.	Tow plow Separate Spread Width must be enabled in calibration.
	Decreases the tow plow spinner spread width. See page 51.	Tow plow Separate Spread Width must be enabled in calibration.
	Activates or deactivates Granular Manual mode. See page 25.	Granular Manual Mode must be enabled in Calibration.
	Activates or deactivates Prewet Manual mode. See page 25.	Prewet Manual Mode must be enabled in Calibration.
	Activates or deactivates tow plow granular output. See page 51.	Tow plow granular is enabled on the attached tow plow implement.
	Activates or deactivates tow plow prewet output. See page 51.	Tow plow prewet is enabled on the attached tow plow implement.










## TOW PLOW (Direct) Pane

The Tow Plow (Direct) Pane contains the soft switches that adjust tow plow direct operation.



The Tow Plow (Direct) Pane is only visible when Tow Plow Direct is enabled on the attached tow plow implement.







Soft Switch	Function	Availability Requires
	Increases the Direct Set Rate by 1 rate.	
	Decreases the Direct Set Rate by 1 rate.	
	Activates or deactivates direct left lane application.	Multi-Lane must be enabled on the base truck, the attached implement or the attached tow plow implement.
	Activates or deactivates direct center lane application.	Multi-Lane must be enabled on the base truck, the attached implement or the attached tow plow implement
	Activates or deactivates direct right lane application.	Multi-Lane must be enabled on the base truck, the attached implement or the attached tow plow implement
	Activates or deactivates Direct Manual mode. See page 31.	Direct Manual Mode must be enabled in Calibration.
	Activates or deactivates the tow plow direct output. See page 31.	

## MENU Pane

The Menu Pane contains all the soft switches that open up menus.



The Menu Pane is always visible.








Soft Switch	Function	Availability Requires
	Opens the Implements menu. See page 76.	None.
	Logs out the currently logged in Driver ID.	Driver ID must be enabled in Calibration.
	Opens the Material Unload menu. See page 89.	None.
	Opens the Data menu. See page 81.	None.
	Opens the Calibration menu. See the 6100 Calibration Manual.	None.
	Opens the Material Selection menu. See page 78.	None.

## UTIL Pane

The Utility Pane contains all the soft switches that perform auxiliary functions.



The Utility Pane is always visible.

Soft Switch	Function	Availability Requires
	Raises the backlighting of the SSC6100 LCD and Operator Interface one level.	None.
	Lowest the backlighting of the SSC6100 LCD and Operator Interface one level.	None.
	Turns on SimSpeed.	SimSpeed must be enabled in Calibration.  SimSpeed must be off.
	Raises the SimSpeed rate by 1 mph / 1 kph.	SimSpeed must be enabled in Calibration.  SimSpeed must be on.
	Turns off SimSpeed.	SimSpeed must be enabled in Calibration.  SimSpeed must be running at 1 KPH / 1 MPH.
	Lowest the SimSpeed rate by 1 mph / 1 kph.	SimSpeed must be enabled in Calibration.  SimSpeed must be on and running above 1 KPH / 1 MPH.
	Changes between the active Application Mode and Aux Power Mode.	Granular must be enabled on the base truck or attached implement and Aux Power must be enabled in Calibration.



Starts measuring distance and updating the Distance data item. Stops the running distance measure operation.

Distance Measure must be enabled in Calibration.



Activates or deactivates Temperature Compensation

Temperature Sensor and Temp Comp must be enabled in Calibration.



Resets the measured distance to 0. Clears the Distance data item. This button is locked when Measure Distance operation is in progress.






Distance Measure must be enabled in Calibration. Measure Distance operation is not running.

## UTIL2 Pane

The Utility 2 Pane contains all the soft switches that perform auxiliary functions.



The Utility 2 Pane is visible if the hardware configuration file contains an adjustable power float.

Soft Switch	Function	Availability Requires
	Increases the adjustable power float output by the amount set by a supervisor in calibration.	The hardware configuration file must contain an adjustable power float.
	Decreases the adjustable power float output by the amount set by a supervisor in calibration.	The hardware configuration file must contain an adjustable power float.
	Moves the spinner left while the button is pressed.	Directional Spinner must be enabled on the base truck or attached implement.
	Opens/Closes the CommandAll Function screen which show which CommandAll buttons are mapped to joystick functions.	The hardware configuration file must contain a CommandAll® Single.
	Moves the spinner right while the button is pressed.	Directional Spinner must be enabled on the base truck or attached implement.

## Monitoring System Status

The Data Items on the right-hand side of the operation screen show the status of various inputs and outputs on the SSC6100 system. By default, these are all set to the blank data item. However, changing the parameter that they display is easy. See Figure 40.

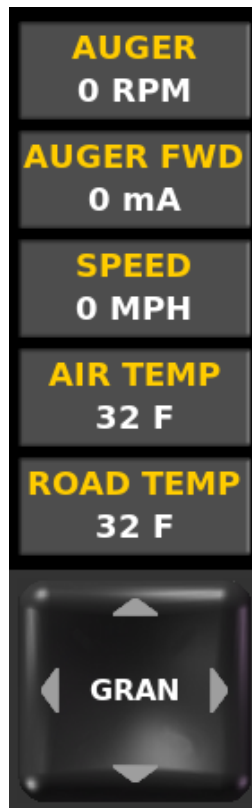


Figure 40: Monitoring SSC6100 Status with Data Items

### To highlight a different data item:

STEP 1: Move the Nav Stick up or down to highlight the previous or next data item.



If the Soft Switch Pane is highlighted, move the Nav Stick up and it will highlight the bottom-most data item.

### To display a new input or output on a highlighted data item:

STEP 1: Move the Nav Stick left or right to display the previous or next input/output.

## Entering Menus

The MENU Soft Switch Pane is the gateway for all menu navigation. With it, you can access the Data Menu, the Unload Menu, the Material Selection Menu, and the Calibration Menu.



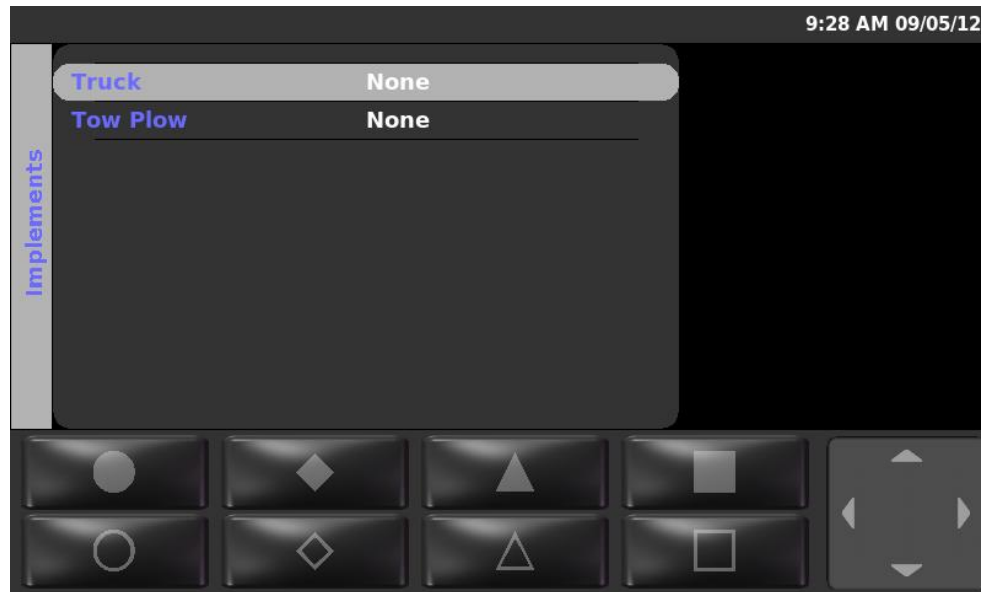
The Data Menu, Unload Menu, Material Selection, and Calibration Menus will not open unless the system is in Standby.

### To open a menu:

- STEP 1: Move the Nav Stick left or right until the Menu Soft Switch Pane is displayed.
- STEP 2: Press the Soft Switch corresponding to the menu you wish to open.

## Implements Menu

The Implements Menu allows you to set which implements are attached to the vehicle. The attached implement(s) is used to determine what application options are available to the system. The available implements and configured options are set in the hardware configuration file. If you are unable to select the desired implement and application mode please contact a FORCE America Representative for assistance.



**Figure 41: The Implements Menu**


### To enter the Implements Menu:

- STEP 1: Ensure that the truck is not moving and the system is in Standby.
- STEP 2: Move the Nav Stick left or right until the Menu Soft Switch Pane is displayed.
- STEP 3: Press the Implements soft switch to open the menu.

The Implements Menu uses a “NeverLost” menu system to ensure that navigating is easy and quick.



All movement and selection actions within the Implements Menu are activated using the Gray Nav Stick on the Operator Interface. The table below describes its actions while navigating through the Implements Menu.

Input	Action	Function
<b>Gray Nav Stick</b>  	Twist Left	None.
	Twist Right	None.
	Up	Highlight previous menu item.
	Down	Highlight next menu item.
	Left	Return to previous menu item. Exit the Implements Menu.
	Right	None.
	Pushbutton	Enter submenu. Edit value.

The Implements Menu has the following sections in its menu tree:

#### **Truck Implement**

Truck Implements must be defined in the Hardware Configuration File. The Truck Implement menu item will allow you to select which slide in is currently attached to the vehicle. Implements that are not selected will not generate errors, monitor inputs, or run outputs.

#### **Tow Plow Implement**

Tow Plow Implements must be defined in the Hardware Configuration File. The Tow Plow Implement menu item will allow you to select which tow plow is currently attached to the vehicle. Implements that are not selected will not generate errors, monitor inputs, or run outputs.

## Material Selection Menu

The Material Selection Menu allows you to quickly reconfigure the system to use a different granular, prewet, or direct material. Granular, prewet, and direct materials must be selected individually.




Figure 42: The Material Selection Menu

### To enter the Material Selection Menu:

- STEP 1: Ensure that the system is in Standby.
- STEP 2: Move the Nav Stick left or right until the Menu Soft Switch Pane is displayed.
- STEP 3: Press the Material soft switch to open the menu.

The Material Selection Menu uses a “NeverLost” menu system to ensure that navigating the settings is easy and quick.

All actions within the Material Selection Menu are activated using the Gray Nav Stick on the Operator Interface. The table below describes its actions while viewing the Material Selection Menu.

Input	Action	Function
<b>Gray Nav Stick</b>  	Twist Left	None.
	Twist Right	None.
	Up	Highlight previous menu item.
	Down	Highlight next menu item.
	Left	Return to previous menu item. Exit the Material Selection Menu.
	Right	Enter submenu.
	Pushbutton	Enter submenu. Edit value. Save value.

When a new material is selected, its configured displacement rate (pulses per revolution), set rates (encoder positions), and Blast output rate will be loaded as well.

**To select a different granular material:**

- STEP 1: Enter the Material Selection Menu.
- STEP 2: Press the Nav Stick's pushbutton to edit the Granular Material menu item.
- STEP 3: Move the Nav Stick up or down until the granular material you wish to use is highlighted in green.
- STEP 4: Press the Nav Stick's pushbutton to save your selection. If Adjustable Gate is enabled, you will get a notice to check your Gate Height setting.
- STEP 5: Move the Nav Stick left to exit the Material Selection Menu.

**To adjust the Gate Height:**

- STEP 1: Enter the Material Selection Menu, if you are not already in it.
- STEP 2: Move the Nav Stick up or down until the Gate Height menu item is highlighted.
- STEP 3: Press the Nav Stick's pushbutton to edit the Gate Height menu item.
- STEP 4: Move the Nav Stick up or down or twist the Nav Stick left or right until the Gate Height value matches the height of the vehicle's gate in inches or centimeters.
- STEP 5: Press the Nav Stick's pushbutton to save the Gate Height setting.
- STEP 6: Move the Nav Stick left to exit the Material Selection Menu.

**To select a different prewet material:**

- STEP 1: Enter the Material Selection Menu.
- STEP 2: Move the Nav Stick up or down until the Prewet Material menu item is highlighted.
- STEP 3: Press the Nav Stick's pushbutton to edit the Prewet Material menu item.
- STEP 4: Move the Nav Stick up or down until the prewet material you wish to use is highlighted in green.
- STEP 5: Press the Nav Stick's pushbutton to save your selection.
- STEP 6: Move the Nav Stick left to exit the Material Selection Menu.

**To select a different direct material:**

- STEP 1: Enter the Material Selection Menu.
- STEP 2: Move the Nav Stick up or down until the Direct Material menu item is highlighted.
- STEP 3: Press the Nav Stick's pushbutton to edit the Direct Material menu item.
- STEP 4: Move the Nav Stick up or down until the direct material you wish to use is highlighted in green.
- STEP 5: Press the Nav Stick's pushbutton to save your selection.
- STEP 6: Move the Nav Stick left to exit the Material Selection Menu.

**To select a different temperature profile:**

- STEP 1: Enter the Material Selection Menu.
- STEP 2: Move the Nav Stick up or down until the Temperature Profile menu item is highlighted.
- STEP 3: Press the Nav Stick's pushbutton to edit the Temperature Profile menu item.
- STEP 4: Move the Nav Stick up or down until the temperature profile you wish to use is highlighted in green.
- STEP 5: Press the Nav Stick's pushbutton to save your selection.
- STEP 6: Move the Nav Stick left to exit the Material Selection Menu.

## Data Menu

The Data Menu allows you to view, export, and clear data totals collected during the SSC6100 system's operation.




Figure 43: The Data Menu

### To enter the Data Menu:

- STEP 1: Ensure that the system is in Standby.
- STEP 2: Move the Nav Stick left or right until the Menu Soft Switch Pane is displayed.
- STEP 3: Press the Data soft switch to open the menu.

The Data Menu uses a “NeverLost” menu system to ensure that navigating is easy and quick.

All movement and selection actions within the Data Menu are activated using the Gray Nav Stick on the Operator Interface. The table below describes its actions while navigating through the Data Menu.

Input	Action	Function
<b>Gray Nav Stick</b> 	Twist Left	None.
	Twist Right	None.
	Up	Highlight previous menu item.
	Down	Highlight next menu item.
	Left	Return to previous menu item. Exit the Data Menu.
	Right	Enter submenu.
	Pushbutton	Enter submenu. View report.

The Data Menu has the following sections in its menu tree:

#### **Current Totals**

The Current Totals menu contains all of the options available for the currently recorded data totals. Current totals are similar to a trip odometer on a car in that they are often used to record route data and are usually reset on a new route.

#### **Summary Report**

The Summary Report submenu contains the options for viewing or exporting a summary report to a USB flash drive. This report will use the data collected in the current totals database. A sample summary report is available on page 86.

##### **View**

The View menu item will generate and create a summary report viewable on the LCD Display.

##### **Export (USB)**

The Export (USB) menu item will generate and export a summary report to a USB flash drive in plain text (.txt) format.

The Export (USB) menu item will not activate unless a flash drive is inserted. Detection may take up to 10 seconds after inserting the flash drive. When the system detects the flash drive, the Export (USB) menu item text will turn from gray to blue.

#### **Detailed Report**

The Detailed Report submenu contains the options for viewing or exporting a detailed report to a USB flash drive. This report will use the data collected in the current totals database. A sample detailed report is available on page 87.

The Detailed Report is not available when either Mixed Material or Directional Spinner is enabled in Calibration.

**View**

The View menu item will generate and create a detailed report viewable on the LCD Display.

**Export (USB)**

The Export (USB) menu item will generate and export a detailed report to a USB flash drive in plain text (.txt) format.

The Export (USB) menu item will not activate unless a flash drive is inserted. Detection may take up to 10 seconds after inserting the flash drive. When the system detects the flash drive, the Export (USB) menu item text will turn from gray to blue.

**Clear Current Totals**

The Clear Current Totals menu item attempts to clear all current data recorded. Clearing Current Data does not affect Season Data.

If Clear Current Code is enabled in Calibration, selecting Clear Current Totals will require a 6-digit clear code. Either enter the clear code, connect the supervisor USB key, or place a supervisor iButton on the operator interface to clear the current data totals.

**Season Totals**

The Season Totals menu contains all of the options available for the recorded data totals since its initial setup or last clear date. Season totals are similar to an odometer on a car in that they record data over a long period of time and are rarely reset.

**Summary Report**

The Summary Report submenu contains the options for viewing or exporting a summary report to a USB flash drive. This report will use the data collected in the season totals database. A sample summary report is available on page 86.

**View**

The View menu item will generate and create a summary report viewable on the LCD Display.

**Export (USB)**

The Export (USB) menu item will generate and export a summary report to a USB flash drive in plain text (.txt) format.

The Export (USB) menu item will not activate unless a flash drive is inserted. Detection may take up to 10 seconds after inserting the flash drive. When the system detects the flash drive, the Export (USB) menu item text will turn from gray to blue.

**Detailed Report**

The Detailed Report submenu contains the options for viewing or exporting a detailed report to a USB flash drive. This report will use the data collected in the season totals database. A sample detailed report is available on page 87.

The Detailed Report is not available when either Mixed Material or Directional Spinner is enabled in Calibration.

**View**

The View menu item will generate and create a detailed report viewable on the LCD Display.

**Export (USB)**

The Export (USB) menu item will generate and export a detailed report to a USB flash drive in plain text (.txt) format.

The Export (USB) menu item will not activate unless a flash drive is inserted. Detection may take up to 10 seconds after inserting the flash drive. When the system detects the flash drive, the Export (USB) menu item text will turn from gray to blue.

**Clear Season Totals**

The Clear Season Totals menu item attempts to clear all data recorded for the entire snow season. Before season data totals can be cleared, the supervisor access code must be entered. Either enter the correct access code, connect the supervisor USB key, or place the supervisor iButton on the operator interface to clear the season data totals. Clearing Season Data does not affect Current Data.

**Error Log**

The Error Log menu contains the options available for interacting with the spreader control error log. The spreader control error log contains the various operation errors that have occurred with the system since last cleared. These error descriptions are time stamped with time and date that they occurred on.

**View**

The View menu item will display the current error descriptions and time that are contained in the log to the LCD Display. A sample error log is available on page 88.

**Export (USB)**

The Export (USB) menu item will export the error log to a USB flash drive in plain text (.txt) format.

The Export (USB) menu item will not activate unless a flash drive is inserted. Detection may take up to 10 seconds after inserting the flash drive. When the system detects the flash drive, the Export (USB) menu item will turn from gray to blue.


**Clear**

The Clear menu item will clear the currently logged errors from the log. Before the error log can be cleared, the supervisor access code must be entered. Either enter the correct access code, connect the supervisor USB key, or place the supervisor iButton on the operator interface to clear the error log.



## Viewing a Report

Viewing a report will open a new window which changes the functions of the Nav Stick. The table below describes its actions while viewing a report.

Input	Action	Function
<b>Gray Nav Stick</b>  	Twist Left	Scroll up the report by one line.
	Twist Right	Scroll down the report by one line.
	Up	Scroll up the report by one full page.
	Down	Scroll down the report by one full page.
	Left	Return to the data menu.
	Right	None.
	Pushbutton	Return to the data menu.

See pages 86 and 87 for sample summary and detailed reports. See page 88 for a sample error log.

## Summary Report

The Summary Report is a quick way to examine your data totals for granular, prewet, and direct systems. It displays material totals for each spread granular, prewet, and direct material, as well as summarized system and unload times. When the system is used with a tow plow these totals also reflect the items related to the tow plow application. A sample, abridged, summary report is shown in Figure 44, an additional line will appear on the report when the totals contain values acquired when operating the tow plow feature.

### The Summary Report

```
=====
SSC6100 SEASON DATA - SUMMARY REPORT
=====
CORE FIRMWARE:                                0.13.2569
VEHICLE NAME:                                TRUCK1
DATE PRINTED:                                07/09/2009    1:44 PM
DATE CLEARED:                                07/09/2009    1:44 PM

=====
GRANULAR
=====
GRAN MAT 1:
-----
TOTAL VOLUME APPLIED:                        2000000.0 LBS
TOTAL DISTANCE APPLIED:                      400.0 MI
TOTAL MANUAL TIME APPLIED:                   0:00
TOTAL OPEN TIME APPLIED:                    0:00
TOTAL CLOSED TIME APPLIED:                  11:42
TOTAL TIME APPLIED:                         11:42
TOTAL BLAST TIME APPLIED:                   0:18

GRAN MAT 2:
-----
TOTAL VOLUME APPLIED:                        2000000.0 LBS
TOTAL DISTANCE APPLIED:                      400.0 MI
TOTAL MANUAL TIME APPLIED:                   0:00
TOTAL OPEN TIME APPLIED:                    0:00
TOTAL CLOSED TIME APPLIED:                  11:42
TOTAL TIME APPLIED:                         11:42
TOTAL BLAST TIME APPLIED:                   0:18

GRAN MAT 3:
-----
TOTAL VOLUME APPLIED:                        2000000.0 LBS
TOTAL DISTANCE APPLIED:                      400.0 MI
TOTAL MANUAL TIME APPLIED:                   0:00
TOTAL OPEN TIME APPLIED:                    0:00
TOTAL CLOSED TIME APPLIED:                  11:42
TOTAL TIME APPLIED:                         11:42
```

**Figure 44: Sample, Abridged, Summary Report**

## Detailed Report

The Detailed Report is a thorough look at each granular material and its output with each prewet and direct simultaneous material. The Detailed Report also splits out each direct material and any simultaneous application individually. Each granular and direct material is drilled down within subsections for distance, displacement, time, blast time, blast distance, system distance and time, and unload time. This report will only reflect the totals related to item applied during the operation of the standard truck feature and will not be affected by the tow plow feature. A sample, abridged, detailed report is shown in Figure 45.

```
=====
SSC6100 SEASON DATA - DETAILED REPORT
=====
CORE FIRMWARE:                                0.13.2569
VEHICLE NAME:                                  TRUCK1
DATE PRINTED:                                07/09/2009  03:10 PM
DATE CLEARED:                                07/09/2009  03:10 PM
=====

GRAN MAT 1:
=====

DISTANCE:
-----
DRY DISTANCE:                                0.0 MI
PREWETTED DISTANCE W/PREWET MAT 1:           350.0 MI
PREWETTED DISTANCE W/PREWET MAT 2:            0.0 MI
PREWETTED DISTANCE W/PREWET MAT 3:            0.0 MI
PREWETTED DISTANCE W/PREWET MAT 4:            28.2 MI
PREWETTED DISTANCE W/PREWET MAT 5:            21.8 MI
PREWETTED DISTANCE W/PREWET MAT 6:            0.0 MI
PREWETTED DISTANCE W/PREWET MAT 7:            0.0 MI
PREWETTED DISTANCE W/PREWET MAT 8:            0.0 MI
PREWETTED DISTANCE W/PREWET MAT 9:            0.0 MI
PREWETTED DISTANCE W/PREWET MAT 10:           0.0 MI
TOTAL DISTANCE:                              400.0 MI

DISPLACEMENT:
-----
DRY DISPLACEMENT:                            0.0 LBS
PREWETTED DISPLACEMENT W/PREWET MAT 1:       200000.0 LBS
PREWETTED DISPLACEMENT W/PREWET MAT 2:       200000.0 LBS
PREWETTED DISPLACEMENT W/PREWET MAT 3:       200000.0 LBS
PREWETTED DISPLACEMENT W/PREWET MAT 4:       200000.0 LBS
PREWETTED DISPLACEMENT W/PREWET MAT 5:       200000.0 LBS
PREWETTED DISPLACEMENT W/PREWET MAT 6:       200000.0 LBS
PREWETTED DISPLACEMENT W/PREWET MAT 7:       200000.0 LBS
PREWETTED DISPLACEMENT W/PREWET MAT 8:       200000.0 LBS
PREWETTED DISPLACEMENT W/PREWET MAT 9:       200000.0 LBS
```

**Figure 45: Sample, Abridged, Detailed Report**

## Error Log

The Error Log is a way to examine the operation and performance of the system. It displays the errors that have occurred with the operation of the system and the date and time that the error occurred. A sample, abridged, error log is shown in Figure 46.

```
=====
SSC6100 ERROR LOG
=====
CORE FIRMWARE:                                0.73.8945
VEHICLE NAME:                                TRUCK 1
DATE PRINTED:                                10/01/13  7:48 AM
=====

ERROR                                           DATE
=====
Power to 20 Port Valve 1 Miswired             10/01/13  7:42 AM
20 Port Valve 1 Power Fault                   10/01/13  7:42 AM
ESTOP Activated                               10/01/13  7:41 AM
Error Log Cleared                             10/01/13  7:41 AM
=====
```

**Figure 46: Sample Error Log**

## Unload Menu

The Unload Menu allows you to unload granular, prewet, and direct materials from the vehicle and tow plow. All time spent running outputs in Unload Mode will be recorded as Unload time on reports. Each material must be unloaded individually.

The Granular Unload, Prewet Unload, and Direct Unload menu items shown in Figure 47 will not be visible unless enabled in Calibration. If Tow Plow is enabled their tow plow counterparts will also be shown. If no unload items are enabled in Calibration, the Unload Menu will read “No Unload Modes Enabled”.




Figure 47: The Unload Menu

### To enter the Unload Menu:

- STEP 1: Ensure that the system is in Standby.
- STEP 2: Move the Nav Stick left or right until the Menu Soft Switch Pane is displayed.
- STEP 3: Press the Unload soft switch to open the menu.

The Unload Menu uses a “NeverLost” menu system to ensure that navigating is easy and quick.

All movement and selection actions within the Unload Menu are activated using the Gray Nav Stick on the Operator Interface. The table below describes its actions while viewing the Unload Menu.

Input	Action	Function
<b>Gray Nav Stick</b>  	Twist Left	None.
	Twist Right	None.
	Up	Highlight previous menu item.
	Down	Highlight next menu item.
	Left	Return to previous menu item. Exit the Unload Menu.
	Right	Enter submenu.
	Pushbutton	Enter submenu. Edit value. Save value.

Unloading material is similar to running the spreader in manual mode. Simply set the percentage you wish to unload material at and activate the outputs. Unloading granular, prewet, and direct materials differ slightly, and will be described individually below.

### Granular Unload

When you enter the Granular Unload menu item, you will see Figure 48.

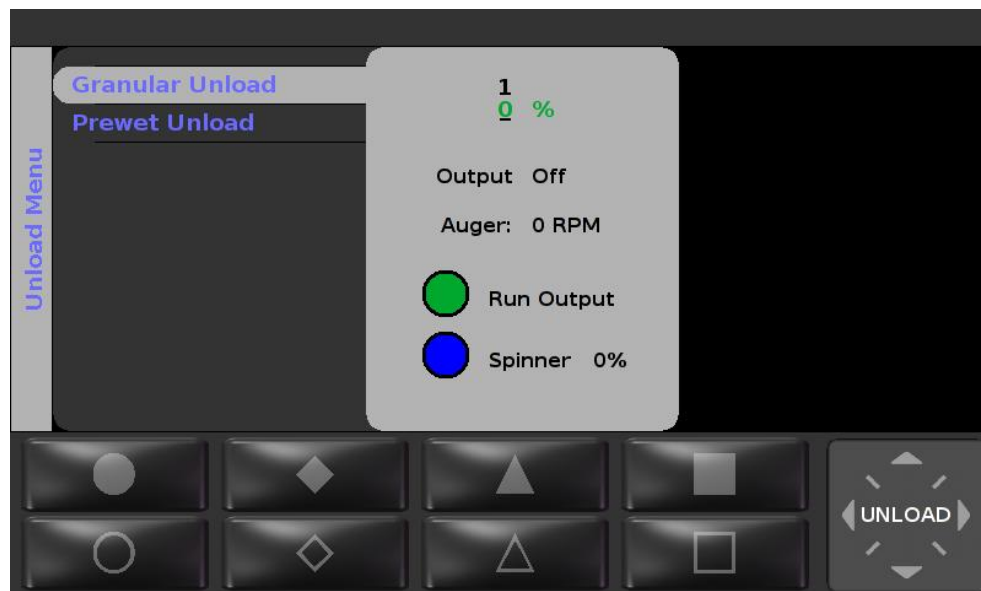





Figure 48: The Granular Unload Menu

Each encoder on the Operator Interface performs a different function when unloading granular material. See the table below.

Input	Action	Function
<b>Green On/Standby Knob</b> 	Twist Left Twist Right	None.
	Pushbutton	Start unloading material. Stop unloading material.
<b>Blue Blast Knob</b> 	Twist Left	Decrease the spinner output percentage. (If available)
	Twist Right	Increase the spinner output percentage. (If available)
	Pushbutton	None.
<b>Gray Nav Stick</b> 	Twist Left	Decrease the auger output percentage.
	Twist Right	Increase the auger output percentage.
	Up	Increase the auger output percentage.
	Down	Decrease the auger output percentage.
	Left	Highlight previous decimal place.
	Right	Highlight next decimal place.
	Pushbutton	Return to the Unload Menu.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

The status of the output is displayed beneath the auger output percentage. The “Output:” line displays whether or not the auger is running, and the “Auger:” line displays the revolutions per minute of the auger according to its feedback sensor.

The Auger will run in the direction set by the Calib/Unload Auger calibration item.

If Cross Auger is enabled in Calibration, the cross auger will run in the direction set by the Calib/Unload Cross calibration item.

The outputs will only run if the vehicle is stopped and SimSpeed is off. Leaving the Granular Unload menu at any time will also shut off the outputs.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To unload granular material:**

- STEP 1: Enter the Material Unload Menu.
- STEP 2: Move the Nav Stick up or down until the Granular Unload menu item is highlighted.
- STEP 3: Press the Nav Stick's pushbutton to enter the Granular Unload menu item.
- STEP 4: Use the Nav Stick and Blue Knob to adjust the auger output and spinner output percentages.
- STEP 5: Press the Green Knob to begin unloading granular material.
- STEP 6: Press the Green Knob to finish unloading granular material.
- STEP 7: Press the Nav Stick's pushbutton to return to the Unload Menu when finished.






## Tow Granular Unload

When you enter the Tow Granular Unload menu item, you will see Figure 49.



Figure 49: The Tow Granular Unload Menu

Each encoder on the Operator Interface performs a different function when unloading tow plow granular material. See the table below.

Input	Action	Function
<b>Green On/Standby Knob</b> 	Twist Left Twist Right	None.
	Pushbutton	Start unloading material. Stop unloading material.
<b>Blue Blast Knob</b> 	Twist Left	Decrease the tow plow spinner output percentage. (If available)
	Twist Right	Increase the tow plow spinner output percentage. (If available)
	Pushbutton	None.
<b>Gray Nav Stick</b> 	Twist Left	Decrease the tow plow auger output percentage.
	Twist Right	Increase the tow plow auger output percentage.
	Up	Increase the tow plow auger output percentage.
	Down	Decrease the tow plow auger output percentage.
	Left	Highlight previous decimal place.
	Right	Highlight next decimal place.
	Pushbutton	Return to the Unload Menu.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

The status of the output is displayed beneath the tow plow auger output percentage. The “Output:” line displays whether or not the tow plow auger is running, and the “Tow Auger:” line displays the revolutions per minute of the tow plow auger according to its feedback sensor.

The outputs will only run if the vehicle is stopped and SimSpeed is off. Leaving the Tow Granular Unload menu at any time will also shut off the outputs.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To unload tow plow granular material:**

- STEP 1: Enter the Material Unload Menu.
- STEP 2: Move the Nav Stick up or down until the Tow Granular Unload menu item is highlighted.
- STEP 3: Press the Nav Stick's pushbutton to enter the Tow Granular Unload menu item.
- STEP 4: Use the Nav Stick and Blue Knob to adjust the tow plow auger output and tow plow spinner output percentages.
- STEP 5: Press the Green Knob to begin unloading tow plow granular material.
- STEP 6: Press the Green Knob to finish unloading tow plow granular material.
- STEP 7: Press the Nav Stick's pushbutton to return to the Unload Menu when finished.

## Prewet Unload

When you enter the Prewet Unload menu item, you will see Figure 50.

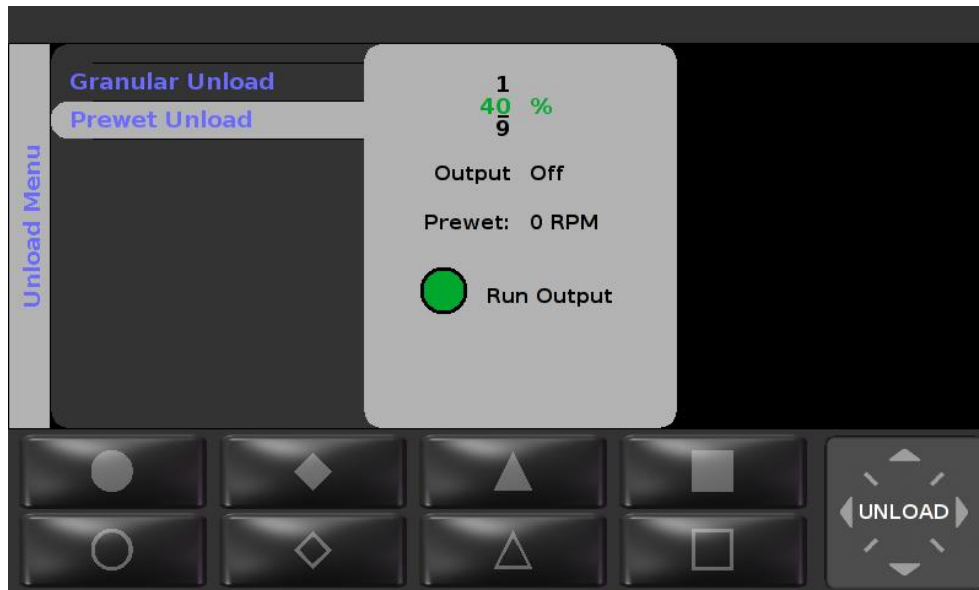





Figure 50: The Prewet Unload Menu

Each encoder on the Operator Interface performs a different function when unloading prewet material. See the table below.

Input	Action	Function
<b>Green On/Standby Knob</b> 	Twist Left Twist Right	None.
	Pushbutton	Start unloading material. Stop unloading material.
<b>Blue Blast Knob</b> 	Twist Left Twist Right Pushbutton	None.
<b>Gray Nav Stick</b> 	Twist Left	Decrease the prewet output percentage.
	Twist Right	Increase the prewet output percentage.
	Up	Increase the prewet output percentage.
	Down	Decrease the prewet output percentage.
	Left	Highlight previous decimal place.
	Right	Highlight next decimal place.
	Pushbutton	Return to the Unload Menu.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

The status of the output is displayed beneath the prewet set rate. The “Output:” line displays whether or not the prewet pump is running, and the “Prewet:” line displays the revolutions per minute of the prewet flow meter according to its feedback sensor.

The outputs will only run if the vehicle is stopped and SimSpeed is off. Leaving the Prewet Unload menu at any time will also shut off the outputs.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To unload prewet material:**

- STEP 1: Enter the Material Unload Menu.
- STEP 2: Move the Nav Stick up or down until the Prewet Unload menu item is highlighted.
- STEP 3: Press the Nav Stick's pushbutton to enter the Prewet Unload menu item.
- STEP 4: Use the Nav Stick to adjust the prewet output percentage.
- STEP 5: Press the Green Knob to begin unloading prewet material.
- STEP 6: Press the Green Knob to finish unloading prewet material.
- STEP 7: Press the Nav Stick's pushbutton to return to the Unload Menu when finished.




## Tow Prewet Unload

When you enter the Tow Prewet Unload menu item, you will see Figure 51.



Figure 51: The Tow Prewet Unload Menu

Each encoder on the Operator Interface performs a different function when unloading prewet material. See the table below.

Input	Action	Function
<b>Green On/Standby Knob</b> 	Twist Left Twist Right	None.
	Pushbutton	Start unloading material. Stop unloading material.
<b>Blue Blast Knob</b> 	Twist Left Twist Right Pushbutton	None.
<b>Gray Nav Stick</b> 	Twist Left	Decrease the tow plow prewet output percentage.
	Twist Right	Increase the tow plow prewet output percentage.
	Up	Increase the tow plow prewet output percentage.
	Down	Decrease the tow plow prewet output percentage.
	Left	Highlight previous decimal place.
	Right	Highlight next decimal place.
	Pushbutton	Return to the Unload Menu.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

The status of the output is displayed beneath the tow plow prewet set rate. The “Output:” line displays whether or not the tow plow prewet pump is running, and the “Tow Prewet:” line displays the revolutions per minute of the tow plow prewet flow meter according to its feedback sensor.

The outputs will only run if the vehicle is stopped and SimSpeed is off. Leaving the Tow Prewet Unload menu at any time will also shut off the outputs.





To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To unload tow plow prewet material:**

- STEP 1: Enter the Material Unload Menu.
- STEP 2: Move the Nav Stick up or down until the Tow Prewet Unload menu item is highlighted.
- STEP 3: Press the Nav Stick's pushbutton to enter the Tow Prewet Unload menu item.
- STEP 4: Use the Nav Stick to adjust the tow plow prewet output percentage.
- STEP 5: Press the Green Knob to begin unloading tow plow prewet material.
- STEP 6: Press the Green Knob to finish unloading tow plow prewet material.
- STEP 7: Press the Nav Stick's pushbutton to return to the Unload Menu when finished.




## Direct Unload

When you enter the Direct Unload menu item, you will see Figure 52.



Figure 52: The Direct Unload Menu

Each encoder on the Operator Interface performs a different function when unloading direct material. See the table below.

Input	Action	Function
<b>Green On/Standby Knob</b> 	Twist Left Twist Right	None.
	Pushbutton	Start unloading material. Stop unloading material.
<b>Blue Blast Knob</b> 	Twist Left Twist Right Pushbutton	None.
<b>Gray Nav Stick</b> 	Twist Left	Decrease the direct output percentage.
	Twist Right	Increase the direct output percentage.
	Up	Increase the direct output percentage.
	Down	Decrease the direct output percentage.
	Left	Highlight previous decimal place.
	Right	Highlight next decimal place.
	Pushbutton	Return to the Unload Menu.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

The status of the output is displayed beneath the direct set rate. The “Output:” line displays whether or not the direct pump is running, and the “Direct:” line displays the revolutions per minute of the direct flow meter according to its feedback sensor.

The outputs will only run if the vehicle is stopped and SimSpeed is off. Leaving the Direct Unload menu at any time will also shut off the outputs.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To unload direct material:**

- STEP 1: Enter the Material Unload Menu.
- STEP 2: Move the Nav Stick up or down until the Direct Unload menu item is highlighted.
- STEP 3: Press the Nav Stick's pushbutton to enter the Direct Unload menu item.
- STEP 4: Use the Nav Stick to adjust the direct output percentage.
- STEP 5: Press the Green Knob to begin unloading direct material.
- STEP 6: Press the Green Knob to finish unloading direct material.
- STEP 7: Press the Nav Stick's pushbutton to return to the Unload Menu when finished.




## Tow Direct Unload

When you enter the Tow Direct Unload menu item, you will see Figure 53.



Figure 53: The Tow Direct Unload Menu

Each encoder on the Operator Interface performs a different function when unloading tow plow direct material. See the table below.

Input	Action	Function
<b>Green On/Standby Knob</b> 	Twist Left Twist Right	None.
	Pushbutton	Start unloading material. Stop unloading material.
<b>Blue Blast Knob</b> 	Twist Left Twist Right Pushbutton	None.
<b>Gray Nav Stick</b> 	Twist Left	Decrease the tow plow direct output percentage.
	Twist Right	Increase the tow plow direct output percentage.
	Up	Increase the tow plow direct output percentage.
	Down	Decrease the tow plow direct output percentage.
	Left	Highlight previous decimal place.
	Right	Highlight next decimal place.
	Pushbutton	Return to the Unload Menu.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

The status of the output is displayed beneath the direct set rate. The “Output:” line displays whether or not the direct pump is running, and the “Tow Direct:” line displays the revolutions per minute of the direct flow meter according to its feedback sensor.

The outputs will only run if the vehicle is stopped and SimSpeed is off. Leaving the Tow Direct Unload menu at any time will also shut off the outputs.



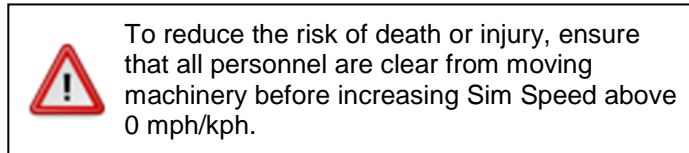
To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

**To unload tow plow direct material:**

- STEP 1: Enter the Material Unload Menu.
- STEP 2: Move the Nav Stick up or down until the Tow Direct Unload menu item is highlighted.
- STEP 3: Press the Nav Stick's pushbutton to enter the Tow Direct Unload menu item.
- STEP 4: Use the Nav Stick to adjust the direct output percentage.
- STEP 5: Press the Green Knob to begin unloading tow plow direct material.
- STEP 6: Press the Green Knob to finish unloading tow plow direct material.
- STEP 7: Press the Nav Stick's pushbutton to return to the Unload Menu when finished.

## Setting Sim Speed

Sim Speed is a spreader feature that causes the spreader to act as though the vehicle is moving. Granular, spinner, prewet, and direct outputs (if enabled) are run normally as if the vehicle is moving at the Set Sim Speed rate. Spreader data will be accumulated normally while Sim Speed is active.



When Sim Speed is enabled in Calibration, the top data item will be set to the Sim Speed data item. It will always display the set rate of Sim Speed. You will not be able to change it to display a different data item. If you had set the top data item to a different display, such as Auger FWD, it can be redisplayed in one of the other 4 data items. When Sim Speed is disabled, the top data item will be reset to Blank.

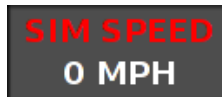


Figure 54: Sim Speed Data Item

When Sim Speed is enabled in Calibration, two soft switches will appear in the UTIL Soft Switch Pane called “Sim Speed ↑” and “Sim Speed ↓”. See page 63. Pressing these soft switches will increase or decrease the Sim Speed by 1 mph / 1 kph. The Sim Speed cannot be set higher than 99 mph or 99 kph. It cannot be set lower than 0 mph or 0 kph.

If the vehicle’s actual ground speed increases beyond 5 mph or 5 kph, the Sim Speed Disabled window will appear. Sim Speed will stop affecting any outputs and be automatically disabled in Calibration. See Figure 55.



Figure 55: Sim Speed Disabled Window



## Distance Measure

The Distance Measure operation allows the operator to measure the distance travelled by the vehicle.

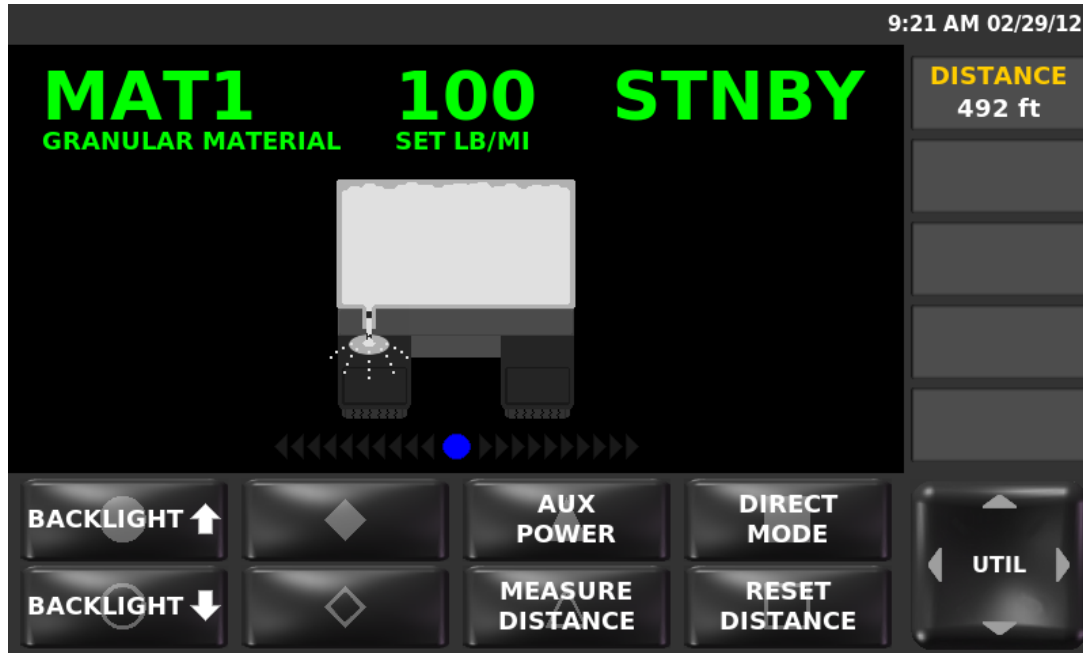


Figure 56: Distance Measure Enabled

When Distance Measure is enabled in Calibration, the top data item will be set to the Distance data item. The Distance data item displays the current measured distance. The operator cannot set a different data item to be displayed in place of the Distance data item. When Distance Measure is enabled in Calibration, the Distance item will replace the data item in the top data item slot except for SimSpeed. SimSpeed overrides Distance Measure when both are enabled in Calibration.

When the SSC6100 is measuring distance, the “Measure Distance” text on the button is green and the “Reset Distance” button is locked. The operator must first turn off the distance measuring operation by pressing the “Measure Distance” button again before pressing “Reset Distance” to clear the distance counter.

The distance counter runs from 0 to 99999 feet or meters depending on the Measurement Units set in Calibration. After the counter reaches 99999 ft or 99999 m it resets back to 0 and keeps counting. The result of the distance counter is displayed in the DISTANCE data item.

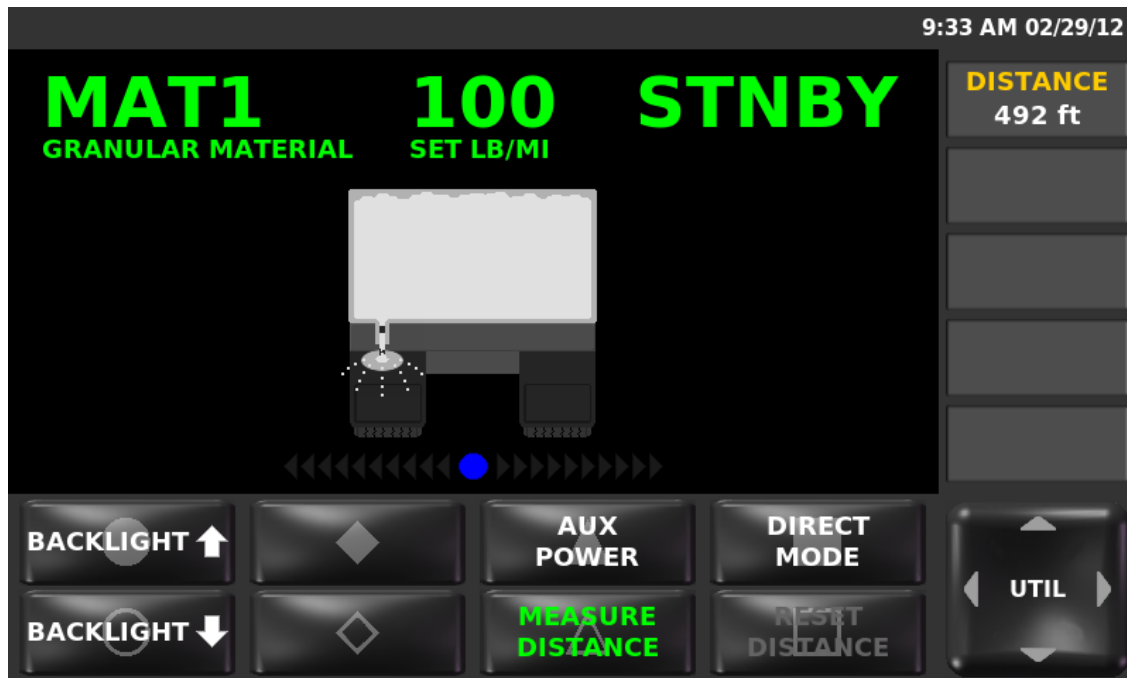


Figure 57: Distance Measure In Progress

Distance Measure feature must be enabled in Calibration. When SimSpeed is active, the SSC6100 will lock the distance measure buttons and replace the DISTANCE data item with the SIM SPEED data item.

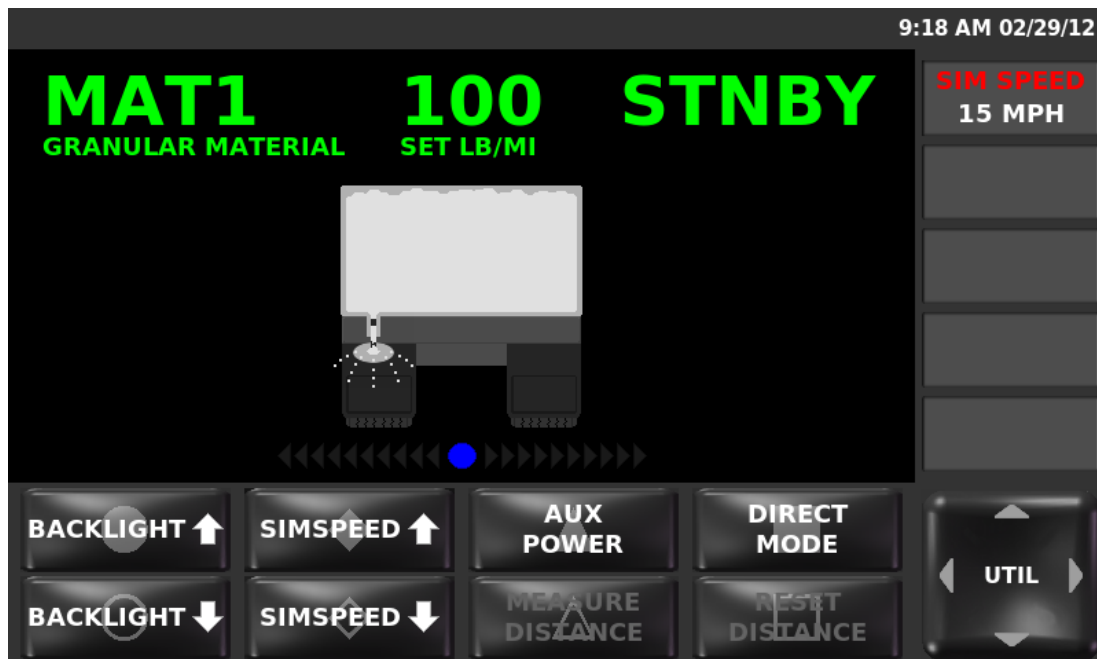


Figure 58: SimSpeed and Distance Measure Enabled

## Joysticks

The SSC6100 supports both MPJC Ultra and Spartan SPJC™ configurations. The joysticks and their pushbuttons must be defined in the Hardware Configuration File provided with the system in order to function.

On an MPJC Ultra system, the 6100 supports up to 4 dual-axis and 1 single-axis proportional joysticks and up to 5 joystick pushbuttons.

On a Spartan SPJC™ system, the 6100 supports up to 3 dual-axis and 1 single-axis proportional joysticks and up to 3 pushbuttons.

Each joystick has a set of LEDs under the joystick decal which display the status of the joystick and its corresponding valve outputs.

LED Status	Description
Off	A joystick is not configured for this position in the Hardware Configuration File.
Amber, Solid	The joystick is interlocked or disabled through a switch. If it is moved off-center, the function will not be run.
Amber, off for $\frac{1}{10}$ of a second	The joystick is interlocked but the output (single-acting float) or its float output (dual-acting float) is floating.
Green, Solid	The joystick is active but the function is not running. If the joystick is moved off-center, the function will be run.
Green, Blinking Steadily	The joystick is active and the function is running. The lights will blink faster as the function is run at a higher rate.
Green, off for $\frac{1}{10}$ of a second	The joystick output (single-acting float) or its float output (dual-acting float) is floating.
Red, Solid Red, Blinking Steadily	An error has occurred. See Joystick Error Codes on page 134 for beep codes.

### Joystick Pushbuttons

Joystick pushbuttons can run outputs or activate a joystick interlock, as defined in the Hardware Configuration File. A pushbutton assigned to an output will run its output as long as the button is held down. A pushbutton assigned to an interlock will activate a joystick's proportional outputs until the joystick's pushbutton has been released and the Interlock Time set in Calibration has passed.

Spartan SPJC systems come equipped with an interlock trigger built into the handle. This trigger must be pressed in order for any of the mini joysticks to operate. The joystick in the handle is mechanically interlocked and will operate without the interlock trigger.

### **Floats**

A float maintains a function so that the hydraulic implement can adjust to the contours of the road. The float option is most often used on plows and scrapers but can be used on other functions if so desired.

If the float is switch-enabled, the function will not float until the corresponding switch is set to the "On" position. Turning the switch to the "Off" position will disable the float if it is active.

#### **To activate a float:**

- STEP 1: Move the joystick to at least 90% of its movement in the direction associated with the float. If it is a delayed float, it must be held above 90% for at least 3 seconds.

#### **To deactivate a float:**

- STEP 1: Move the joystick to at least 10% of its movement in the direction opposite of the one used to activate the float.

## Switches

The SSC6100 supports up to 5 maintained or momentary switches. Like the joysticks, these switches must be defined in the Hardware Configuration File in order to be functional.

Switches can be set up with the following functions:

- Automatic Recall of Joystick Functions
- Enable or Disable a Joystick (similar to a pushbutton interlock)
- Change a Joystick to an Alternate Function
- Run a Low Current Function

### Automatic Recall of Joystick Functions

Some SSC6100s are configured with one or more Automatic Recall switches. Depending on the Hardware Calibration File and Calibration settings, the SSC6100 can recall functions for as long as the button is held (Momentary Automatic Recall) or run the functions for a certain number of seconds (Timed Automatic Recall).

If the Automatic Recall switch is configured as momentary, holding the switch will run a certain number of predefined hydraulic functions until the switch is released.

If the Automatic Recall switch is configured for a set time pressing the switch will run the predefined hydraulic functions for the set amount of time and then stop. Automatic Recall switches setup in this manner will stop after the set time even if you continue to hold the switch.

Activating Emergency Stop while Auto Recall is running will also deactivate either type of Auto Recall.



To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating Auto Recall.

#### To activate Auto Recall:

STEP 1: Press and hold the Auto Recall switch connected to your SSC6100.

#### To deactivate Auto Recall:

STEP 1: Perform one of the following actions:

- Release the Auto Recall switch (momentary).
- Wait for the recall time to expire (set time).
- Activate Emergency Stop.

### Enable or Disable a Joystick

If a system is equipped with a joystick enable/disable switch, the switch will act like a joystick pushbutton interlock. When the switch is in the ON position, the joystick will be able to run functions and its LEDs will be lit green. When the switch is in the OFF position, the joystick will not be able to run functions and its LEDs will be lit amber.

## **Change a Joystick to an Alternate Function**

If a system is equipped with an alternate function switch, it shall change the operation of a joystick between one set of functions and another set of functions. When the switch is in the OFF position, the joystick will run the primary functions. When the switch is in the ON position, the joystick will run the alternate functions.

The primary and alternate functions will be listed on the joystick's decal.

## **Run a Low Current Function**

A switch can also be configured to run a low current function. This function can be run through a 1018887 20 Port Valve Module, 1101182 10 Port Valve Module or a 1018830 Direct Module. The function must not draw more than 3 amps.

When the switch is in the OFF position, the function will be off. When the switch is in the ON position, the function will run at 12 volts.

## Powering Down the SSC6100

Upon removing ignition power from the SSC6100, a window will appear saying “NOTICE: Dash key loss detected. The dash key signal has been deactivated. The system will shutdown in 10 seconds.”



**Figure 59: SSC6100 Shutdown Warning**

A ten second countdown will begin, allowing you to cancel the hibernation/shutdown if you accidentally remove power. All of the outputs on the 1104694 Core Module, 1018887 20 Port Valve Module, 1101182 10 Port Valve Module and 1018830 Direct Module will be shut down.

When the countdown has completed, the system will initiate the shutdown process for each attached CAN Device. Once each CAN Device has been properly shutdown the system will enter a hibernation mode if enabled or shutdown. Pressing the Nav Stick will override the hibernation setting and immediately shutdown the unit.


The hibernation mode allows the system to enter a low power state with the ability to resume quicker than having to perform a full system start. If the voltage drops below the hibernation shutdown voltage level for greater than 1 minute the system will shutdown to reduce battery drain.

## Troubleshooting and Error Conditions

There are three places error conditions can be displayed: in the Header Bar, in an Error Window, or as an In-Line error. In some cases, such as the AVL and ELA Authentication Errors, both an Error Window and a Header Bar warning will appear.


### Header Bar Warnings



As described in The Header Bar on page 19, The Header Bar can display System Status messages and icons when an error occurs. Status messages that are not listed in the troubleshooting section are defined directly in the HW Config file when the system was ordered. To determine which input is related to the corresponding status message consult your system order form.

System Status Message	System Status Icon	Condition	Recommended Action
Backlight Communication <b>BACKLIGHT COMMUNICATION</b>	None.	Communication with the joystick backlighting board has been lost.	Verify the connection between the joystick backlighting board and the joystick input board.
Body Up <b>BODY UP</b>		The dump body of the vehicle is currently hoisted in the up position.	Lower the dump body before moving the vehicle.
Oil Temp <b>OIL TEMP</b>	None.	The temperature of the oil in the system is above safe limits.	Shut down the vehicle.
Oil Level <b>OIL LEVEL</b>	None.	The level of the oil is below safe limits.	Return the vehicle for maintenance.
Low Filter Bypass <b>LOW FILTER BYPASS</b>	None.	The oil filter's bypass valve has been activated.	Return the vehicle for maintenance.
Gate Sensor Error <b>GATE SENSOR ERROR</b>	None.	Both of the gate sensors are active.	Verify the assembly and wiring of the sensors.



System Status Message	System Status Icon	Condition	Recommended Action
High Filter Bypass <b>HIGH FILTER BYPASS</b>	None.	The oil filter's bypass valve has been activated.	Return the vehicle for maintenance.
Overspeed Warning <b>SLOW DOWN</b>	None.	The vehicle is moving faster than the speed limit set in calibration.	Reduce vehicle speed.
IGrip Joystick Stuck Interlock <b>IGRIP JOYSTICK INTERLOCK</b>	None.	The Igrip joystick interlock was active when the 6100 started.	Restart the system without the interlock active.
IGrip Joystick Stuck Interlock <b>IGRIP JOYSTICK OFF CENTER</b>	None.	The Igrip joystick was moved from the center position without activating the interlock.	Return the joystick to the center position and activate the interlock before moving the joystick from center.
Incorrect Gate height <b>INCORRECT GATE HEIGHT</b>	None.	The gate's position does not match the position set in calibration for the selected material.	Adjust the auger gate to the proper position.  Verify the assembly and wiring of the sensors.
Joystick Integrity <b>JOYSTICK INTEGRITY</b>	None.	A joystick is operating outside of its acceptable range.	Replace the joystick.
Joystick Range <b>JOYSTICK RANGE</b>	None.	A joystick is operating outside of its acceptable range.	Replace the joystick.
Joystick Off Center <b>JOYSTICK OFF CENTER</b>	None.	A joystick was held off-center when the 6100 started.	Return the joystick to its center position.

System Status Message	System Status Icon	Condition	Recommended Action
Joystick Pushbutton <b>JOYSTICK PUSHBUTTON</b>	None.	A joystick's pushbutton was pushed when the 6100 started.	Release the joystick pushbutton.
Joystick Normalization <b>JOYSTICK NORMALIZATION</b>	None.	A joystick has invalid normalization values.	Use Calibration to renormalize the affected joystick. See M0124 for more information.
Stuck Momentary Switch <b>XXXX STUCK SWITCH ERROR</b>	None.	The momentary switch represented by the name, XXXX, was active at startup.	Deactivate the switch and allow it to remain inactive until the error clears.
Temperature Compensation Error <b>T-COMP ERROR</b>	None.	Temperature Compensation is active, but the temperature sensor is missing or in an error state.	Verify the temperature sensor is properly wired to the 6100 Core Module.
Two Position Gate Override <b>TWO POSITION GATE OVERRIDE</b>	None.	A Gate Sensor Error or Incorrect Gate Height Error was overridden.	Follow the recommended action for the original error.
AVL Authentication Error		The spreader is unable to authenticate with the AVL device.	Verify that the connectors on the 9-pin RS-232 harness (P/N 1018635) are tightly secured.  Verify that the 9-pin RS-232 harness is not damaged.  Contact your AVL provider for assistance.

System Status Message	System Status Icon	Condition	Recommended Action
ELA Communication Error		The spreader is unable to communicate with the ELA module.	<p>Verify that the ELA Module is tightly secured to the 12-pin harness (P/N 1016023).</p> <p>Verify that the External 12-pin harness is not damaged.</p> <p>Contact your AVL provider for assistance.</p>
PreCise MRM Communication Error		The spreader is unable to communicate with the PreCise MRM device.	<p>Verify that the connectors on the 9-pin RS-232 harness (P/N 1015416) are tightly secured.</p> <p>Verify that the 9-pin RS-232 harness is not damaged.</p> <p>Verify that the PreCise MRM device is powered.</p> <p>Verify that the PreCise MRM device is running the latest firmware. Contact a FORCE America Representative for assistance.</p>

## Error Windows

The SSC6100 can display error windows during its operation to inform you of error conditions in your spreader system. The table below describes the error windows that can occur, possible causes, and their solutions.

Error Text	Possible Causes	Possible Solutions
<p><b>ESTOP Switch Miswired</b> The Emergency Stop switch is miswired. To reduce the risk of death or injury, shut down the spreader control and repair the issue.</p>	<p>The ESTOP return line is connected directly to a power source instead of the ESTOP switch.</p>	<p>Shut down spreader control and vehicle, then ensure that the ESTOP switch is properly wired to the 6100 Core Module.</p> <p><b>Before rewiring or changing the power source, you must turn the vehicle completely off.</b></p>
<p><b>Power to CAN Device Miswired</b> The power wire on <i>CAN Device</i> is not properly connected to the ESTOP Power contactor. To reduce the risk of death or injury, shut down the spreader control and repair the issue.</p>	<p>The power cable leading to the CAN Device is connected directly to a power source instead of the ESTOP power contactor.</p>	<p>Shut down spreader control and vehicle, then ensure that the power cable leading to the device is properly wired to the ESTOP power contactor.</p> <p><b>Before rewiring or changing the power source, you must turn the vehicle completely off.</b></p>
<p><b>CAN Device Power Fault</b> <i>CAN Device</i> is not detecting power. Inspect wiring for open circuits. To reduce the risk of death or injury, shut down the spreader control and repair the issue.</p>	<p>The power cable leading to the CAN Device from the ESTOP power contactor has a bad connection.</p>	<p>Shut down spreader control and vehicle, then ensure that the power cable leading to the device has a good connection to the ESTOP power contactor.</p> <p><b>Before rewiring or changing the power source, you must turn the vehicle completely off.</b></p>
<p><b>Device Not Tested for ESTOP</b> The ESTOP wiring for a CAN Device needs to be tested. Power to devices will be briefly interrupted during the test.</p>	<p>A new CAN Device has been connected.</p> <p>A CAN Device has reconnected after a connection failure.</p> <p>A CAN Device has been assigned in the Calibration Menu.</p> <p>A new Implement has been selected in the Implements menu that uses a different CAN Device.</p>	<p>Press the Nav Stick to begin an ESTOP wiring test, or restart the spreader control; an ESTOP wiring test shall be performed on startup.</p>

Error Text	Possible Causes	Possible Solutions
<b>CAN Bus Fault</b> Unable to communicate with any CAN Device. Inspect CAN harnessing and connections for a short circuit.	Pinched or shorted CAN cable.	Verify that all CAN cables are not damaged.
<b>Operator Interface Communication Error</b> The Operator Interface has stopped communicating.	Disconnected CAN cable.  Broken or pinched CAN cable.	Verify that all CAN connectors are tightly secured.  Verify that all CAN cables are not damaged.
<b>20 Port Valve N Communication Error</b> 20 Port Valve Module <i>N</i> has stopped communicating.	Disconnected CAN cable.  Broken or pinched CAN cable.  The Valve Module has not been configured.  The Implement selected in the Implements menu is not the one connected to the system.	Verify that all CAN connectors are tightly secured.  Verify that all CAN cables are not damaged.  Use the SSC6100 Calibration Manual to configure 20 Port Valve Module <i>N</i> .  Select the Implement that is connected to the system in the Implements menu.
<b>10 Port Valve N Communication Error</b> 10 Port Valve Module <i>N</i> has stopped communicating.	Disconnected CAN cable.  Broken or pinched CAN cable.  The Valve Module has not been configured.  The Implement selected in the implements menu is not the one connected to the system.	Verify that all CAN connectors are tightly secured.  Verify that all CAN cables are not damaged.  Use the SSC6100 Calibration Manual to configure 10 Port Valve Module <i>N</i> .  Select the Implement that is connected to the system in the Implements menu.

Error Text	Possible Causes	Possible Solutions
<b>MPJC Module <i>N</i> Communication Error</b> MPJC Module <i>N</i> has stopped communicating.	Disconnected CAN cable.  Broken or pinched CAN cable.  The Valve Module has not been configured.	Verify that all CAN connectors are tightly secured.  Verify that all CAN cables are not damaged.  Use the SSC6100 Calibration Manual to configure MPJC Module <i>N</i> .
<b>SPJC Module <i>N</i> Communication Error</b> SPJC Module <i>N</i> has stopped communicating.	Disconnected CAN cable.  Broken or pinched CAN cable.  The Module has not been configured.	Verify that all CAN connectors are tightly secured.  Verify that all CAN cables are not damaged.  Use the SSC6100 Calibration Manual to configure SPJC Module <i>N</i> .
<b>CommandAll Module <i>N</i> Communication Error</b> CommandAll Module <i>N</i> has stopped communicating.	Disconnected CAN cable.  Broken or pinched CAN cable.  The Module has not been configured.	Verify that all CAN connectors are tightly secured.  Verify that all CAN cables are not damaged.  Use the SSC6100 Calibration Manual to configure CommandAll Module <i>N</i> .
<b>Direct Module <i>N</i> Communication Error</b> Direct Module <i>N</i> has stopped communicating.	Disconnected CAN cable.  Broken or pinched CAN cable.  The Direct Module has not been configured.  The implement selected in the Implements menu is not the one connected to the system.	Verify that all CAN connectors are tightly secured.  Verify that all CAN cables are not damaged.  Use the SSC6100 Calibration Manual to configure Direct Module <i>N</i> .  Select the implement that is connected to the system in the Implements menu.
<b>Display Communication Error</b> The Display has stopped communicating.	Disconnected CAN cable.  Broken or pinched CAN cable.	Verify that all CAN connectors are tightly secured.  Verify that all CAN cables are not damaged.

Error Text	Possible Causes	Possible Solutions
<b>Event Queue Full Error</b> The event queue is full. The oldest data will be deleted to make room for new data. Connect a PreCise MRM device.	The internal spreader event data storage was filled with data and the system is not communicating with the PreCise MRM device.	Correct the communication error with the PreCise MRM device. The stored data will then be transferred.
<b>Fatal Error</b> A Fatal System Error has occurred that will prevent the system from operating. Please select a recovery option.	An operational or calibration setting has been set to an invalid value.  The hardware configuration file contains information that the spreader control cannot interpret.	Select the restart option in the recovery menu.  Install a new hardware config file or reinstall the current hardware config file by selecting the Import HW Config File in the recovery menu.
<b>Igrip Joystick Error</b> Igrip # is reporting a malfunction. Joystick will not work. Release the joystick or replace the joystick.	The joystick has failed.	Replace the joystick with a properly functioning joystick.
<b>Igrip Joystick Interlock Error</b> Igrip # is reporting a stuck interlock. Release the joystick or replace the joystick.	The joystick has failed and is reporting an incorrect position.  The joystick was being held during.	Replace the joystick with a properly functioning joystick.  Return the joystick to the center position and allow it to remain there until the error clears.
<b>Igrip Off Center</b> Igrip # is reporting an off-center position at start. Release the joystick or replace the joystick.	The joystick has failed and is reporting an incorrect position.  The joystick was held off center at startup.	Replace the joystick with a properly functioning joystick.  Return the joystick to the center position and allow it to remain there until the error clears.
<b>Incompatible Firmware</b> The <i>CAN Device</i> is out of date. Contact a FORCE America Representative to upgrade the firmware to ( <i>Version</i> ) or higher.	The current system configuration requires software features that are not supported in the current CAN Device and requires an updated firmware version.	Change the system configuration so that the updated software features are not necessary.  Contact your Force America Representative to have the particular device upgraded to a firmware version that supports the required software feature(s).

Error Text	Possible Causes	Possible Solutions
<b>Incorrect Two Position Gate Height</b> The gate height for the current material does not match the selected setting. Please adjust the gate or select override.	The gate is in the wrong position for the selected material.	Adjust the auger gate to the proper position.
	The two position gate sensors are not wired properly.	Verify the assembly and wiring of the sensors.
<b>AVL Authentication Error</b> The system is unable to communicate with the AVL device. Event logging will be disabled until the system has been restarted.	Disconnected RS-232 harness.	Verify that the connectors on the 9-pin RS-232 harness are tightly secured.
	Damaged RS-232 harness.	Verify that the 9-pin RS-232 harness is not damaged.
	Improperly configured AVL device.	Contact your AVL provider for assistance.
<b>ELA Module Communication Error</b> The system is unable to communicate with the ELA Module. Event logging will be disabled until the system has been restarted.	Disconnected ELA Module.	Verify that the ELA Module is tightly secured to the 12-pin harness (P/N 1016023).
	Damaged 12-pin harness.	Verify that the External 12-pin harness is not damaged.
	Improperly configured AVL device.	Contact your AVL provider for assistance.
<b>PreCise MRM Authentication Error</b> The system is unable to authenticate with the PreCise MRM device. Event logging data will be stored onboard the 6100.	Disconnected RS-232 harness.	Verify that the connectors on the 9-pin RS-232 harness are tightly secured.
	Damaged RS-232 harness.	Verify that the 9-pin RS-232 harness is not damaged.
	The PreCise MRM device is not powered.	Verify that the PreCise MRM device is powered.
	The PreCise MRM device is running firmware that does not support 6100 Event Logging.	Verify that the PreCise MRM device is running the latest firmware. Contact a FORCE America Representative for assistance.



Error Text	Possible Causes	Possible Solutions
<b>Stuck Momentary Switch</b> The momentary switch for <i>Switch Name</i> is stuck on.	<p>The Switch Name switch was active on startup.</p> <p>A maintained switch is being used in a position that the hardware config file expects a momentary switch.</p>	<p>Verify that the switch is not pressed.</p> <p>Replace the defective switch.</p> <p>Change the switch type to match the hardware config file.</p> <p>Update the hardware config file to match the system hardware.</p>
<b>Spinner RPM Feedback</b> Spinner RPM Feedback has been lost. Data Logging totals may not be accurate.	<p>The directional spinner RPM feedback sensor is disconnected.</p>	<p>Reconnect the directional spinner feedback sensor.</p>
	<p>The directional spinner is jammed and is not turning.</p>	<p>Clear the directional spinner jam.</p>
	<p>The directional spinner feedback sensor or feedback harness is broken.</p>	<p>Repair the sensor or feedback harness. Temporary operation can be performed by allowing the spreader control to default to manual spinner control.</p>
<b>Two Position Gate Sensor Error</b> The system is detecting both sensors as active. Please verify the integrity of the sensors.	<p>The two position gate sensors are not wired properly.</p>	<p>Verify the assembly and wiring of the sensors.</p>
<b>Two Position Gate Sensor Error</b> The system is detecting both sensors as active. Please fix the sensor or select override.	<p>The two position gate sensors are not wired properly.</p>	<p>Verify the assembly and wiring of the sensors.</p>
<b>Incorrect Two Position Gate Height</b> The gate height for the current material does not match the selected setting. Please adjust the gate. Press continue to override.	<p>The gate height has been set incorrectly in calibration.</p>	<p>Verify that the calibration setting is set to the desired height for the current granular material.</p>
	<p>The gate height has not been correctly set on the truck.</p>	<p>Raise or lower the gate.</p>
<b>Direct Low Liquid</b> The direct liquid tank is low. In order to prevent damage to the direct pump the system has been put into standby.	<p>The direct tank is low on liquid and needs to be refilled.</p>	<p>Refill the direct liquid tank.</p>

Error Text	Possible Causes	Possible Solutions
<b>Invalid Driver ID</b> The Driver ID Key just used is invalid.	The key used to login was not of the correct type.  The Driver ID key used to login has become corrupted.	Attempt to log into the system using a black Driver Key.  Rewrite the information on the Driver ID key. See "Driver Key Creation" in the SSC6100 Calibration Manual (M0124) for more information.

## In-Line Errors

In-Line Errors replace information displayed in the Granular, Prewet, and Direct rows or columns on the Operation Screen. In-Line Errors can occur in any application mode.

### Granular Range Error

A Granular Range Error occurs when the spreader control cannot meet the set application rate for at least 5 continuous seconds.

Granular material will continue to be spread while a Granular Range Error occurs.

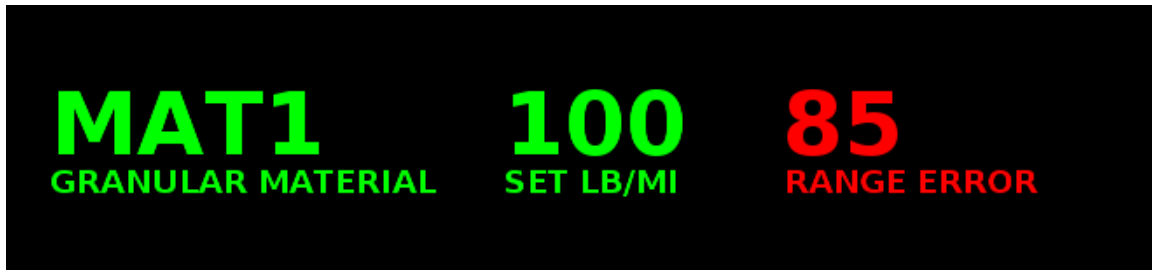


Figure 60: Granular Range Error

Possible Cause	Solution
The truck is traveling too fast for the application rate.	Decrease the vehicle speed.
The granular application rate is too high for the truck speed.	Decrease the granular application rate.
The hydraulic system capacity is inadequate.	Verify the performance of the hydraulic system.

### Granular Feedback Error

A Granular Feedback Error occurs when the spreader control cannot communicate with the auger feedback sensor. The actual output rate of the granular material is unknown.

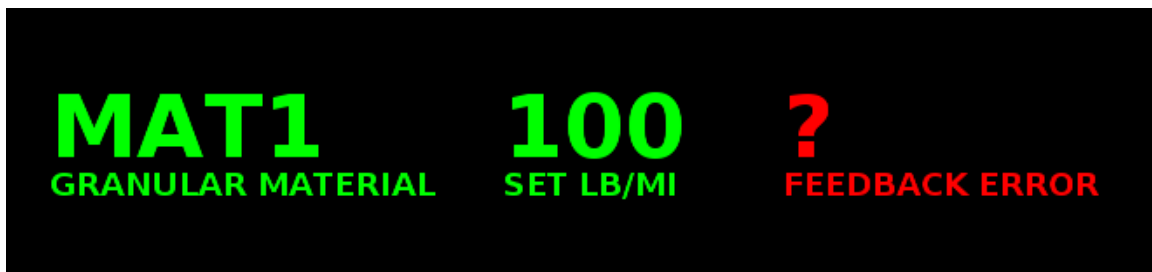


Figure 61: Granular Feedback Error

Possible Cause	Solution
The auger/conveyor feedback sensor is disconnected.	Reconnect the auger/conveyor feedback sensor.
The auger/conveyor is jammed and is not turning.	Clear the auger/conveyor jam.
The auger/conveyor feedback sensor or feedback harness is broken.	Repair the sensor or feedback harness. Temporary operation can be performed by allowing the spreader control to default to Open Loop mode.

#### Granular Open Loop Default Error

A Granular Open Loop Default Error occurs when the spreader control has had a continuous Granular Feedback Error for more than 10 seconds. The granular output is then defaulted into Open Loop mode so it can continue spreading material without auger feedback.



Figure 62: Granular Open Loop Default Error

The spreader will continue spreading in Open Loop mode until the spreader power switch has been turned off and on again or the system has been rebooted.

#### Granular Low Material Error

A Granular Low Material Error occurs when the system is operating the primary granular output and the granular low material sensor indicates a low material condition. When in the error condition the primary granular output will continue to operate. The logging of the granular totals may stop when the Granular Low Material Error is active depending on the setting in calibration.



Figure 63: Granular Low Material Error

#### Prewet Range Error

A Prewet Range Error occurs when the spreader control cannot meet the set application rate for at least 5 continuous seconds.

Prewet liquid will continue to be spread while a Prewet Range Error occurs.

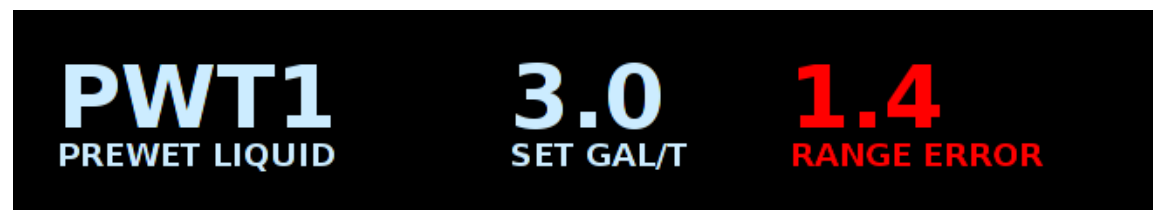


Figure 64: Prewet Range Error

Possible Cause	Solution
The truck is traveling too fast for the prewet application rate.	Decrease the vehicle speed.
The prewet application rate is too high for the truck speed.	Decrease the prewet application rate.
The granular application rate is too high for the prewet application rate.	Decrease the granular application rate.
The prewet flow meter is contaminated.	Clean the prewet flow meter.
The prewetting system capacity is inadequate.	Verify the performance of the prewet system.

### Prewet Feedback Error

A Prewet Feedback Error occurs when the spreader control cannot communicate with the prewet feedback sensor. The actual output rate of the prewet material is unknown. The prewet output will turn off if the Prewet Feedback Error is active for more than 10 seconds.



Figure 65: Prewet Feedback Error

Possible Cause	Solution
The prewet flow meter is disconnected.	Reconnect the prewet flow meter.
The prewet tank is empty or too low.	Turn off the prewet application until the tank is filled.
The prewet flow meter is contaminated.	Clean the prewet flow meter.
The prewet flow meter or feedback harness is broken.	Repair the prewet flow meter or feedback harness.

### Prewet Low Liquid Warning

A Prewet Low Liquid Warning occurs when the system detects a low liquid situation. The prewet application depending on the calibration setting will continue running or turn off when the prewet low liquid warning is active. When the prewet application turns off it cannot be restarted until the prewet tank is refilled and the low liquid sensor deactivates.



Figure 66: Prewet Low Liquid Warning

### Direct Range Error

A Direct Range Error occurs when the spreader control cannot meet the set application rate for at least 5 continuous seconds.

Direct liquid will continue to be spread while a Direct Range Error occurs.



Figure 67: Direct Range Error

Possible Cause	Solution
The truck is traveling too fast for the direct application rate.	Decrease the vehicle speed.
The direct application rate is too high for the truck speed.	Decrease the direct application rate.
The direct flow meter is contaminated.	Clean the direct flow meter.
The direct system capacity is inadequate.	Verify the performance of the direct system.

### Direct Feedback Error

A Direct Feedback Error occurs when the spreader control cannot communicate with the direct feedback sensor. The actual output rate of the direct material is unknown. The direct output will turn off if the Direct Feedback Error is active for more than 10 seconds.



Figure 68: Direct Feedback Error

Possible Cause	Solution
The direct flow meter is disconnected.	Reconnect the direct flow meter.
The direct tank is empty or too low.	Turn off the direct application until the tank is filled.
The direct flow meter is contaminated.	Clean the direct flow meter.
The direct flow meter or feedback harness is broken.	Repair the direct flow meter or feedback harness.

### Direct Low Liquid Warning

A Direct Low Liquid Warning occurs when the system detects a low liquid situation. The direct application depending on the calibration setting will continue running or turn off when the direct low liquid warning is active. When the direct application turns off it cannot be restarted until the direct tank is refilled and the low liquid sensor deactivates.



Figure 69: Direct Low Liquid Warning

### Directional Spinner (Manual) Feedback Error

A Directional Spinner (Manual) Feedback Error occurs when the feedback from the actuator is outside the normal operating range.

When this occurs, you may still be able to adjust the spinner, but the spinner position bar will continue to blink red.








Figure 70: Directional Spinner (Manual) Feedback Error

Possible Cause	Solution
The directional spinner position feedback sensor is disconnected.	Reconnect the directional spinner's feedback sensor.
The directional spinner position feedback sensor is not wired to ground properly.	Verify the integrity of the directional spinner feedback sensor's ground wire.
The directional spinner position feedback sensor or feedback harness is broken.	Repair the sensor or feedback harness. Temporary operation can be performed by allowing the spreader control to default to Manual mode.

### In-Line Data Item Errors

Some Data Items provide in-line errors. These are listed below.

Error Text	Possible Causes	Possible Solutions
 	<p>Disconnected temperature sensor cable.</p> <p>Damaged temperature sensor cable.</p> <p>Damaged temperature sensor.</p>	<p>Verify that all connectors on the temperature sensor cable are tightly secured.</p> <p>Verify that the temperature sensor cable is not damaged.</p> <p>Repair or replace the temperature sensor.</p>
	<p>The wrong type of sensor is connected.</p> <p>Disconnected temperature sensor cable.</p> <p>Damaged temperature sensor cable.</p> <p>Damaged temperature sensor.</p>	<p>Ensure the proper sensor type is selected in Calibration.</p> <p>Verify that all connectors on the temperature sensor cable are tightly secured.</p> <p>Verify that the temperature sensor cable is not damaged.</p> <p>Repair or replace the temperature sensor.</p>
	<p>The wrong type of sensor is connected.</p> <p>Disconnected temperature sensor cable.</p> <p>Damaged temperature sensor cable.</p> <p>Damaged temperature sensor.</p>	<p>Ensure the proper sensor type is selected in Calibration.</p> <p>Verify that all connectors on the temperature sensor cable are tightly secured.</p> <p>Verify that the temperature sensor cable is not damaged.</p> <p>Repair or replace the temperature sensor.</p>
	<p>Disconnected pressure sensor cable.</p> <p>Damaged pressure sensor cable.</p> <p>Damaged pressure sensor.</p>	<p>Verify that all connectors on the pressure sensor cable are tightly secured.</p> <p>Verify that the pressure sensor cable is not damaged.</p> <p>Repair or replace the pressure sensor.</p>



## The Emergency Stop Warning Screen

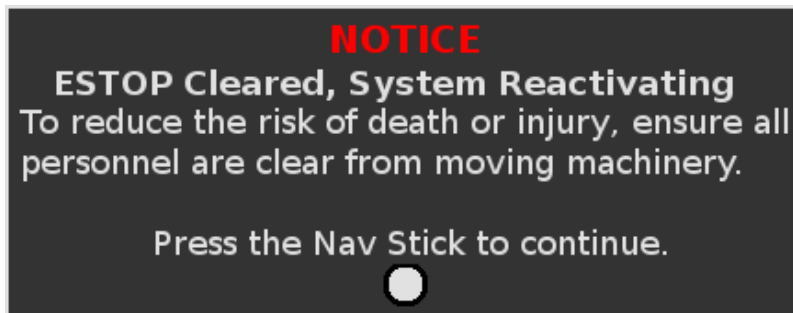


**Figure 71: ESTOP Warning Screen**

The ESTOP Warning Screen will appear when the Emergency Stop switch has been pressed. It shows the warning in the center and the Header Bar at the top of the screen.

When the Emergency Stop is activated and the ESTOP Warning Screen appears, all outputs on the Core Module, 20 Port Valve Module, 10 Port Valve Module, and Direct Module will be shut down. The system status messages and icons will still appear in the Header Bar when their conditions occur.

The ESTOP Warning Screen will disappear when the Emergency Stop switch has been reset. You will be returned to either the Power Off Screen or the Operation Screen, depending on the state of the power switch. At this time, any errors that occurred while ESTOP was active will appear, followed by the “ESTOP Cleared, System Reactivating” window:



**Figure 72: ESTOP Cleared, System Reactivating Window**

## Joystick Error Codes

The SSC6100 system can broadcast the following beep codes when a joystick related error occurs. A “long” beep is a tone that lasts for 2 seconds, followed by 2 seconds of silence. A short beep is a tone that lasts for ½ second, followed by ½ second of silence.

Number of Beeps	Possible Cause	Solution
Solid	CAN Communication between the 6100 and the transmitter board has been lost.	Verify the integrity of the CAN cable connecting the 6100 to the joystick assembly.
1 Long	The Emergency STOP (ESTOP) switch has been activated.	See The Emergency Stop Warning Screen on page 133.
5 Short	A short or an open circuit has been detected on the joystick output that is blinking.  A short or an open circuit has been detected on the pushbutton output that is blinking.	Verify the integrity of the valve module.  Verify the integrity of the valve module.
7 Short	The joystick that is blinking is operating outside of its acceptable range.	Contact a FORCE America Representative for a replacement joystick.
9 Short	The joystick was off-center at startup.  The joystick's pushbutton was pressed on startup.  The joystick's normalization values are incorrect.	Verify that the joystick is not off-center.  Verify that the joystick's pushbutton is not pressed.  Renormalize the joystick. See “Joystick Normalization” in the SSC6100 Calibration Manual (M0124) for more information.
15 Short	Communication with the joystick backlighting board has been lost.	Verify the connection between the joystick backlighting board and the joystick input board.

## Licensing and Source Code Availability

The SSC6100 Spreader Control contains software licensed under the GNU Public License (GPL) version 2. A copy of the GPL Version 2 has been provided for you in Appendix A – GNU General Public License, Version 2.

For instructions on how to obtain a copy of any source code made publicly available via the GPL, you may send your request in writing to the address below:

FORCE America, Inc.  
OSS Management  
1601 Airport Road  
Waukesha, WI 53188, USA

The SSC6100 Spreader Control is based in part on the work of the FLTK project (<http://www.fltk.org>).

## FORCE America Contact Information

Should you encounter problems with your SSC6100 system that are not documented in this Operation Manual or the SSC6100 Calibration Manual, please contact your local FORCE America Sales Representative for assistance.

For company and product information, please contact FORCE America at:

**Phone:** 1-888-99FORCE (1-888-993-6723)  
**Website:** <http://www.forceamerica.com>  
**E-mail:** [info@forceamerica.com](mailto:info@forceamerica.com)

## Appendix A – GNU General Public License, Version 2

The following license describes your rights to the software licensed under the GNU General Public License, Version 2 included with your SSC6100 Spreader Control.

See Licensing and Source Code Availability on page 135 for information on obtaining GPL source code.

### GNU GENERAL PUBLIC LICENSE TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

- a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.
- b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.
- c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program,

and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

- a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
- c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and

all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.

7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and

of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES, INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

END OF TERMS AND CONDITIONS









Document No: M0123-G  
Released: 06/08/2017  
Copyright © 2017 FORCE America Inc.