

SSC6100 CAN ULTRA Spreader Control Operation Manual



Firmware Version
0.92.10004

FORCE[®]
America INC.

Welcome

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

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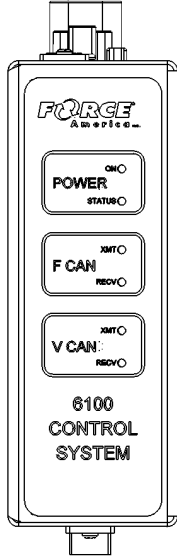
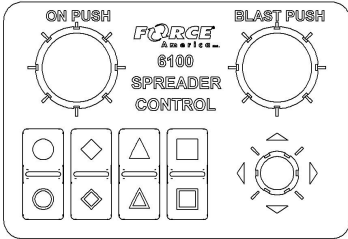
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Hardware

Every SSC6100 comes with at least 4 components:

<p>Core Module (PN: 1018804)</p>	
<p>Operator Interface (PN: 1018744)</p>	

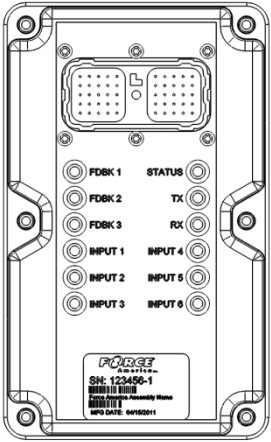
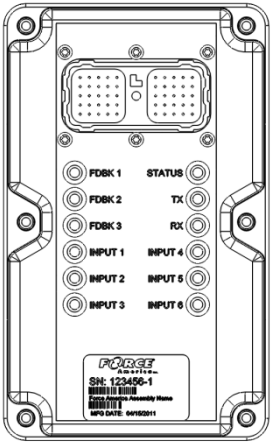
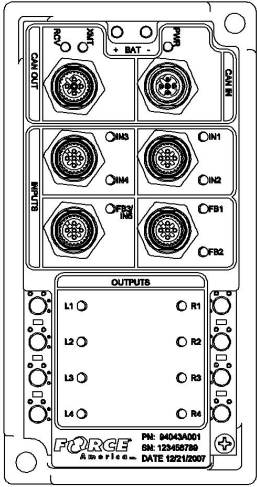
8 Port Valve Module
(PN: 1018745)

or

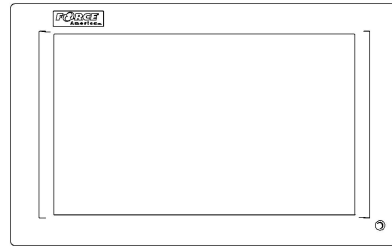
20 Port Valve Module
(PN: 1018887)

or

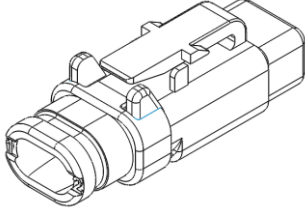
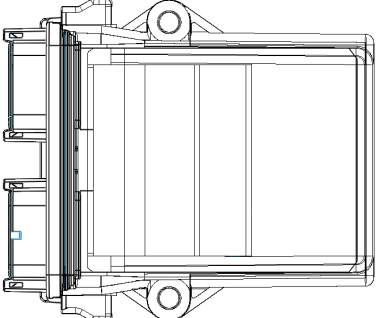
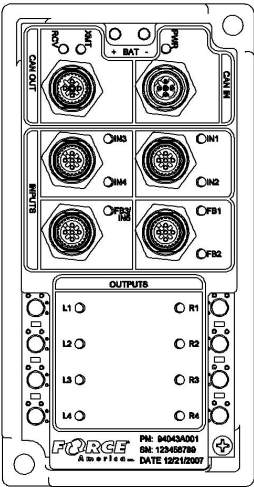
10 Port Valve Module
(PN: 1101182)



7-Inch LCD Display
(PN: 1018827)



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 rectangular module with a complex mounting bracket featuring multiple adjustment points and a central circular feature.
<p>ISOBUS Valve Module (PN: 1018914 or 1018915)</p>	 A top-down view of a rectangular module with various ports and connectors. It includes labels for 'IN1', 'IN2', 'IN3', 'IN4', 'OUT1', 'OUT2', 'OUT3', 'OUT4', 'L1', 'L2', 'L3', 'L4', 'R1', 'R2', 'R3', 'R4'. It also has a 'BAT' terminal and a 'GND' terminal. The bottom of the module features the 'FORCE' logo and part numbers: 'PN: 04043A001', 'SN: 123456789', and 'DATE 12/21/2007'.



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

Core Module (PN: 1018804)

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:

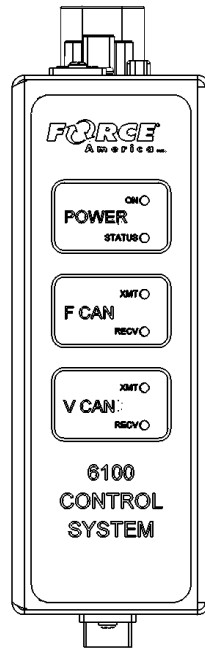


Figure 1: Top of the Core Module

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.
	RCV	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, 8 Port Valve Module, 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: 1018744)

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

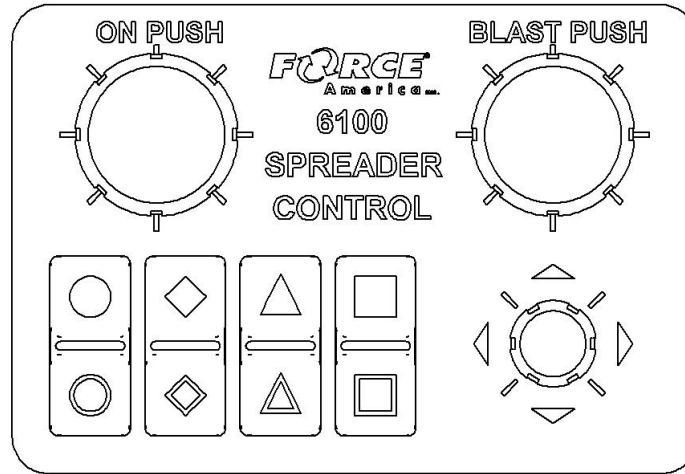


Figure 2: Operator Interface

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 23.

8 Port Valve Module (PN: 1018745)

The 8 Port Valve Module acts as the primary driver of outputs for an SSC6100 system. It contains M12 connectors for feedback inputs to the Core Module, as well as LEDs to inform you of the Valve Module's operational status.

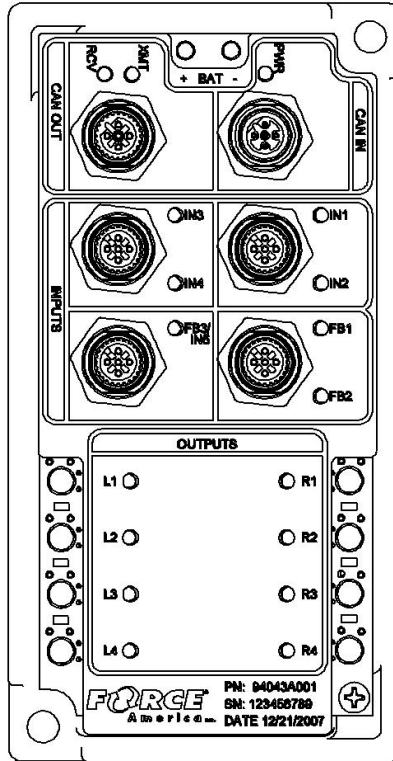


Figure 3: 8 Port Valve Module

Label	LED	Function
CAN IN	PWR	This LED displays the presence of CAN power to the valve module. This LED is lit when the valve module is powered, unlit when it is not.
CAN OUT	XMT	This LED blinks when the Valve Module transmits data on the CAN bus.
	RCV	This LED blinks when the Valve Module receives data from the CAN bus.

Label	LED	Function
INPUTS	IN 1	The IN 1 LED will light when the valve module detects a signal from a connected sensor. In many systems, this is connected to a Low Filter Bypass sensor.
	IN 2	The IN 2 LED will light when the valve module detects a signal from a connected sensor. In many systems, this is connected to a High Filter Bypass sensor.
	IN 3	The IN 3 LED will light when the valve module detects a signal from a connected sensor. In many systems, this is connected to an Oil Level sensor.
	IN 4	The IN 4 LED will light when the valve module detects a signal from a connected sensor. In many systems, this is connected to an Oil Temperature sensor.
	FB 1	The FB 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.
	FB 2	The FB 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.
	FB 3 / IN 5	The FB 3 / IN 5 LED will light when the valve module detects a signal from a connected sensor. In many systems, this is connected to a Body Up sensor.
OUTPUTS	All Outputs	<p>The LED associated with each output (L1, R1, L2, R2, etc) will light when the Valve Module is operating the output at any percentage.</p> <p>The LED associated with each output will flash when the Valve Module detects an error condition on the output.</p>

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.

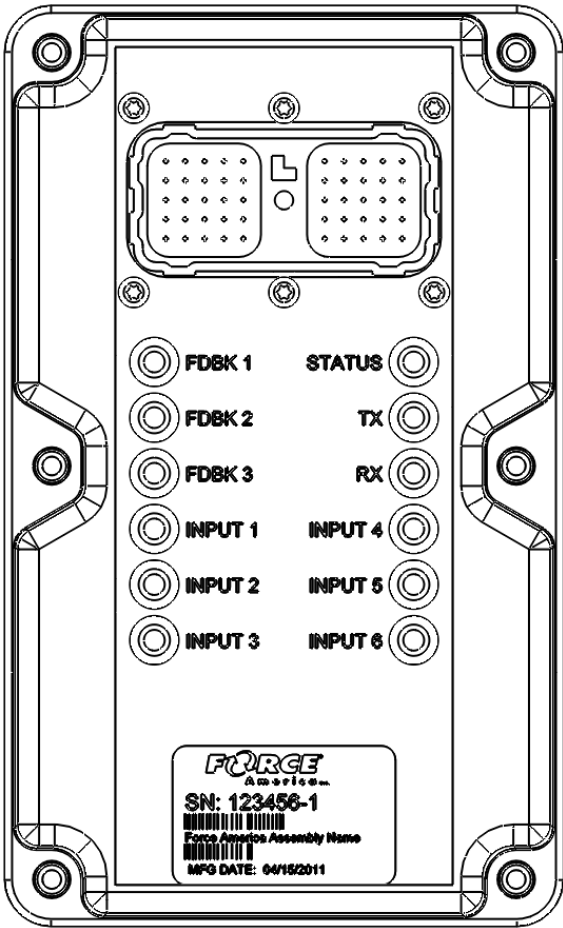


Figure 4: 20 Port Valve Module

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.

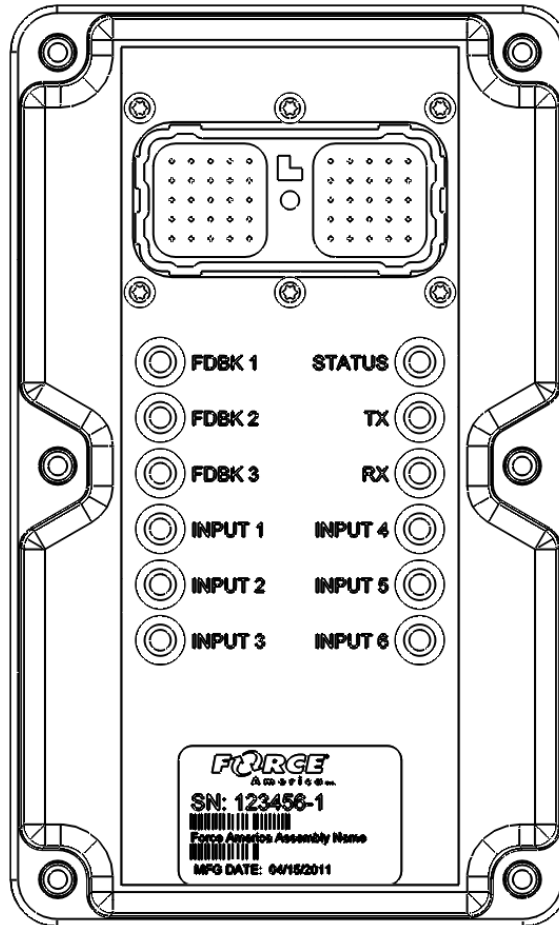


Figure 5: 10 Port Valve Module

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: 1018827)

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

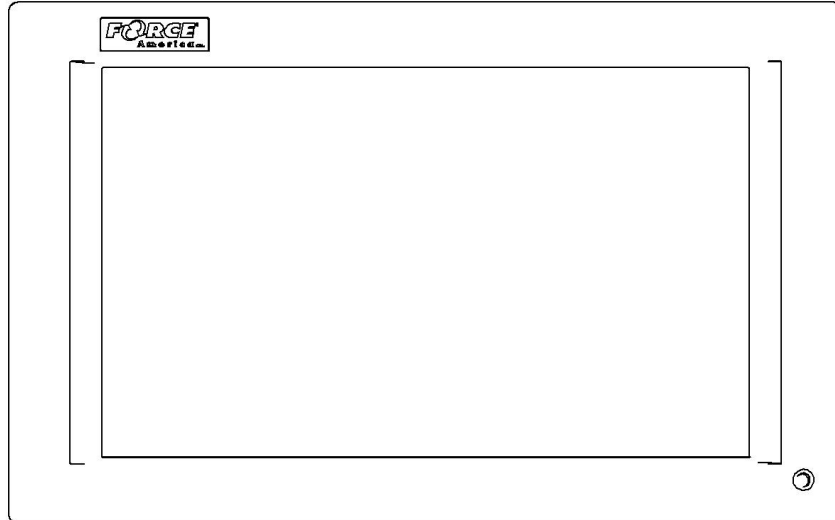


Figure 6: LCD Display

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
LED: Solid Green Buzzer: Silent	--	Normal Operation
LED: Blinking Red Buzzer: Beeps Once	Normal Operation	CAN Communication Error
LED: Off Buzzer: 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.

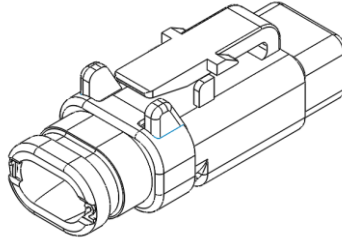


Figure 7: 6100 Event Logging Authentication Module

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 115 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.

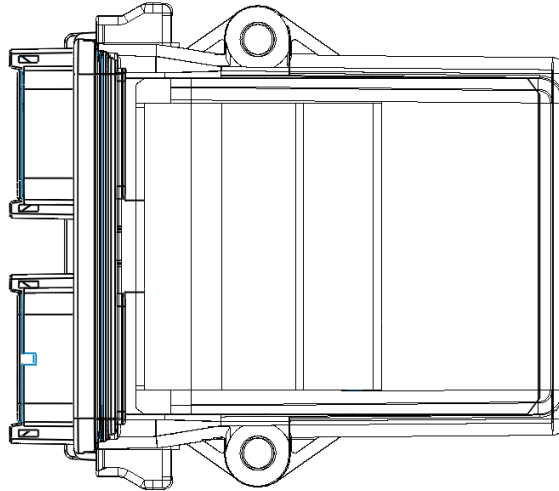


Figure 8: Direct Liquid Application Module

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

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

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

ISOBUS Valve Module (PN: 1018914 or 1018915)

The ISOBUS Valve Module acts as a secondary driver of outputs for an SSC6100 system. It is often used in conjunction with a Directional Spinner slide-in system. It contains M12 connectors for feedback inputs to the Core Module, as well as LEDs to inform you of the Valve Module's operational status.

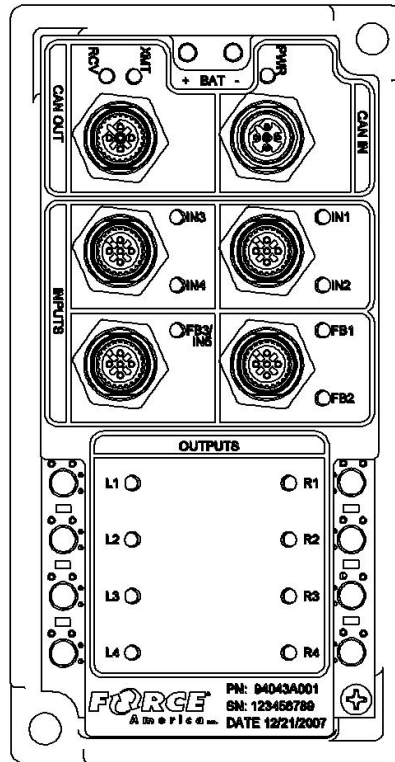


Figure 9: ISOBUS Valve Module

Label	LED	Function
CAN IN	PWR	This LED displays the presence of CAN power to the valve module. This LED is lit when the valve module is powered, unlit when it is not.
CAN OUT	XMT	This LED blinks when the Valve Module transmits data on the CAN bus.
	RCV	This LED blinks when the Valve Module receives data from the CAN bus.

Label	LED	Function
INPUTS	IN 1	The IN 1 LED will light when the valve module detects a signal from a connected sensor.
	IN 2	The IN 2 LED will light when the valve module detects a signal from a connected sensor.
	IN 3	The IN 3 LED will light when the valve module detects a signal from a connected sensor.
	IN 4	The IN 4 LED will light when the valve module detects a signal from a connected sensor.
	FB 1	The FB 1 LED will flash when the Valve Module receives pulses from a connected feedback sensor.
	FB 2	The FB 2 LED will flash when the Valve Module receives pulses from a connected feedback sensor.
	FB 3 / IN 5	The FB 3 / IN 5 LED will light when the valve module detects a signal from a connected sensor.
OUTPUTS	All Outputs	<p>The LED associated with each output (L1, R1, L2, R2, etc) will light when the Valve Module is operating the output at any percentage.</p> <p>The LED associated with each output will flash when the Valve Module detects an error condition on the output.</p>

Powering up the SSC6100

Upon applying either remote or dashkey power to the SSC6100, the 94119A001 LCD Display will beep once and its status LED will blink red. On the 94096A001 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 red-on-white progress bar at the bottom. The progress bar will scroll from left to right as the system starts up. See Figure 10.



Figure 10: SSC6100 Boot Screen

After booting, the SSC6100 shall test the ESTOP wiring for faults. You will see the Testing ESTOP... screen, shown in Figure 11.

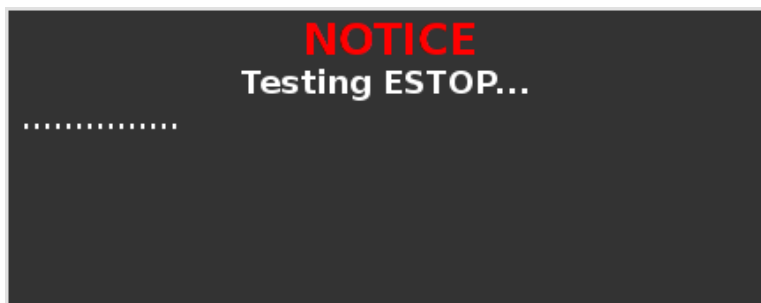


Figure 11: Testing ESTOP... Window

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 115.

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 94119A001 LCD Display should be lit solid green.

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

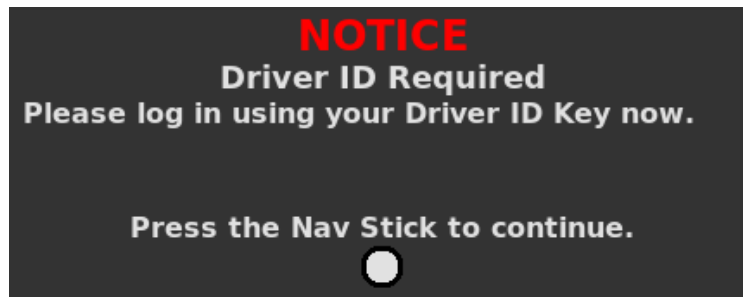


Figure 12: Driver ID Required Notice

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.

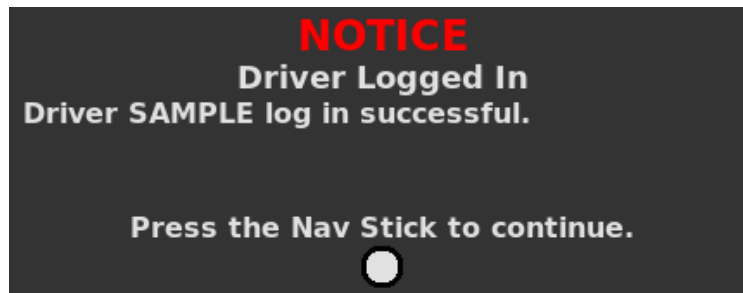


Figure 13: Driver Logged In Notice

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 115 for more information.

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

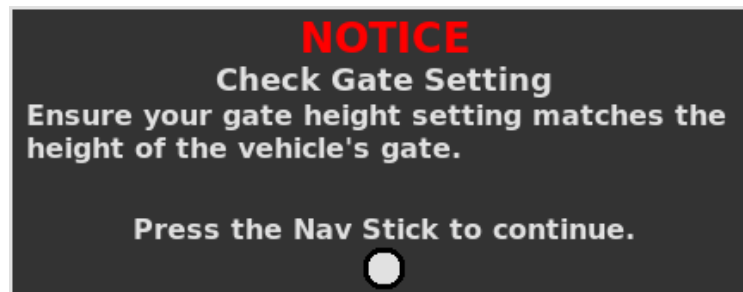


Figure 14: Check Gate Setting Warning

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 15: Authenticating with AVL Device Window



Figure 16: 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 115 for more information.

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



Figure 17: 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 18: 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 19: SSC6100 Operation Screen

The Header Bar

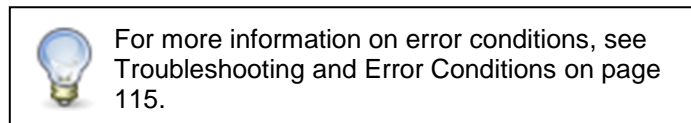
The Header Bar always runs across the top of the screen. It contains a series of system status messages, system status icons, and the current date and time of the system.



Figure 20: 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 20 above, a Body Up condition has occurred, showing the Body Up system status message in the header bar.













System Status Icons will be displayed to the right of the system status messages. In Figure 20 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 in Calibration.
	Displays the amount of current being applied to the auger.	Granular must be enabled in Calibration.
	Displays the amount of current being applied to the auger in auger reverse mode.	Auger Reverse must be enabled in Calibration.
	Displays Spinner 1's revolutions per minute.	Granular must be enabled in Calibration.
	Displays the amount of current being applied to the first spinner.	Granular must be enabled in Calibration.
	Displays the amount of current being applied to the second spinner.	Auger Reverse must be enabled in Calibration.
	Displays the amount of current being applied to the Cross Auger in direction 1.	Cross Auger must be enabled in Calibration.
	Displays the amount of current being applied to the Cross Auger in direction 2.	Cross Auger and Dual Direction Cross must be enabled in Calibration.
	Displays the prewet sensor's revolutions per minute.	Prewet must be enabled in Calibration.
	Displays the amount of current being applied to the prewet pump.	Prewet must be enabled in Calibration.
	Displays the direct liquid sensor's revolutions per minute.	Direct must be enabled in Calibration.

Data Item	Function	Availability Requires
DIRECT 0 mA	Displays the amount of current being applied to the direct liquid pump.	Direct must be enabled in Calibration.
TOW AUGER 0 RPM	Displays the tow plow auger sensor's revolutions per minute.	Tow Plow must be enabled in Calibration.
TOW AUGER 0 mA	Displays the amount of current being applied to the tow plow auger.	Tow Plow must be enabled in Calibration.
TOW SPNR 0 mA	Displays the amount of current being applied to the tow plow spinner.	Tow Plow must be enabled in Calibration.
TOW PWT 0 RPM	Displays the tow plow prewet sensor's revolutions per minute.	Tow Plow and Tow Plow Prewet must be enabled in Calibration.
TOW PWT 0 mA	Displays the amount of current being applied to the tow plow prewet pump.	Tow Plow and Tow Plow Prewet must be enabled in Calibration.
AIR TEMP 32 F	Displays the current air temperature as measured by the temperature sensor.	Temperature Sensor must be enabled and Temp Sensor Type must be RoadWatch in Calibration.
ROAD TEMP 32 F	Displays the current road temperature as measured by the temperature sensor.	Temperature Sensor must be enabled in Calibration.
HUMIDITY 37%	Displays the current relative humidity as measured by the temperature sensor.	The Temperature Sensor must be set to PreCise MRM in Calibration.
DEW POINT 32 F	Displays the current dew point temperature.	The Temperature Sensor must be set to PreCise MRM in Calibration.
PRESSURE 1 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.
GATE HT 4.0 in	Displays the gate height as set in the Material Selection menu.	Gate Mode must be set to Adjustable Gate in Calibration.
L WIDTH 1.7 ft	Displays the spread width of the material in feet or meters, measured left from the center of the vehicle.	Directional Spinner must be enabled in Calibration.

Data Item	Function	Availability Requires
R WIDTH 15.0 ft	Displays the spread width of the material in feet or meters, measured right from the center of the vehicle.	Directional Spinner must be enabled in Calibration.
T WIDTH 16.7 ft	Displays the total spread width of the material in feet or meters.	Directional Spinner must be enabled in Calibration.
VALVE POS 0.0 V	Displays the current position of the directional spinner position actuator as measured by its sensor.	Directional Spinner must be enabled in Calibration.
BATTERY 0.0 V	Displays the amount of voltage supplied to the SSC6100 system from the vehicle battery.	Always available.
SPEED 0 MPH	Displays the current speed of the vehicle as measured by the speedometer sensor.	Always available.
SIM SPEED 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.
DISTANCE 0 ft	Displays the distance traveled since the distance measure operation was started.	Distance Measure must be enabled and Sim Speed disabled in Calibration.
FLOAT 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 in Calibration:

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

Granular / Prewet Application Mode

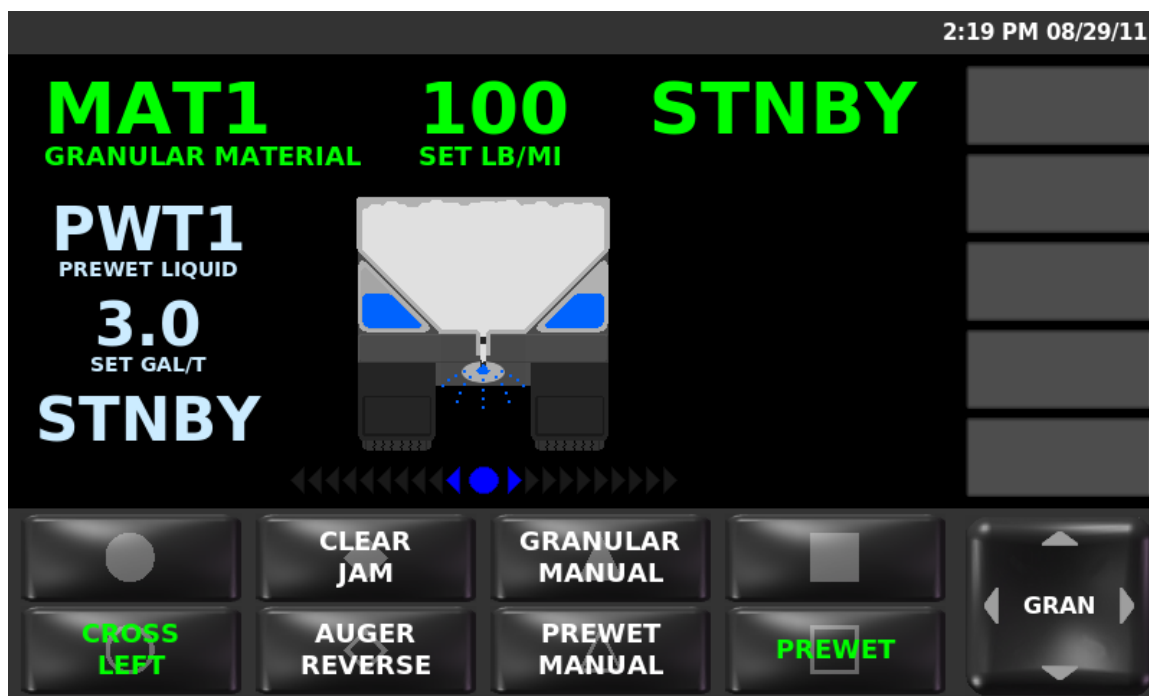


Figure 21: Granular and Prewet Application Mode

This mode occurs when the Granular option in Calibration is enabled and Direct Liquid is disabled. This mode also occurs when the Granular and Direct Liquid options are enabled, but Granular Mode is selected using the Gran / Direct Mode soft switch on the UTIL pane.

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 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 in Calibration. 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 22. Standby deactivates all outputs. You will need to remove your system from Standby before it will apply material.

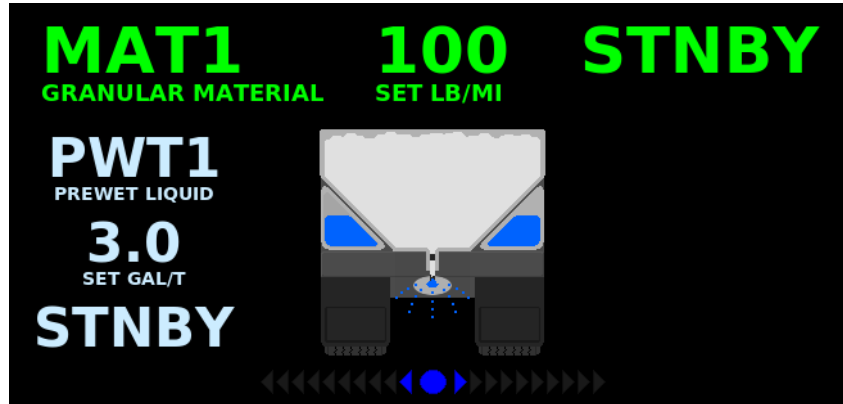


Figure 22: Granular / Prewet Application Mode in Standby

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.


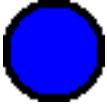

These modes can be mixed and matched between subsystems. For example, you can run your auger in closed-loop mode and your prewet pump in open-loop mode. These options are available in the Calibration Menu.



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
Green On/Standby Knob 	Twist Left	Decrease the auger set rate.
	Twist Right	Increase the auger set rate.
	Pushbutton	Place system in Standby. Remove system from Standby.
Blue Blast Knob 	Twist Left	Decrease the spinner set rate.
	Twist Right	Increase the spinner set rate.
	Pushbutton	Blast granular material. Cancel Blast.
Gray Nav Stick 	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 23.

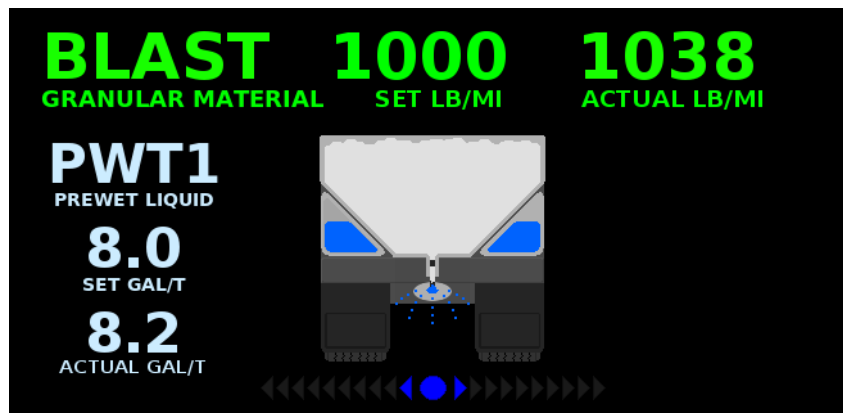


Figure 23: Granular / Prewet Application Mode in Blast



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 24.

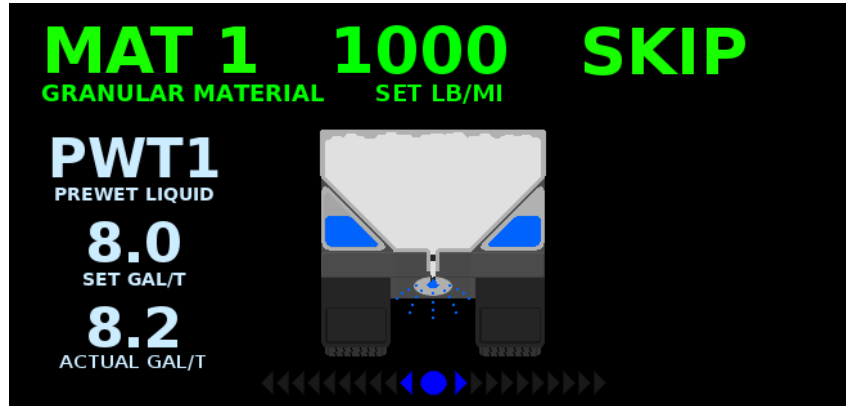


Figure 24: Granular / Prewet Application Mode in Skip Mode



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

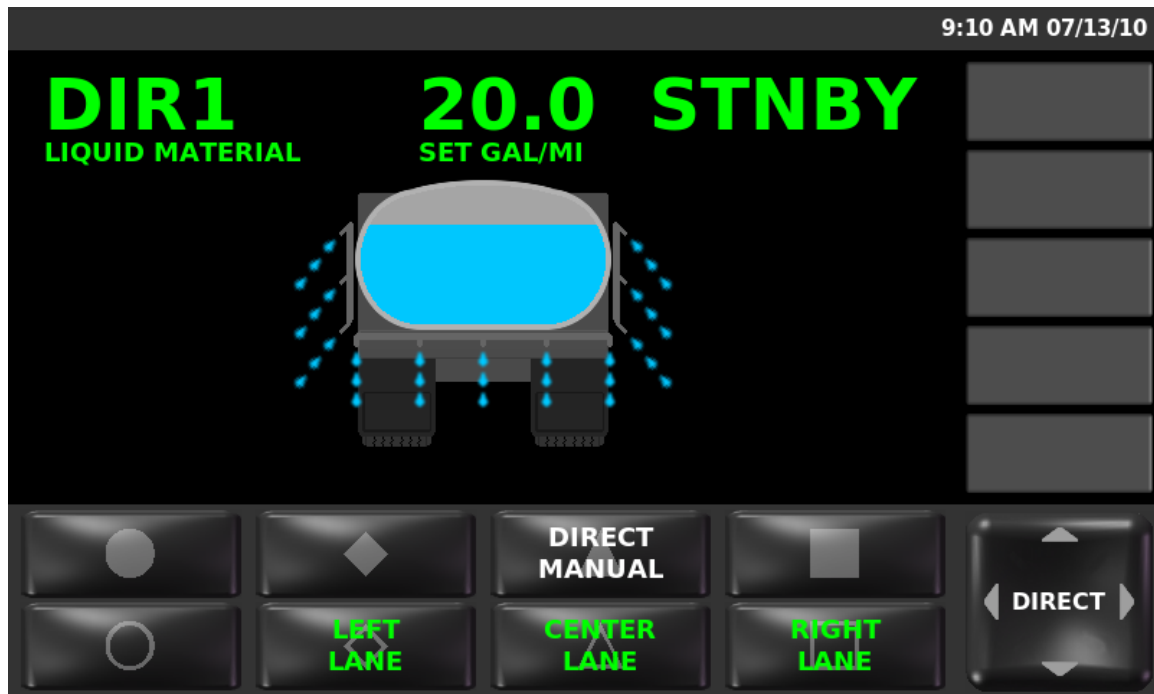


Figure 25: Direct Liquid Multi-Lane Application Mode

This mode occurs when the Granular option in Calibration is disabled and Direct Liquid is enabled. This mode also occurs when the Granular and Direct Liquid options are enabled, but Direct Mode is selected using the Gran / Direct Mode soft switch on the UTIL pane.

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

The vehicle representation below the direct row 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 25); 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 25 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 26. Standby deactivates all outputs. You will need to remove your system from Standby before it will apply material.

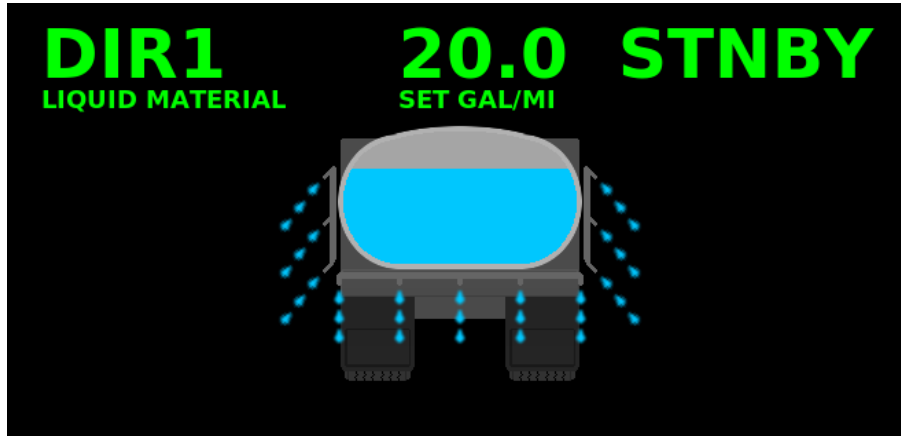


Figure 26: Direct Liquid Multi-Lane Application Mode in Standby

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


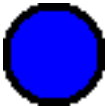

Closed-Loop Mode is identical to open-loop mode, but uses an extra feedback sensor from the direct pump to monitor output rates. Materials spread in closed-loop mode are spread more accurately than in open-loop mode.

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
Green On/Standby Knob 	Twist Left	Decrease the direct liquid set rate.
	Twist Right	Increase the direct liquid set rate.
	Pushbutton	Place system in Standby. Remove system from Standby.
Blue Blast Knob 	Twist Left Twist Right	None.
	Pushbutton	Blast direct liquid material. Cancel Blast.
Gray Nav Stick 	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).
- STEP 2: If you use Multi-Lane, press the Left, Center, or Right 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: Twist the On / Standby knob to adjust your direct output percentage.
- STEP 3: If you use Multi-Lane, press the Left, Center, or Right 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 27.

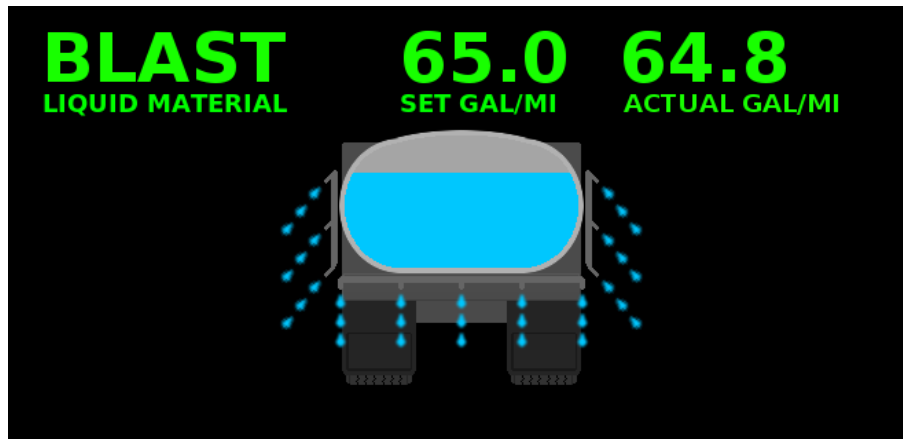


Figure 27: Direct Liquid Multi-Lane Application Mode in Blast



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

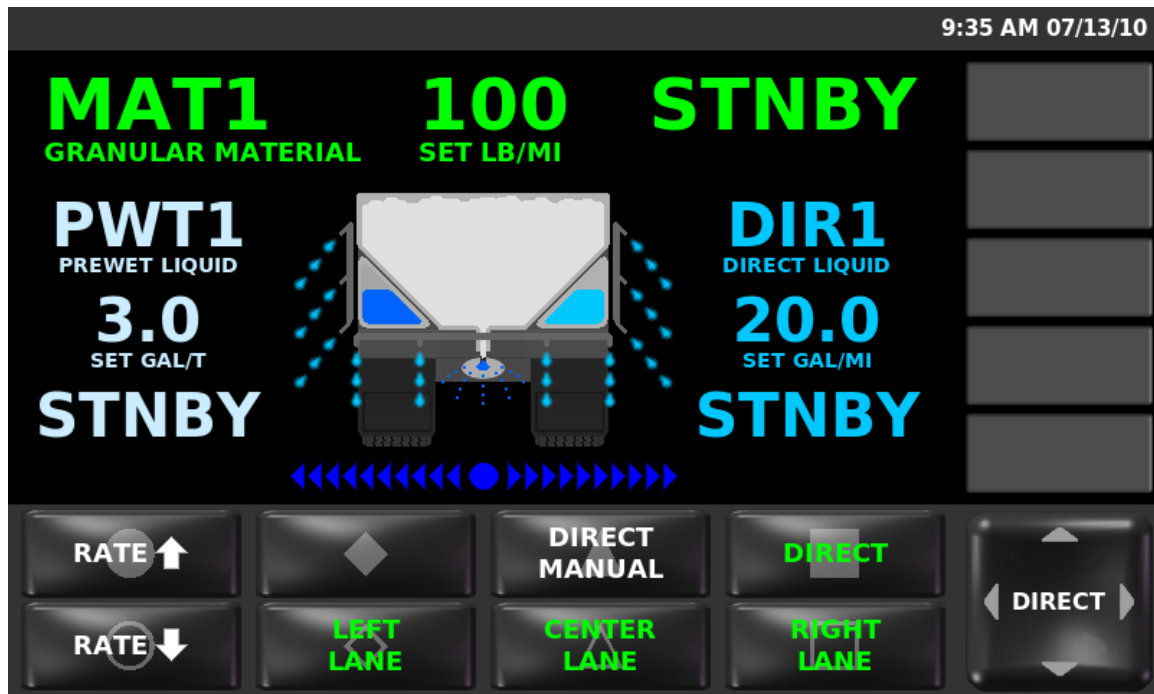


Figure 28: Simultaneous Granular / Prewet / Direct Application Mode

This mode occurs when the Granular, Direct Liquid, and Simultaneous Gran / Direct options in Calibration are enabled.

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 in Calibration. 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 28); 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 28 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 switch. See The Soft Switches on page 66 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 29. Standby deactivates all outputs. You will need to remove your system from Standby before it will apply material.

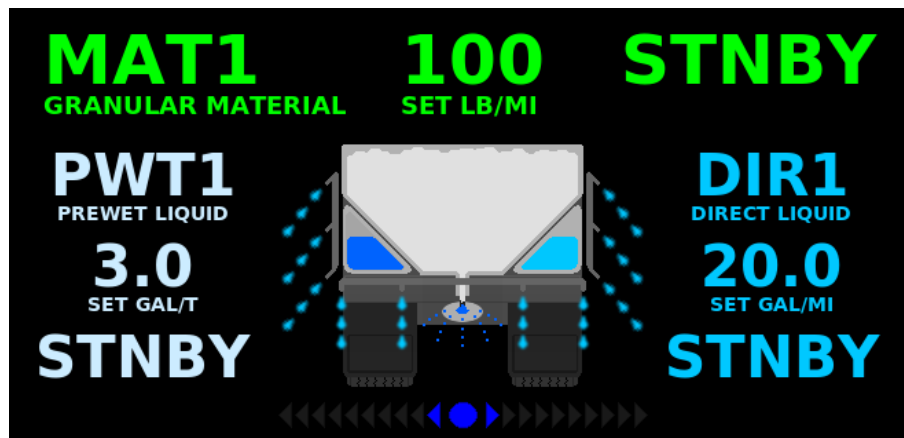


Figure 29: Simultaneous Granular / Prewet / Direct Application Mode in Standby

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
Green On/Standby Knob 	Twist Left	Decrease the granular set rate.
	Twist Right	Increase the granular set rate.
	Pushbutton	Place system in Standby. Remove system from Standby.
Blue Blast Knob 	Twist Left	Decrease the spinner set rate.
	Twist Right	Increase the spinner set rate.
	Pushbutton	Blast active materials. Cancel Blast.
Gray Nav Stick 	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 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 “Rate ↑” and “Rate ↓” on the DIRECT pane to adjust your direct liquid set rate (gallons per mile or liters per kilometer).
- STEP 3: If you use Multi-Lane, press the soft switches labeled “Left”, “Center”, or “Right” 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 “Rate ↑” and “Rate ↓” on the DIRECT pane to adjust your direct liquid set rate (gallons per mile or liters per kilometer).
- STEP 4: If you use Multi-Lane, press the soft switches labeled “Left”, “Center”, or “Right” 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 30.

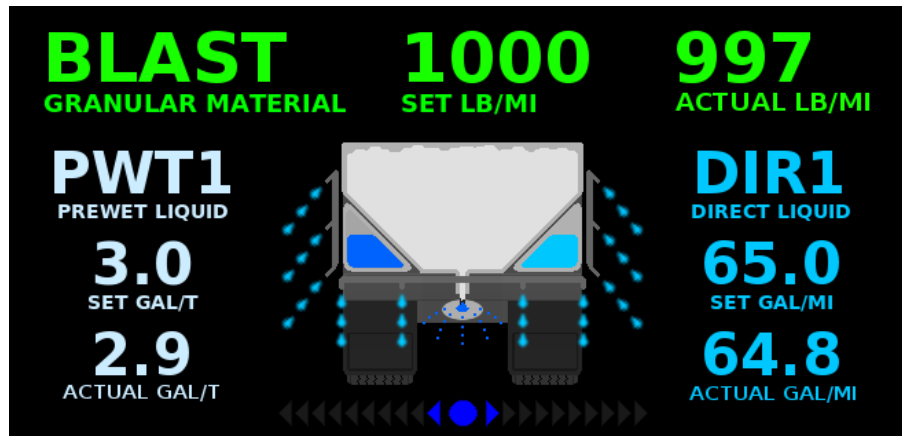
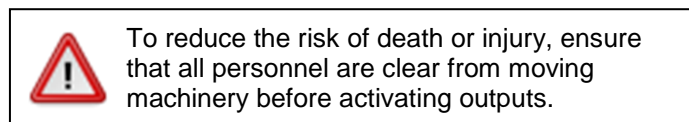


Figure 30: Simultaneous Granular / Prewet / Direct Application Mode in Blast



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 31.

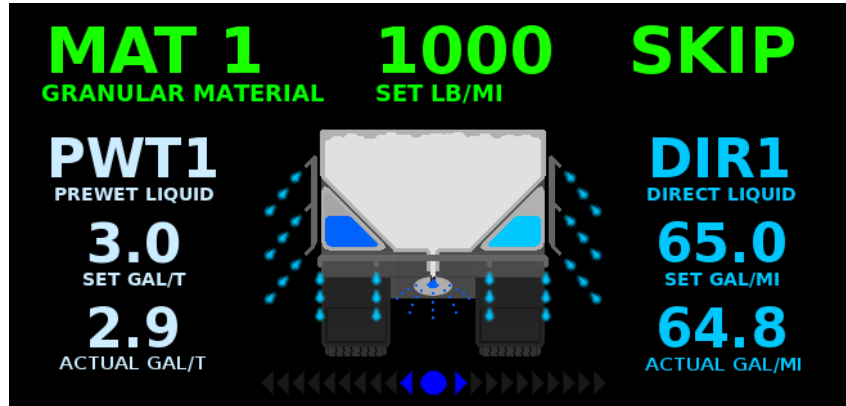


Figure 31: Simultaneous Granular / Prewet / Direct Application Mode in Skip Mode



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 32: Directional Spinner Application Mode

This mode occurs when the Directional Spinner option in Calibration is enabled.

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 in Calibration. 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 in Calibration. 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 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 32); 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 66 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 33. Standby deactivates all outputs. You will need to remove your system from Standby before it will apply material.

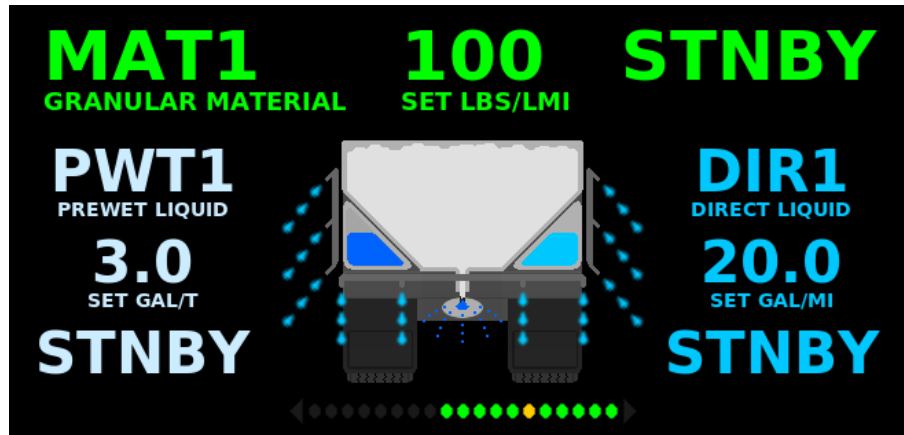


Figure 33: Directional Spinner Application Mode in Standby

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


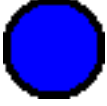

Closed-Loop Mode is identical to open-loop mode, but uses an extra feedback sensor from the auger, prewet pump, and direct pump to monitor output rates. Materials spread in closed-loop mode are spread more accurately than in open-loop mode.

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
Green On/Standby Knob 	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.
Blue Blast Knob 	Twist Left	Decrease the directional spinner spread width.
	Twist Right	Increase the directional spinner spread width.
	Pushbutton	Blast active materials. Cancel Blast.
Gray Nav Stick 	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”, “Center”, or “Right” 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”, “Center”, or “Right” 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 34.

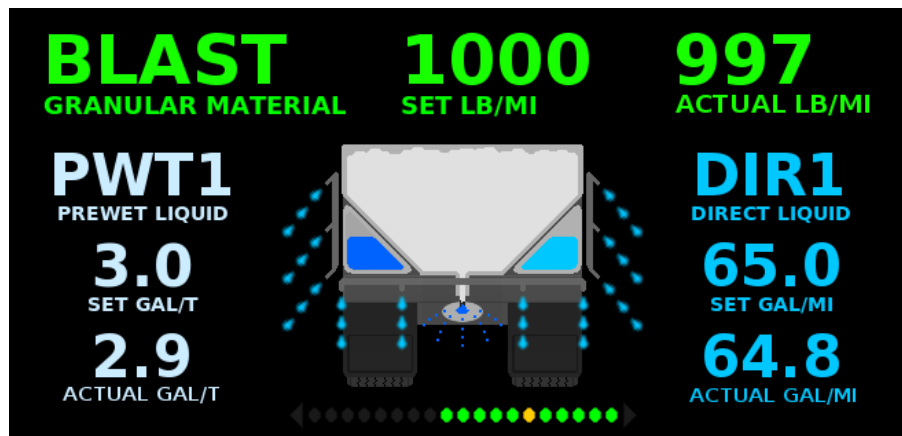
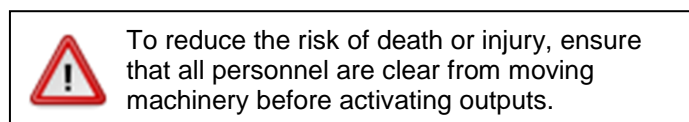


Figure 34: Directional Spinner Application Mode in Blast



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 Granular / Prewet Application Mode



Figure 35: Tow Plow Granular and Prewet Application Mode

This mode occurs when the Tow Plow , Granular and optional Prewet option are enabled in Calibration and Direct Liquid is disabled.

The green granular row to the left of the vehicle and tow plow icons contains information about your granular material and its set rate. The granular row is always visible.

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. The prewet row will only appear when Prewet is enabled in Calibration. 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.

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

Applying Material in Tow Plow Granular / Prewet Application Mode

When your SSC6100 system starts up, it will always be in Standby, as shown in Figure 36. Standby deactivates all outputs. You will need to remove your system from Standby before it will apply material.

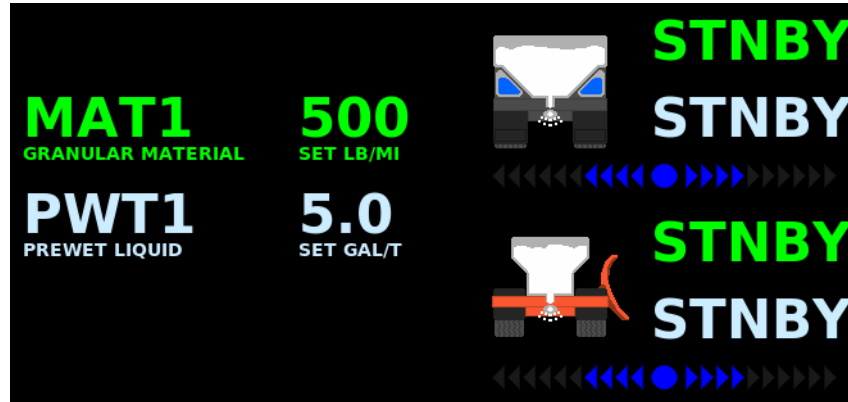


Figure 36: Tow Plow Granular / Prewet Application Mode in Standby

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) when in the tow plow mode.

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.

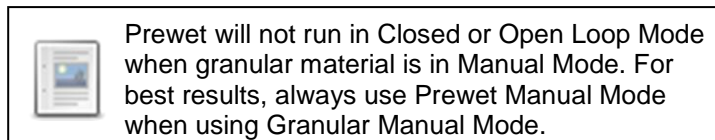
Closed-Loop Mode

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 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 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
Green On/Standby Knob 	Twist Left	Decrease the auger set rate.
	Twist Right	Increase the auger set rate.
	Pushbutton	Place system in Standby. Remove system from Standby.
Blue Blast Knob 	Twist Left	Decrease the spinner set rate.
	Twist Right	Increase the spinner set rate.
	Pushbutton	Blast granular material. Cancel Blast.
Gray Nav Stick 	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: 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 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 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 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 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.

Blast in Tow Plow Granular / Prewet Application Mode

Blast is a spreader feature that runs the granular, spinner, and prewet 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.

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 37.

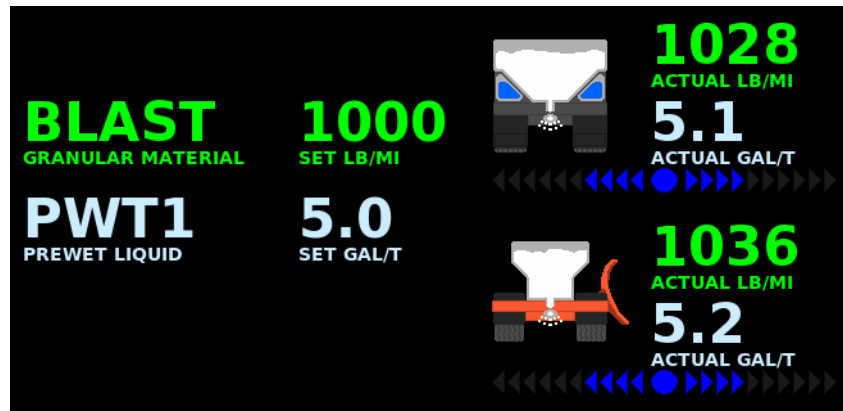


Figure 37: Tow Plow Granular / Prewet Application Mode in Blast



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 Tow Plow 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. 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 38.

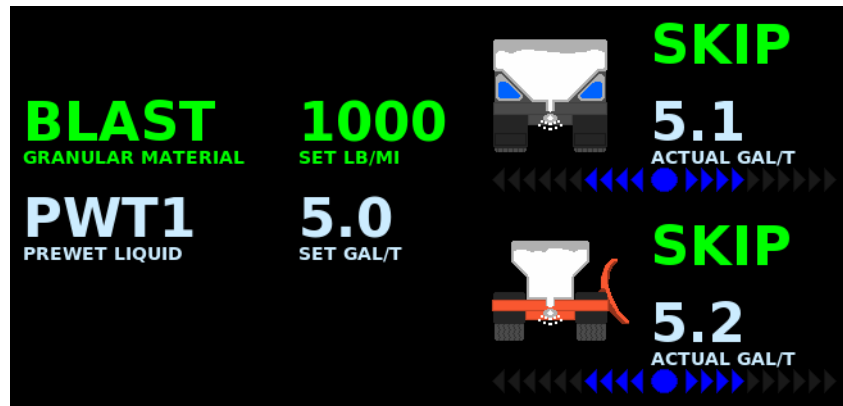


Figure 38: Tow Plow Granular / Prewet Application Mode in Skip Mode



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.

Aux Power Mode

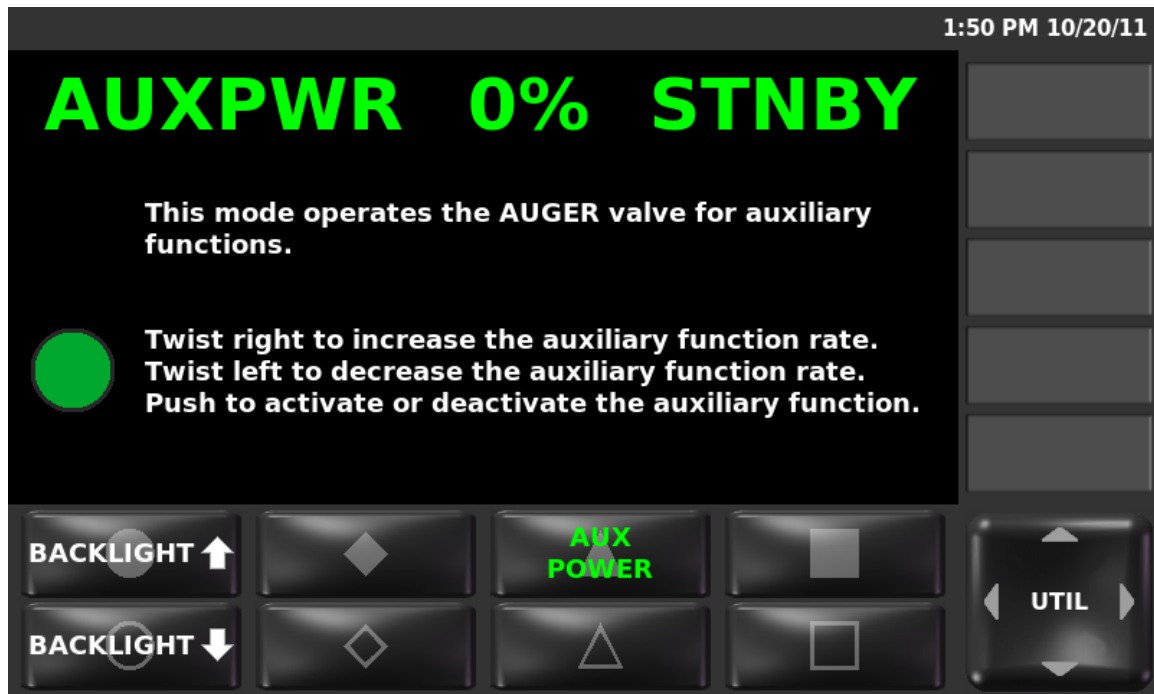


Figure 39: Aux Power Mode


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
Green On/Standby Knob 	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

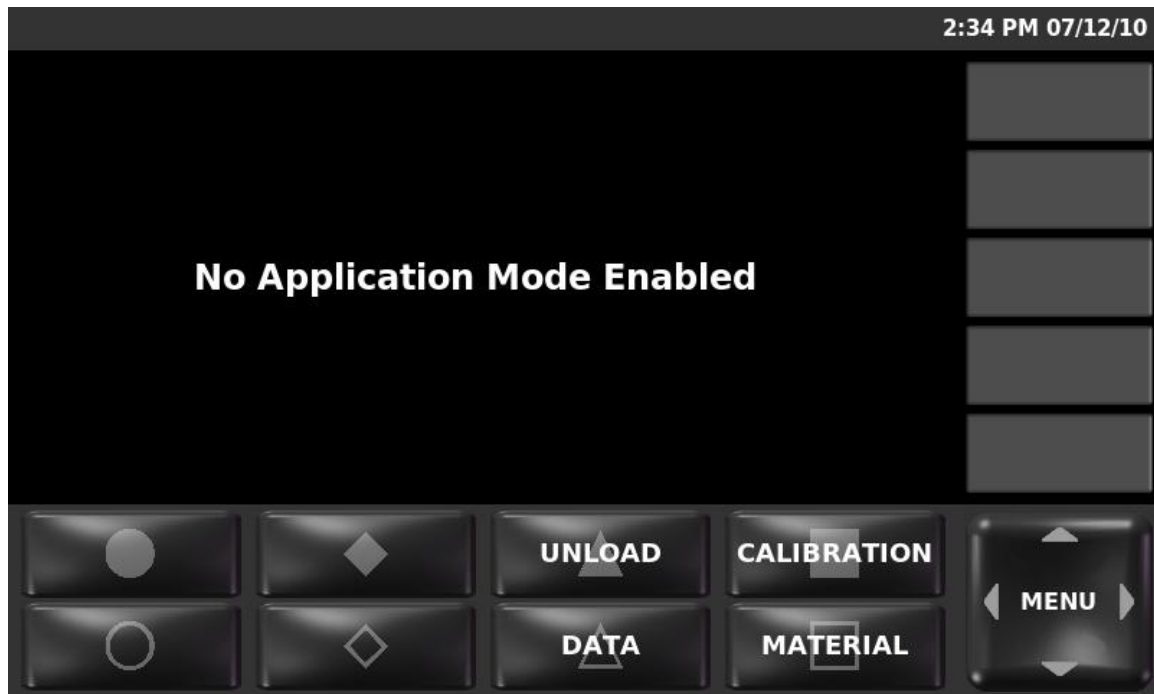


Figure 40: No Application Mode

This mode occurs when the Granular and Direct Liquid options in Calibration are both disabled.

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 in Calibration. 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 an adjustable power float.



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 in Calibration.

Soft Switch	Function	Availability Requires
	Activates or deactivates Skip Mode when in Granular & Prewet or Simultaneous Modes.	Granular and Skip Mode must be enabled in Calibration. Directional Spinner and Mixed Material must not be enabled in Calibration.
	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 in Calibration.
		
	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 29.	Granular Manual Mode must be enabled in Calibration.
	Activates or deactivates Prewet Manual mode. See page 29.	Prewet Manual Mode must be enabled in Calibration.








Soft Switch	Function	Availability Requires
	Activates or deactivates granular output. See page 29.	Granular must be enabled in Calibration.
	Activates or deactivates prewet output. See page 29.	Prewet must be enabled in Calibration.

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 in Calibration.





Soft Switch	Function	Availability Requires
	Increases the Direct Set Rate by 1 rate.	Simultaneous Gran / Direct or Direct and Directional Spinner must be enabled in Calibration.
	Decreases the Direct Set Rate by 1 rate.	Simultaneous Gran / Direct or Direct and Directional Spinner must be enabled in Calibration.
	Activates or deactivates direct left lane application.	Multi-Lane must be enabled in Calibration.
	Activates or deactivates direct center lane application.	Multi-Lane must be enabled in Calibration.
	Activates or deactivates direct right lane application.	Multi-Lane must be enabled in Calibration.
	Activates or deactivates Direct Manual mode. See page 35.	Direct Manual Mode must be enabled in Calibration.
	Activates or deactivates direct output. See page 35.	Simultaneous Gran / Direct or Direct and Directional Spinner must be enabled in Calibration.

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 in Calibration.





Soft Switch	Function	Availability Requires
	Increases the Granular Set Rate by 1 rate.	Granular must be enabled in Calibration.
	Decreases the Granular Set Rate by 1 rate.	Granular must be enabled in Calibration.
	Increases the Prewet Set Rate by 1 rate.	Prewet must be enabled in Calibration.
	Decreases the Prewet Set Rate by 1 rate.	Prewet must be enabled in Calibration.

TOW PLOW 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 in Calibration.







Soft Switch	Function	Availability Requires
	Increases the tow plow spinner spread width. See page 55.	Tow Plow and Tow Plow Separate Spread Width must be enabled in calibration.
	Decreases the tow plow spinner spread width. See page 55.	Tow Plow and Tow Plow Separate Spread Width must be enabled in calibration.
	Activates or deactivates tow plow granular output. See page 55.	Tow Plow must be enabled in Calibration.
	Activates or deactivates tow plow prewet output. See page 55.	Tow Plow and Tow Plow Prewet must be enabled in Calibration.

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 78.	None.
	Logs out the currently logged in Driver ID.	Driver ID must be enabled in Calibration.
	Opens the Material Unload menu. See page 91.	None.
	Opens the Data menu. See page 83.	None.
	Opens the Calibration menu. See the 6100 Calibration Manual.	None.
	Opens the Material Selection menu. See page 80.	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.
	Lowers 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.
	Lowers 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 and Aux Power must be enabled in Calibration.



Changes between the Granular / Prewet Application Mode and the Direct Liquid Application Mode. This switch only changes modes if the spreader is in STANDBY.

Granular and Direct must be enabled in Calibration.

Simultaneous Gran / Direct must be disabled in Calibration.



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

Distance Measure 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.	Spinner → Type must be set to Directional (Manual).
	Moves the spinner right while the button is pressed.	Spinner → Type must be set to Directional (Manual).

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 41.

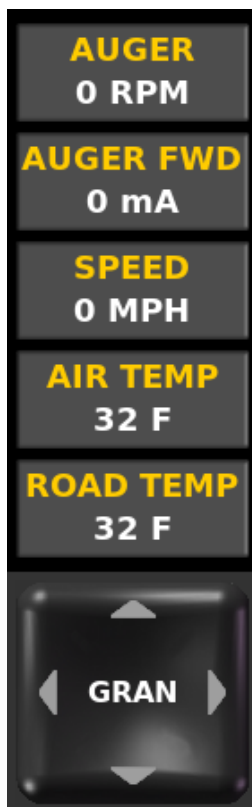


Figure 41: Monitoring SSC6100 Status with Data Items

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.

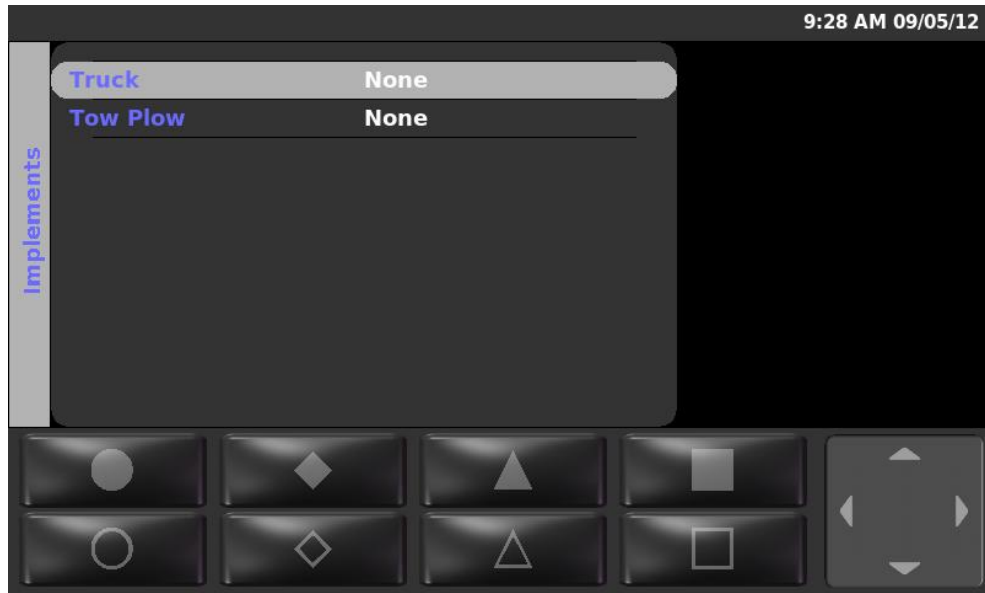



Figure 42: The Implements Menu

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
Gray Nav Stick 	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 43: 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
Gray Nav Stick 	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.

Data Menu

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

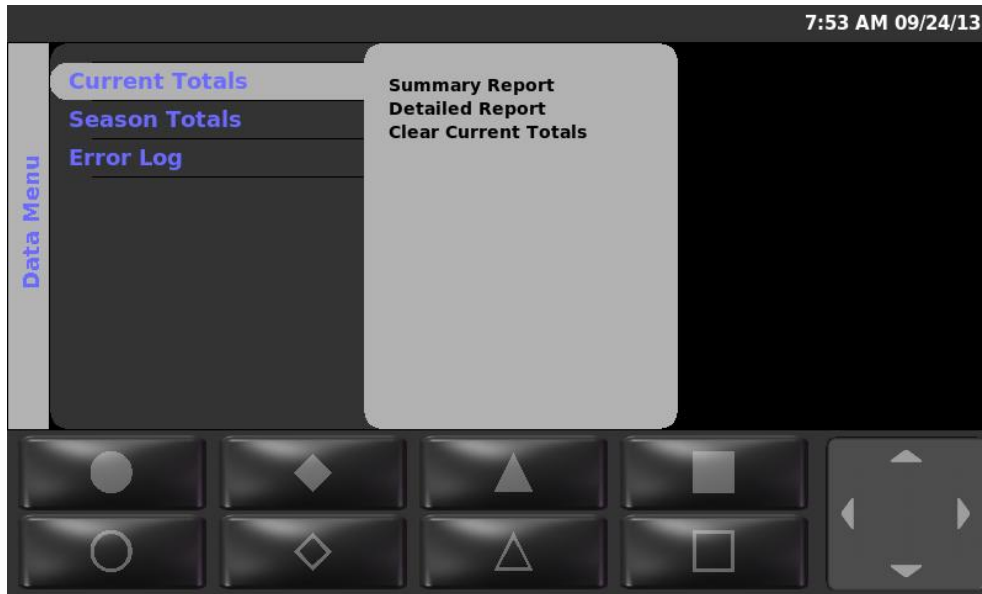



Figure 44: The Data Menu

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
Gray Nav Stick 	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 88.

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 89.

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 88.

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 89.

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 90.

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
Gray Nav Stick 	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 88 and 89 for sample summary and detailed reports. See page 90 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 45, 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 45: 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 46.

```
=====
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 46: 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 47.

```
=====
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 47: 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 48 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 48: 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
Gray Nav Stick 	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 and prewet materials differ slightly, and will be described individually below.

Granular Unload

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

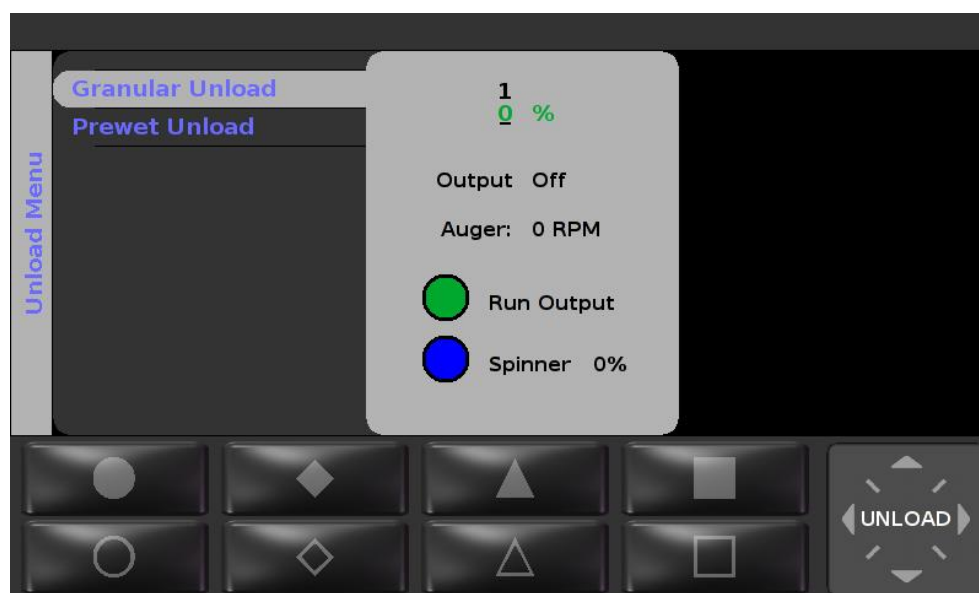





Figure 49: The Granular Unload Menu

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

Input	Action	Function
Green On/Standby Knob 	Twist Left Twist Right	None.
	Pushbutton	Start unloading material. Stop unloading material.
Blue Blast Knob 	Twist Left	Decrease the spinner output percentage. (If available)
	Twist Right	Increase the spinner output percentage. (If available)
	Pushbutton	None.
Gray Nav Stick 	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.

Leaving the Granular Unload menu at any time will 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 50.



Figure 50: 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
Green On/Standby Knob 	Twist Left Twist Right	None.
	Pushbutton	Start unloading material. Stop unloading material.
Blue Blast Knob 	Twist Left	Decrease the tow plow spinner output percentage. (If available)
	Twist Right	Increase the tow plow spinner output percentage. (If available)
	Pushbutton	None.
Gray Nav Stick 	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.

Leaving the Tow Granular Unload menu at any time will 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 51.

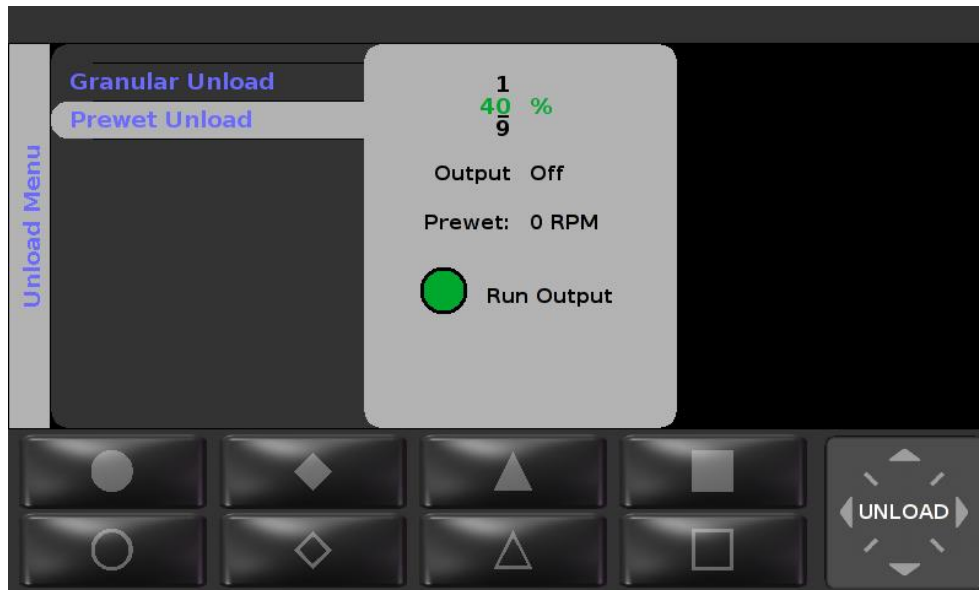





Figure 51: The Prewet Unload Menu

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

Input	Action	Function
Green On/Standby Knob 	Twist Left Twist Right	None.
	Pushbutton	Start unloading material. Stop unloading material.
Blue Blast Knob 	Twist Left Twist Right Pushbutton	None.
Gray Nav Stick 	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.

Leaving the Prewet Unload menu at any time will 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 52.



Figure 52: 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
Green On/Standby Knob 	Twist Left Twist Right	None.
	Pushbutton	Start unloading material. Stop unloading material.
Blue Blast Knob 	Twist Left Twist Right Pushbutton	None.
Gray Nav Stick 	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.

Leaving the Tow Prewet Unload menu at any time will 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 53.

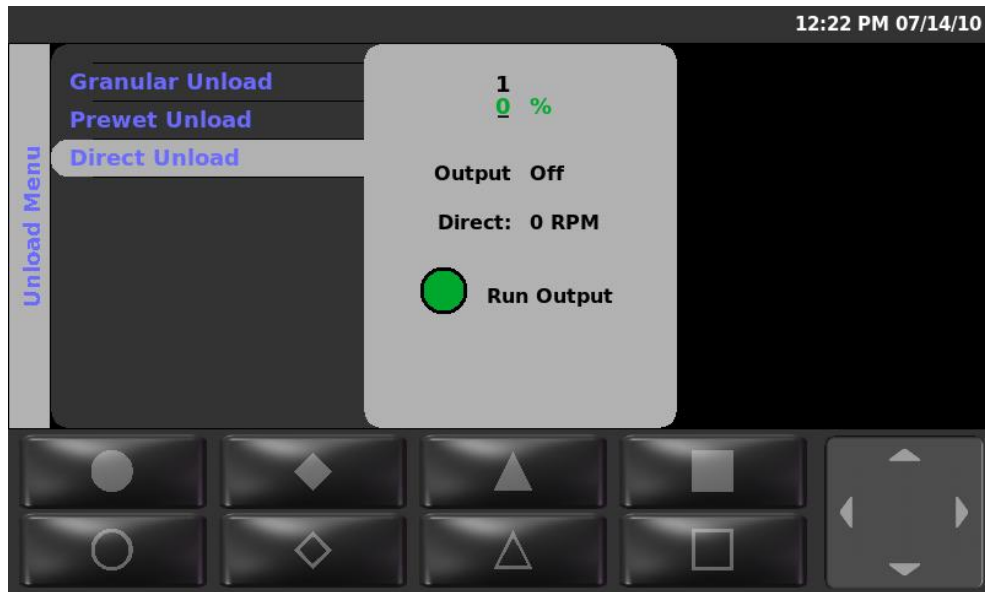





Figure 53: The Direct Unload Menu

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

Input	Action	Function
Green On/Standby Knob 	Twist Left Twist Right	None.
	Pushbutton	Start unloading material. Stop unloading material.
Blue Blast Knob 	Twist Left Twist Right Pushbutton	None.
Gray Nav Stick 	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.

Leaving the Direct Unload menu at any time will shut off the outputs.



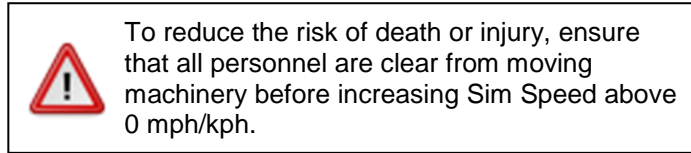
To reduce the risk of death or injury, ensure that all personnel are clear from moving machinery before activating outputs.

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.

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.

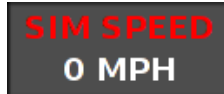


Figure 54: Sim Speed Data Item

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 66. 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.

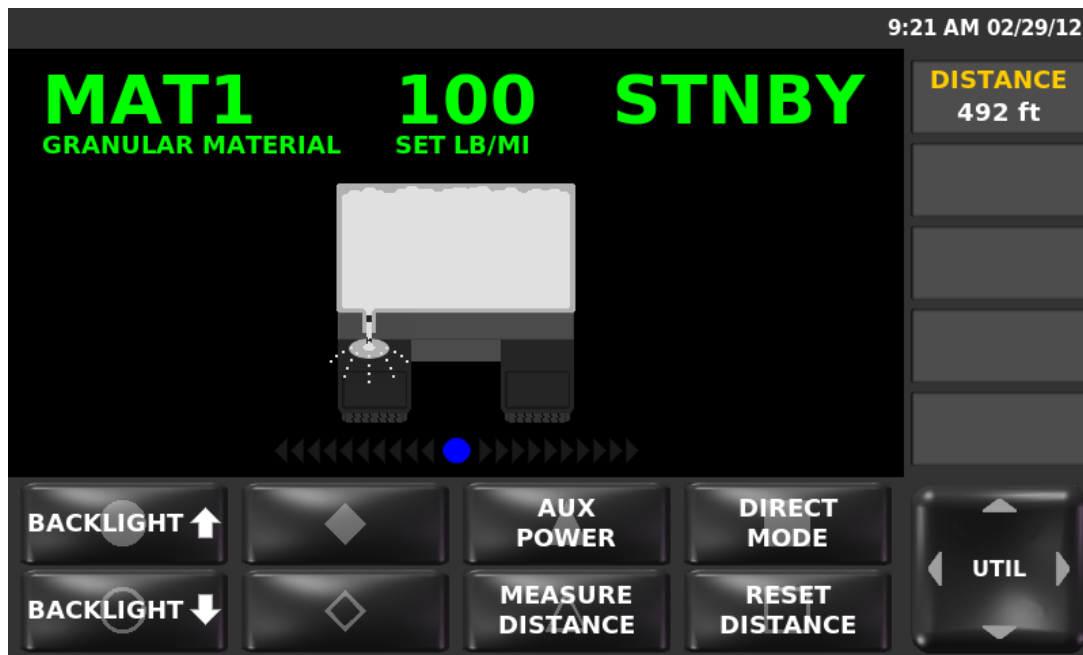


Figure 56: Distance Measure Enabled

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.

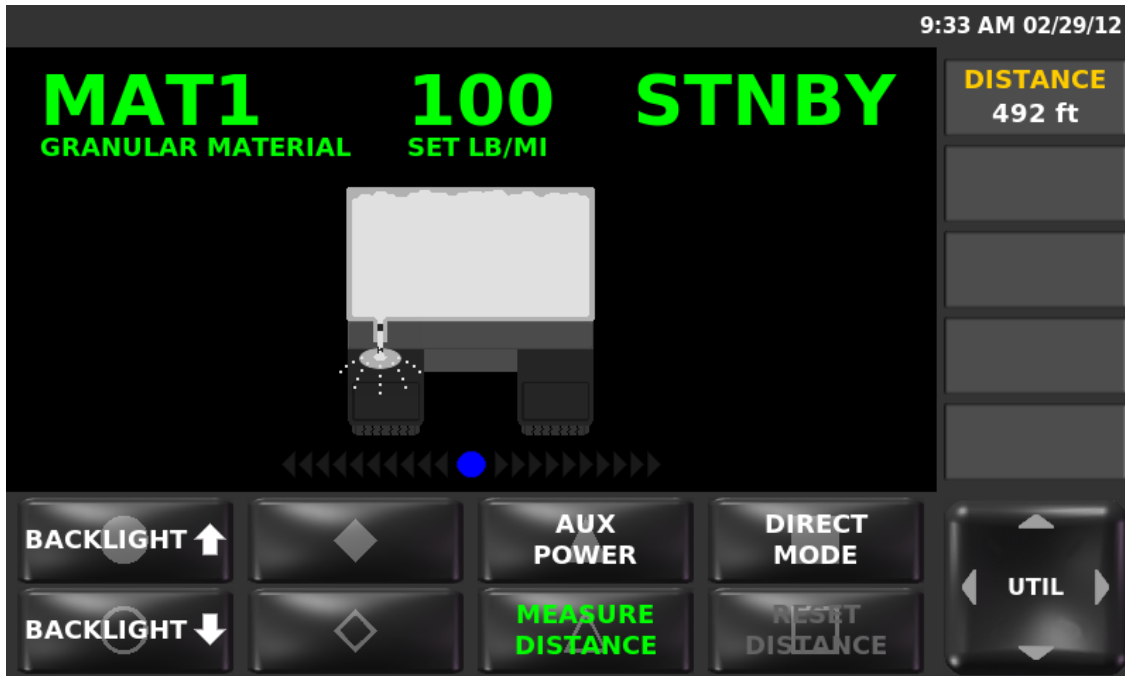


Figure 57: Distance Measure In Progress

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.

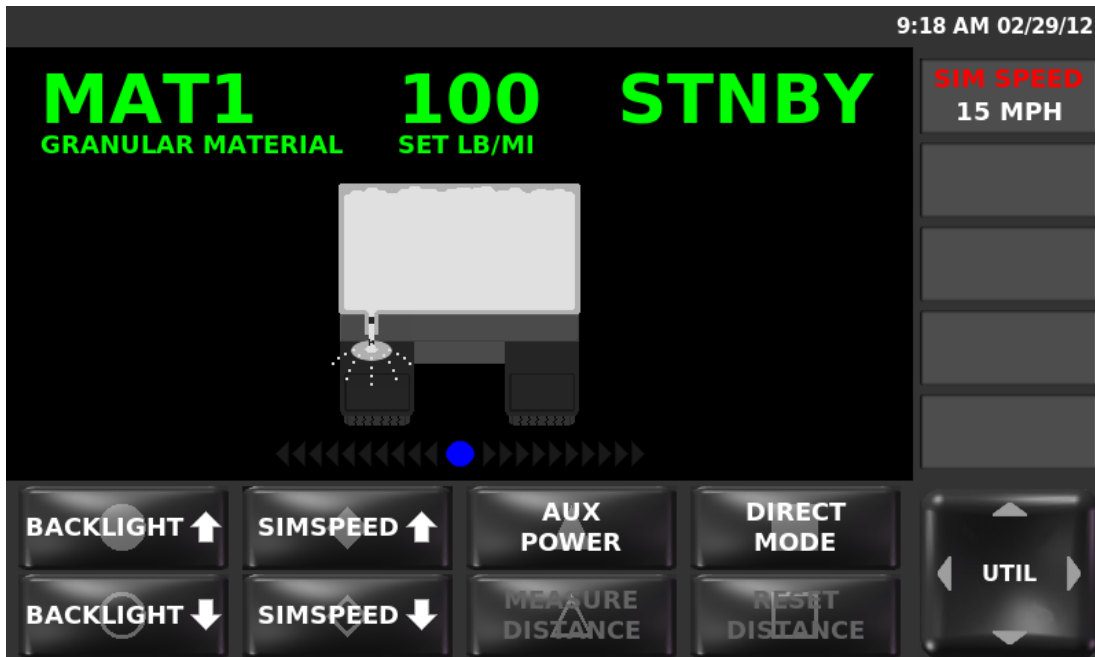


Figure 58: SimSpeed and Distance Measure Enabled

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 138 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 94043A001 Valve Module or a 94122A001 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 94096A001 Core Module, 94043A001 Valve Module and 94122A001 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 24, The Header Bar can display System Status messages and icons when an error occurs.

System Status Message	System Status Icon	Condition	Recommended Action
Body Up BODY UP		The dump body of the vehicle is currently hoisted in the up position.	Lower the dump body before moving the vehicle.
Oil Temp OIL TEMP	None.	The temperature of the oil in the system is above safe limits.	Shut down the vehicle.
Oil Level OIL LEVEL	None.	The level of the oil is below safe limits.	Return the vehicle for maintenance.
Low Filter Bypass LOW FILTER BYPASS	None.	The oil filter's bypass valve has been activated.	Return the vehicle for maintenance.
High Filter Bypass HIGH FILTER BYPASS	None.	The oil filter's bypass valve has been activated.	Return the vehicle for maintenance.
Overspeed Warning SLOW DOWN	None.	The vehicle is moving faster than the speed limit set in calibration.	Reduce vehicle speed.
IGrip Joystick Stuck Interlock IGRIP JOYSTICK INTERLOCK	None.	The IGrip joystick interlock was active when the 6100 started.	Restart the system without the interlock active.

System Status Message	System Status Icon	Condition	Recommended Action
IGrip Joystick Stuck Interlock IGRIP JOYSTICK OFF CENTER	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.
Joystick Integrity JOYSTICK INTEGRITY	None.	A joystick is operating outside of its acceptable range.	Replace the joystick.
Joystick Range JOYSTICK RANGE	None.	A joystick is operating outside of its acceptable range.	Replace the joystick.
Joystick Off Center JOYSTICK OFF CENTER	None.	A joystick was held off-center when the 6100 started.	Return the joystick to its center position.
Joystick Pushbutton JOYSTICK PUSHBUTTON	None.	A joystick's pushbutton was pushed when the 6100 started.	Release the joystick pushbutton.
Joystick Normalization JOYSTICK NORMALIZATION	None.	A joystick has invalid normalization values.	Use Calibration to renormalize the affected joystick. See M0108 for more information.
Stuck Momentary Switch XXXX STUCK SWITCH ERROR	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.

System Status Message	System Status Icon	Condition	Recommended Action
AVL Authentication Error		The spreader is unable to authenticate with the AVL device.	<p>Verify that the connectors on the 9-pin RS-232 harness (P/N 6100-EVENT-LOG-OTHER-AVL) are tightly secured.</p> <p>Verify that the 9-pin RS-232 harness is not damaged.</p> <p>Contact your AVL provider for assistance.</p>
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 14403A001).</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 6100-EVENT-LOG-PRECISE) 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>

System Status Message	System Status Icon	Condition	Recommended Action
			Verify that the PreCise MRM device is running the latest firmware. Contact a FORCE America Representative for assistance.

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>ESTOP Switch Miswired 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>Before rewiring or changing the power source, you must turn the vehicle completely off.</p>
<p>Power to CAN Device Miswired 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>Before rewiring or changing the power source, you must turn the vehicle completely off.</p>
<p>CAN Device Power Fault <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>Before rewiring or changing the power source, you must turn the vehicle completely off.</p>
<p>Device Not Tested for ESTOP 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
CAN Bus Fault 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.
Operator Interface Communication Error 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.
8 Port Valve N Communication Error 8 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 8 Port Valve Module <i>N</i> . Select the Implement that is connected to the system in the Implements menu.
20 Port Valve N Communication Error 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.
10 Port Valve N Communication Error 10 Port Valve Module <i>N</i> 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
	<p>The Valve Module has not been configured.</p> <p>The Implement selected in the implements menu is not the one connected to the system.</p>	<p>Use the SSC6100 Calibration Manual to configure 10 Port Valve Module <i>N</i>.</p> <p>Select the Implement that is connected to the system in the Implements menu.</p>
<p>MPJC Module <i>N</i> Communication Error MPJC Module <i>N</i> has stopped communicating.</p>	<p>Disconnected CAN cable.</p> <p>Broken or pinched CAN cable.</p> <p>The Valve Module has not been configured.</p>	<p>Verify that all CAN connectors are tightly secured.</p> <p>Verify that all CAN cables are not damaged.</p> <p>Use the SSC6100 Calibration Manual to configure MPJC Module <i>N</i>.</p>
<p>SPJC Module <i>N</i> Communication Error SPJC Module <i>N</i> has stopped communicating.</p>	<p>Disconnected CAN cable.</p> <p>Broken or pinched CAN cable.</p> <p>The Module has not been configured.</p>	<p>Verify that all CAN connectors are tightly secured.</p> <p>Verify that all CAN cables are not damaged.</p> <p>Use the SSC6100 Calibration Manual to configure SPJC Module <i>N</i>.</p>
<p>ISOBUS Valve <i>N</i> Communication Error ISOBUS Valve Module <i>N</i> has stopped communicating.</p>	<p>Disconnected CAN cable.</p> <p>Broken or pinched CAN cable.</p> <p>The Valve Module has not been configured.</p> <p>Disconnected CAN cable.</p> <p>The Implement selected in the Implements menu is not the one connected to the system.</p>	<p>Verify that all CAN connectors are tightly secured.</p> <p>Verify that all CAN cables are not damaged.</p> <p>Use the SSC6100 Calibration Manual to configure ISOBUS Valve Module <i>N</i>.</p> <p>Verify that all CAN connectors are tightly secured.</p> <p>Select the Implement that is connected to the system in the Implements menu.</p>

Error Text	Possible Causes	Possible Solutions
Direct Module N Communication Error Direct Module N has stopped communicating.	Disconnected CAN cable. Broken or pinched CAN cable. The Direct Module has not been configured. You are in Direct Application Mode but do not have a direct liquid system installed. You are in Simultaneous Granular / Direct Application Mode but do not have a direct liquid system installed. 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 N. Use the SSC6100 Calibration Manual to disable Direct Liquid. Switch the vehicle into Granular Application Mode using the Granular Mode / Direct Mode Soft Switch on the UTIL pane. Use the SSC6100 Calibration Manual to disable Direct Liquid. Select the Implement that is connected to the system in the Implements menu.
Display Communication Error 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.
Duplicate ISOBUS Valve Module A second ISOBUS Valve Module has been detected. Please power down the system and disconnect it.	Two ISOBUS Valve Modules were detected when the Hardware Configuration File only requires one.	Verify the installed / connected hardware and configuration for this vehicle.
Event Queue Full Error 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.

Error Text	Possible Causes	Possible Solutions
Fatal Error 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.
IGrip Joystick Error 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.
IGrip Joystick Interlock Error 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.
IGrip Off Center 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.
Incompatible Firmware 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
Module Type Mismatch The connected ISOBUS Valve Module is incompatible with this hardware configuration. Contact a FORCE America Representative for assistance.	The Hardware Configuration File requires a different ISOBUS Valve Module to be connected.	Replace the currently installed ISOBUS Valve Module with an ISOBUS Valve Module with the right part number. Import a replacement Hardware Configuration File. See the SSC6100 Calibration Manual (M0108) for detailed instructions. Contact a FORCE America Representative to confirm the settings in your Hardware Configuration File.
AVL Authentication Error 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. Damaged RS-232 harness. Improperly configured AVL device.	Verify that the connectors on the 9-pin RS-232 harness are tightly secured. Verify that the 9-pin RS-232 harness is not damaged. Contact your AVL provider for assistance.
ELA Module Communication Error The system is unable to communicate with the ELA Module. Event logging will be disabled until the system has been restarted.	Disconnected ELA Module. Damaged 12-pin harness. Improperly configured AVL device.	Verify that the ELA Module is tightly secured to the 12-pin harness (P/N 14403A001). Verify that the External 12-pin harness is not damaged. Contact your AVL provider for assistance.

Error Text	Possible Causes	Possible Solutions
<p>PreCise MRM Authentication Error The system is unable to authenticate with the PreCise MRM device. Event logging data will be stored onboard the 6100.</p>	<p>Disconnected RS-232 harness.</p> <p>Damaged RS-232 harness.</p> <p>The PreCise MRM device is not powered.</p> <p>The PreCise MRM device is running firmware that does not support 6100 Event Logging.</p>	<p>Verify that the connectors on the 9-pin RS-232 harness 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>
<p>Stuck Momentary Switch The momentary switch for <i>Switch Name</i> is stuck on.</p>	<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>
<p>Spinner RPM Feedback Spinner RPM Feedback has been lost. Data Logging totals may not be accurate.</p>	<p>The directional spinner RPM feedback sensor is disconnected.</p> <p>The directional spinner is jammed and is not turning.</p> <p>The directional spinner feedback sensor or feedback harness is broken.</p>	<p>Reconnect the directional spinner feedback sensor.</p> <p>Clear the directional spinner jam.</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>
<p>Spinner Position Feedback Spinner Position Feedback has been lost. Data Logging totals may not be accurate.</p>	<p>The directional spinner position feedback sensor is disconnected.</p> <p>The directional spinner position feedback sensor is not wired to ground properly.</p>	<p>Reconnect the directional spinner feedback sensor.</p> <p>Verify the integrity of the directional spinner feedback sensor's ground wire.</p> <p>Clear the directional spinner position actuator's jam.</p>

Error Text	Possible Causes	Possible Solutions
	<p>The directional spinner position actuator is jammed.</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 mode.</p>
<p>Spinner Overshoot Error Spinner Position Overshoot has been detected. Data Logging totals may not be accurate.</p>	<p>The actuator movement is too fast.</p> <p>The directional spinner actuator valve is stuck.</p>	<p>Adjust the valve stops in to reduce the actuator movement speed.</p> <p>Verify the integrity of the directional spinner actuator valve.</p>
<p>Two Position Gate Sensor Error The system is detecting both sensors as active. Please verify the integrity of the sensors. Press continue to override.</p>	<p>The two position gate sensors are not wired properly.</p>	<p>Verify the assembly and wiring of the sensors.</p> <p>Verify that the gate is in the correct position for the selected material.</p>
<p>Incorrect Two Position Gate Height The gate height for the current material does not match the selected setting. Please adjust the gate. Press continue to override.</p>	<p>The gate height has been set incorrectly in calibration.</p> <p>The gate height has not been correctly set on the truck.</p>	<p>Verify that the calibration setting is set to the desired height for the current granular material.</p> <p>Raise or lower the gate.</p>
<p>Direct Low Liquid The direct liquid tank is low. In order to prevent damage to the direct pump the system has been put into standby.</p>	<p>The direct tank is low on liquid and needs to be refilled.</p>	<p>Refill the direct liquid tank.</p>
<p>Invalid Driver ID The Driver ID Key just used is invalid.</p>	<p>The key used to login was not of the correct type.</p> <p>The Driver ID key used to login has become corrupted.</p>	<p>Attempt to log into the system using a black Driver Key.</p> <p>Rewrite the information on the Driver ID key. See "Driver Key Creation" in the SSC6100 Calibration Manual (M0108) for more information.</p>

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.

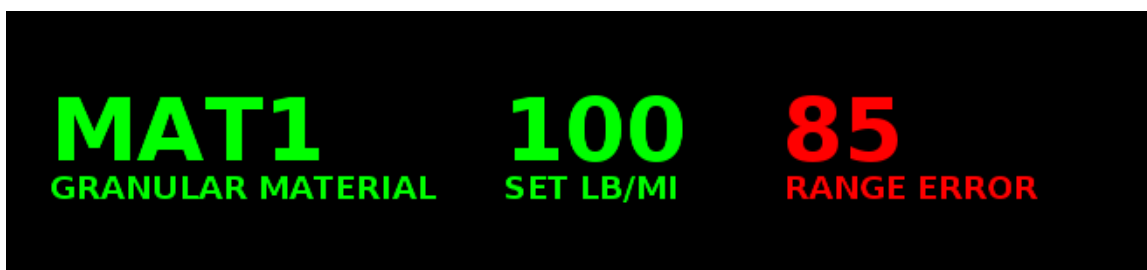


Figure 60: Granular Range Error

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.

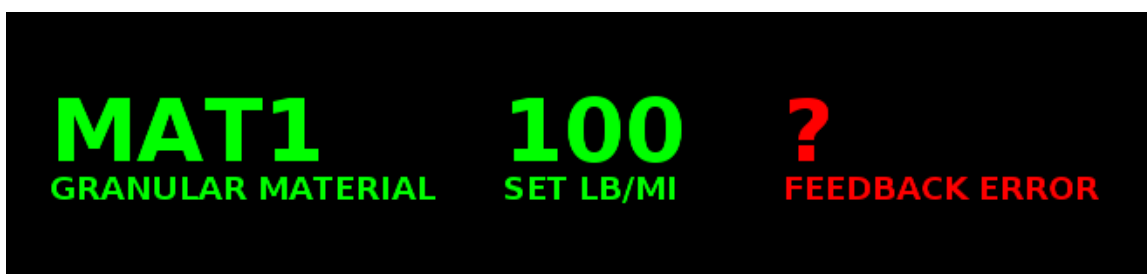


Figure 61: Granular Feedback Error

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.

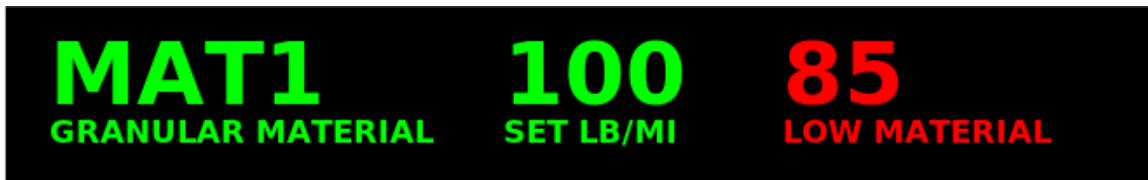


Figure 63: Granular Low Material Error

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.

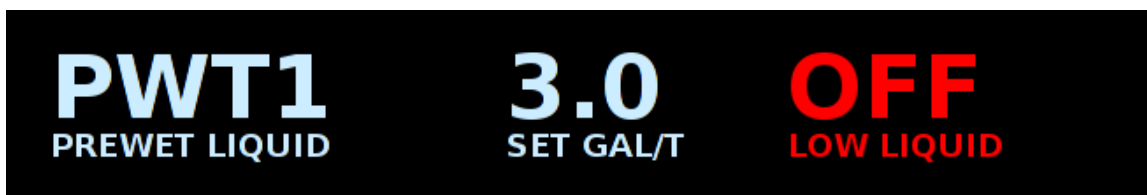


Figure 66: Prewet Low Liquid Warning

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 Range Error

A Directional Spinner Range Error occurs when the spreader control cannot meet the set Directional Spinner RPM for at least 5 continuous seconds.

When this occurs, you will still be able to increase or decrease the spread width. You will also still be able to move the spread pattern to the left and right.

Material will continue to be spread while a Directional Spinner Range Error occurs.



Figure 70: Directional Spinner Range Error

Possible Cause	Solution
The vehicle is traveling too fast for the directional spinner's spread width or position.	Decrease the vehicle speed.
The directional spinner's hydraulic capacity is inadequate.	Verify the performance of the directional spinner's hydraulic system.

Directional Spinner Position Feedback Error

A Directional Spinner Position Feedback Error occurs when the spreader control cannot communicate with the directional spinner's actuator position feedback sensor. The actual position of the directional spinner is unknown.

When this occurs, you will still be able to increase or decrease the spread width. However, the spinner position will be locked to the center position and the center circle will blink red. Attempting to move the spinner position with the blue Blast knob will run the directional spinner position actuator in Manual Mode.



Figure 71: Directional Spinner Position 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 actuator is jammed.	Clear the directional spinner position actuator's jam.
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.

Directional Spinner RPM Feedback Error

A Directional Spinner RPM Feedback Error occurs when the spreader control cannot communicate with the directional spinner's RPM feedback sensor. The actual rate of the directional spinner is unknown.

When this occurs, you will still be able to change the position of the spread pattern. The spinner rotation output will be run in Manual Mode and the spread width circles will blink red. Attempting to increase or decrease the spread width with the green On / Standby knob will run the spinner between its calibrated Minimum and Maximum Current.



Figure 72: Directional Spinner RPM Feedback Error

Possible Cause	Solution
The directional spinner RPM feedback sensor is disconnected.	Reconnect the directional spinner feedback sensor.
The directional spinner is jammed and is not turning.	Clear the directional spinner jam.
The directional spinner 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 spinner control.

Directional Spinner Position Overshoot Error

A Directional Spinner Position Overshoot Error occurs when the spreader control moves the actuator to a position but after it stops running the output, the directional spinner position continues to change.

When this occurs, you will still be able to increase or decrease the spread width. However, the spinner position will be locked to the center position and the center circle will blink red. Attempting to move the spinner position with the blue Blast knob will run the directional spinner position actuator in Manual Mode.

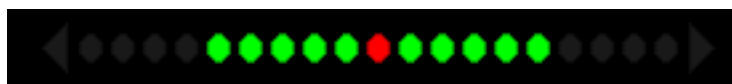


Figure 73: Directional Spinner Position Overshoot Error

Possible Cause	Solution
The actuator movement is too fast.	Adjust the valve stops in to reduce the actuator movement speed.
The directional spinner actuator valve is stuck.	Verify the integrity of the directional spinner actuator valve.

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 74: 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
 	Disconnected temperature sensor cable. Damaged temperature sensor cable. Damaged temperature sensor.	Verify that all connectors on the temperature sensor cable are tightly secured. Verify that the temperature sensor cable is not damaged. Repair or replace the temperature sensor.
	The wrong type of sensor is connected. Disconnected temperature sensor cable. Damaged temperature sensor cable. Damaged temperature sensor.	Ensure the proper sensor type is selected in Calibration Verify that all connectors on the temperature sensor cable are tightly secured. Verify that the temperature sensor cable is not damaged. Repair or replace the temperature sensor.
	The wrong type of sensor is connected. Disconnected temperature sensor cable. Damaged temperature sensor cable. Damaged temperature sensor.	Ensure the proper sensor type is selected in Calibration. Verify that all connectors on the temperature sensor cable are tightly secured. Verify that the temperature sensor cable is not damaged. Repair or replace the temperature sensor.

<p>L WIDTH RNG ERR</p> <p>R WIDTH RNG ERR</p> <p>T WIDTH RNG ERR</p>	<p>The vehicle is traveling too fast for the directional spinner's spread width or position.</p> <p>The directional spinner's hydraulic capacity is inadequate.</p>	<p>Decrease the vehicle speed.</p> <p>Verify the performance of the directional spinner's hydraulic system.</p>
<p>L WIDTH POS ERR</p> <p>R WIDTH POS ERR</p> <p>T WIDTH POS ERR</p>	<p>The directional spinner position feedback sensor is disconnected.</p> <p>Verify the integrity of the directional spinner feedback sensor's ground wire.</p> <p>The directional spinner position actuator is jammed.</p> <p>The directional spinner position feedback sensor or feedback harness is broken.</p>	<p>Reconnect the directional spinner position feedback sensor.</p> <p>The directional spinner position feedback sensor is not wired to ground properly.</p> <p>Clear the directional spinner position actuator's jam.</p> <p>Repair the sensor or feedback harness. Temporary operation can be performed by allowing the spreader control to default to Manual mode.</p>

Error Text	Possible Causes	Possible Solutions
<div>L WIDTH FB ERR</div> <div>R WIDTH FB ERR</div> <div>T WIDTH FB ERR</div>	<p>The directional spinner RPM feedback sensor is disconnected.</p> <p>The directional spinner is jammed and is not turning.</p> <p>The directional spinner feedback sensor or feedback harness is broken.</p>	<p>Reconnect the directional spinner feedback sensor.</p> <p>Clear the directional spinner jam.</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>
<div>L WIDTH OVR ERR</div> <div>R WIDTH OVR ERR</div> <div>T WIDTH OVR ERR</div>	<p>The actuator movement is too fast.</p> <p>The directional spinner actuator valve is stuck.</p>	<p>Adjust the valve stops in to reduce the actuator movement speed.</p> <p>Verify the integrity of the directional spinner actuator valve.</p>
<div>PRESSURE 1 ERR</div>	<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 75: 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, 8 Port Valve Module, 20 Port Valve Module, 10 Port Valve Module, ISOBUS 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:

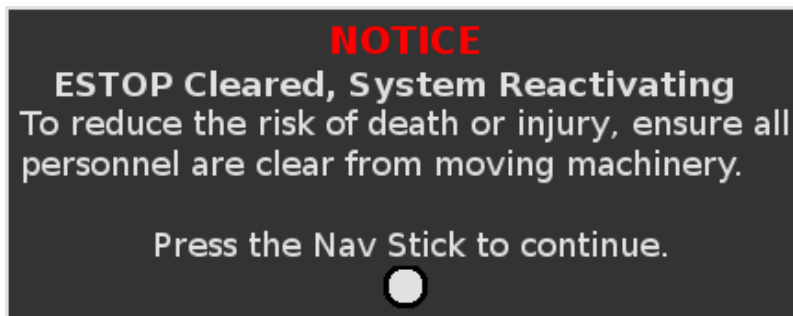


Figure 76: ESTOP Cleared, System Reactivating Window

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 137.
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 (M0108) 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
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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:

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