SSC6100
Spreader Control
Calibration Manual

Firmware Version
0.57

FORCE® America INC.

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Operator Interface

The Operator Interface lets you enter the Calibration Menu, select and edit settings, and run outputs.

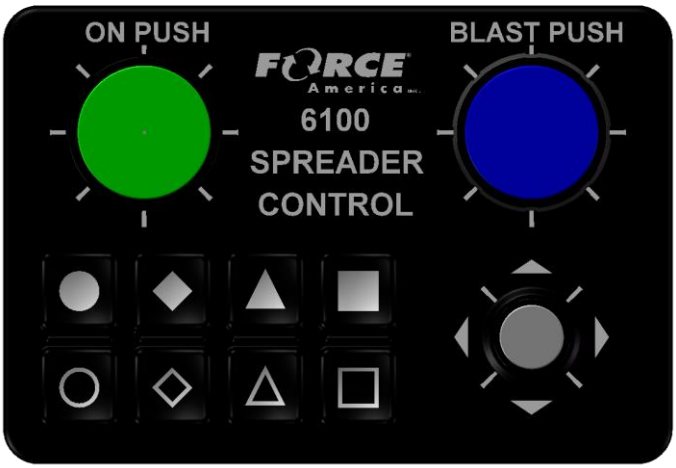

Figure 1: Operator Interface

Input	Action	Function
Green Knob 	Twist Left	Decrease the auger set rate.
	Twist Right	Increase the auger set rate.
	Pushbutton	Run outputs, Stop outputs.
Blue Knob 	Twist Left	Decrease the spinner set rate.
	Twist Right	Increase the spinner set rate.
	Pushbutton	Blast.
Gray Nav Stick 	Twist Left	Decrease digit by 1, Select previous calibration value.
	Twist Right	Increase digit by 1, Select next calibration value.
	Up	Highlight previous menu item, Increase digit by 1, Select previous calibration value.
	Down	Highlight next menu item, Decrease digit by 1, Select next calibration value.
	Left	Return to previous submenu, Select previous digit, Exit Calibration Menu.
	Right	Enter Submenu, Edit Calibration Item, Select next digit.
	Pushbutton	Enter Submenu, Edit Calibration Item, Save Calibration Item.

Input	Action	Function
Soft Switches 	8 Individual Pushbuttons	Correspond to the 8 functions shown in the soft switch panes on the lower left portion of the screen. Shapes on each button allow matching to the functions on the screen.

Calibration Menu

Entering the Calibration Menu

The Calibration Menu is entered using the Calibration Button on the Menu Soft Switch Pane on the Operation Screen. In order to enter the Calibration Menu, the vehicle must be in Standby. Unlike the Data Menu or the Unload Menu, the Calibration Menu requires the entry of an Access Code before it will appear.

To enter Calibration:

1. Move the Operator Interface's Gray Navigation Joystick, or Nav Stick left or right until the MENU soft switch pane is displayed.
2. Press the CALIBRATION soft switch to open the Calibration Menu. The Access Code window will appear, as shown in Figure 2.

Figure 2: Access Code Window

3. Enter the access code using one of the following two methods:
   a. Connect the Supervisor USB Key.
   b. Use the Nav Stick to enter the Access Code.

The default access code is 000000. For information on changing the Access Code, see page 5.

The Calibration Menu Items

The Calibration Menu contains all of the settings required to operate an SSC6100 system. Settings within the Calibration Menu are broken up into two categories: Fleet-Wide Settings and Vehicle Specific Settings.

The Calibration Menu uses a “NeverLost” menu system to ensure that navigating the settings is easy and quick. The Calibration Menu has four subsections: the Trackback Pane, Submenus, Menu Items, and the Soft Switches, as shown in Figure 3.

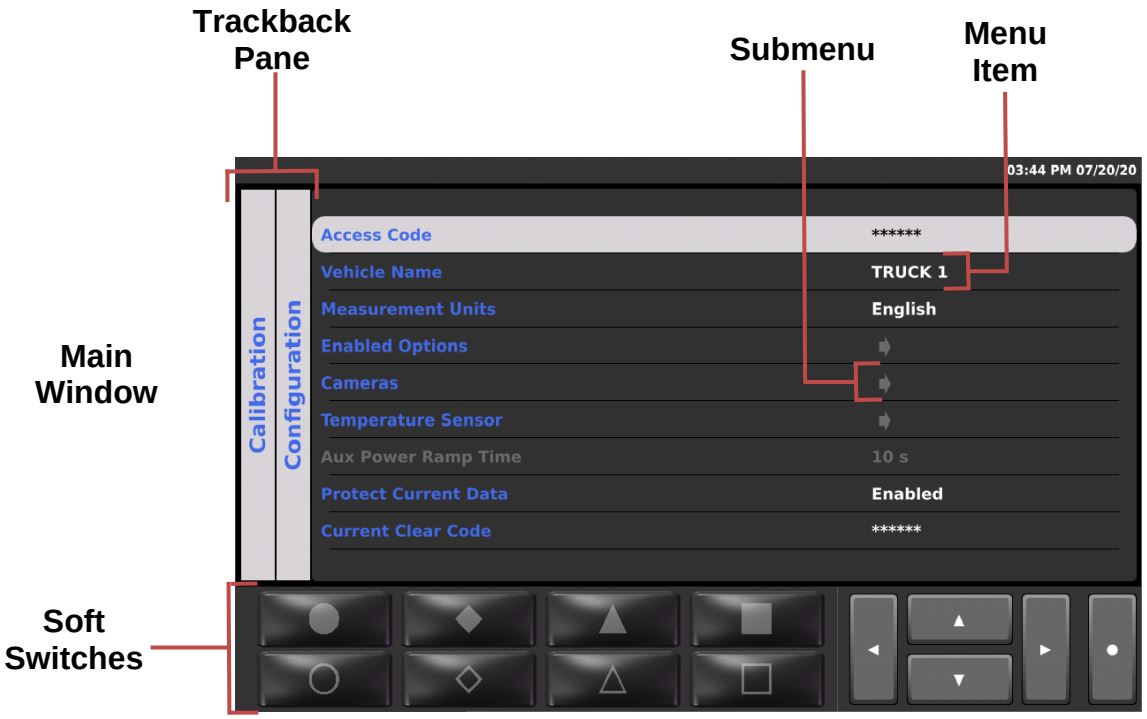

Figure 3: Calibration Menu

Descriptions of Calibration Values

This section will describe each calibration value in the Calibration Menu in detail. For a complete list of default settings, see Appendix A – Default Settings and Import/Export Types on page **Error! Bookmark not defined.**.

Configuration

Vehicle-wide settings, such as the supervisor access and clear codes, the vehicle's name, and enabled options.

Access Code

Changes the supervisor code required to enter the Calibration Menu or clear season data totals. It consists of 6 numbers and/or underscores which are set individually. The default value is 000000.

Vehicle Name

Changes the descriptive name given to the vehicle. This name is displayed on reports and as part of filenames when exporting. It can be set to 8 alphanumeric characters.

Measurement Units

Change the type of measurement system the vehicle uses for inputs and outputs.

Enabled Options

System-wide settings that can be enabled or disabled.

Sim Speed

Shows the SimSpeed data item and the SimSpeed soft switches in the UTIL2 soft switch pane and allow the user to simulate a ground speed without having to physically move the vehicle.

Distance Measure

Allows the user to measure and reset distances travelled by the vehicle using soft switches on the UTIL2 soft switch pane.

When SimSpeed is in use, the SSC6100 will disable the distance measure soft switches and distance data item.

Aux Power

Allows the use of the auger valve to run auxiliary functions. In order to operate the Aux Power feature the base truck or attached truck implement needs to contain a granular output.

Event Logging (Serial)

Selects the format of event logging that is transmitted to an external PreCise® MRM or 3rd party AVL device using the RS-232 connection on the Hub.

Event Logging (OTA)

Enables the built-in cellular data modem to transfer event data to the PreCise® MRM system in near real-time. OTA event logging requires a PreCise® MRM subscription.

Driver ID

Enables material usage and tracking per driver by requiring them to log in before running the spreader. Several log-in methods are available.

Momentary Spreading
Causes the standby button to operate in a momentary mode, requiring that it be continuously held down to spread material.

Diagnostics
Adds a diagnostic button in the UTIL2 pane which is useful for observing live system values that can be used to help in troubleshooting. This setting resets to disabled each time the spreader is power-cycled.

Cameras
Settings to enable and control the behavior of the optional camera inputs.

Dual Camera Mode
Allows for up to two cameras to be displayed on the screen at the same time.

Camera 1, Camera 2, & Camera 3 (Full Screen)

Orientation
Configures the screen image to account for various mounting scenarios including rear-facing and upside down mounted cameras.

Manual Select
Allows the user to select the active camera by pressing the Nav-Stick down function.

Trigger
Allows a custom configurable trigger signal to bring up the camera. See your FORCE America representative for options to setup these custom trigger options.

Triggered Shutoff Delay
Causes a triggered camera to remain on the screen for a set amount of time after the trigger signal has stopped.

Temperature Sensor
Sensor type and wireless sensor specific options.

Sensor Type
Selects the kind of temperature sensor attached to the 6100 whether wired or wireless. For wireless sensors also see Wireless Settings for options to pair the sensor to the SSC6100.

Temp Comp
Enables or disables material rate compensation based on real-time road surface temperature. Compensation profiles are setup under the Granular Materials and Prewet Materials menus.

T-Comp Averaging
Sets the number of temperature readings used to determine the average road temperature for T-Comp operation.

Wireless Settings
Pairs the wireless sensor to the 6100 and set various options that control when the sensor wakes up.

Sensor ID
Shows the currently selected sensor in green text or pairs a new one. Note that the sensor may need to be physically tapped to wake it up and ready it for pairing.

Report Interval
Adjusts how often the sensor reports a new reading. Increasing the reporting interval will conserve the sensor's battery power.

Wake Interval
Adjusts how often the sensor wakes up and tries to connect to the 6100 spreader control. Increasing the wake interval will conserve the sensor's battery power.

Acceleration Threshold
Adjusts how much vibration is required to wake up the sensor. Increasing the threshold can help reduce battery consumption in cases where wind or other environmental vibrations can cause the sensor to wake up while the vehicle is not in use.

X, Y, Z Acceleration Readings
Shows the actual peak and current acceleration values as a reference to help choose appropriate acceleration threshold values.

Aux Power Ramp Time
Sets how quickly the Aux Power output will ramp up to the set speed.

Protect Current Data
Enables a password screen when clearing "Current Data" from the Data menu. This password can be set differently than the supervisor access code.

Current Clear Code
Changes the code required to clear the current data from the Data menu. If Protect Current Data is Disabled, this code does nothing. The default value is 314159.

Create Driver ID
Programs a standard USB FLASH drive to become a custom driver key. For the menu to become available, the Driver ID key option has to be selected in the Enabled Options, Driver ID section and a USB FLASH drive needs to be plugged into one of the USB ports on the 6100.

Ground Speed

Vehicle speedometer input configuration settings.

Speedometer Type
Selects the speedometer input type to match the vehicle.

J1939 Baud Rate
Selects the CAN baud rate for the J1939 harness connection.

Pickup Sensitivity
Selects how sensitive the speedometer input is. Use a Low setting to help filter out noise and false readings. Custom trip points can also be set for specific applications.

Low Trip Point
Sets the voltage that the speedometer signal must drop below in order to register a pulse. It is only adjustable for the Custom Pickup Sensitivity type and can be adjusted by a passenger while the vehicle is moving to help determine the correct setting required to pick up a ground speed signal.

High Trip Point
Sets the voltage that the speedometer signal must climb above in order to register a pulse. It is only adjustable for the Custom Pickup Sensitivity type and can be adjusted by a passenger while the vehicle is moving to help determine the correct setting required to pick up a ground speed signal.

Axle Pulses
Defines how many pulses from the speedometer input are expected in 1 mile or kilometer. Pressing the AUTOCAL softswitch launches a step by step wizard that sets the pulses by driving a fixed distance.

The Axle Pulses can also be manually set. While the vehicle is moving, have a passenger adjust the Axle Pulses up or down until the speed displayed on the screen matches the vehicle's speedometer.

Jump Start Speed
Stabilizes the spreader outputs at low ground speeds by simulating an artificially higher than actual ground speed until the truck is moving fast enough. At speeds above zero, the system immediately starts spreading at the set jump start speed until that speed is exceeded.

Overspeed Alarm
Alerts the driver when he is exceeding the maximum allowed speed. If enabled, it can be set to always be active or only when spreading.

Overspeed Speed
Sets the speed that the vehicle must exceed for the system to display the Overspeed Warning. It is only available if the Overspeed Alarm setting is enabled.

Granular Materials

Settings used for general granular material application and for the individual granular materials.

Enabled Options
General granular application settings that apply to the truck and tow plow application systems.

Manual Mode
Enables the Granular Manual soft switch on the GRAN and/or TOW PLOW softswitch panes.

Unload Mode
Enables unload mode in the Unload menu.

AutoVerify Mode
Enables the AutoVerify softswitch in the Material menu which runs a step by step wizard that can be used to verify the calibration of each material.

Blast Mode
Sets Blast to operate for either a set Time or a set Distance each time the Blast button is pressed.

Blast Time
Sets the amount of seconds blast will run when it is activated in Blast Time mode.

Blast Distance
Sets the distance that blast will run when it is activated in Blast Distance mode.

Skip Mode
Enables the Skip Mode soft switch on the GRAN pane, which activates an on/off spread pattern for granular materials.

Skip On Distance
Sets the amount of distance the auger / conveyor and spinner will be actively spreading before switching off when Skip Mode is active.

Skip Off Distance
Sets the amount of distance the auger / conveyor and spinner will be off before switching back on when Skip Mode is active.

Loop Mode
Sets the control output into either Closed Loop or Open Loop Mode.

Materials Enabled
Sets how many materials will be available to the user.

Materials
Settings for each of the enabled granular materials.

Material 1, Material 2, Material 3, etc.
Custom settings for each particular granular material.

Material Name
Sets a custom name for the material. This name appears on the spreader operating screen and in the material select menu.

# of Set Rates
Sets how many set rates will be available to the user during operation.

Set Rates
Adjusts custom set rates available to the user for each material.

Set Rate 1, Set Rate 2, Set Rate 3, etc.
Sets the material rate for each setting.

Blast Rate
Sets the output rate when operating in Blast mode.

Temperature Compensation
Settings related to the granular Temperature Compensation mode.

Profile 1, Profile 2, Profile 3, etc.
Adjusts the individual temperature compensation values for each temperature profile.

Compensation at X, Compensation at Y, Compensation at Z, etc.
Adjusts the material compensation percentage for each given temperature point.

Prewet Materials

Settings used for general Prewet material application and for the individual prewet materials.

Enabled Options
General prewet application settings that can apply to the truck and tow plow application systems.

Manual Mode
Enables the Prewet Manual soft switch on the GRAN and/or TOW PLOW softswitch panes.

Unload Mode
Enables unload mode in the Unload menu.

AutoVerify Mode
Enables the AutoVerify softswitch in the Material menu which runs a step by step wizard that can be used to verify the calibration of each material.

Loop Mode
Sets the control output to either Closed Loop, Open Loop, On/Off, or Manual operation.

Materials Enabled
Sets how many Prewet materials will be available to user.

Materials
Settings for each of the enabled Prewet materials.

Material 1, Material 2, Material 3, etc.
Settings available for each enabled Prewet material.

Material Name
Sets a custom name for the Prewet material.

# of Set Rates
Sets how many rates will be available to the user during operation.

Set Rates
Custom set rates for Prewet materials.

Set Rate 1, Set Rate 2, Set Rate 3, etc.
Sets the Prewet rate for each setting.

# of Spray Bar Set Rates
Sets how many rates will be available to the user during operation.

Spray Bar Set Rates
Custom set rates for Prewet Spray Bar materials.

Set Rate 1, Set Rate 2, Set Rate 3, etc.
Sets the Prewet Spray Bar rate for each setting.

Temperature Compensation
Settings related to the Prewet Temperature Compensation mode.

Profile 1, Profile 2, Profile 3, etc.
Adjusts the individual temperature compensation values for each temperature profile.

Compensation at X, Compensation at Y, Compensation at Z, etc.
Adjusts the material compensation percentage for each given temperature point.

Direct Materials

Settings used for general direct liquid application and for the individual direct liquid materials.

Enabled Options
General direct liquid application settings that can apply to the truck and tow plow application systems.

Manual Mode
Enables the Direct Manual soft switch on the DIRECT and/or TOW PLOW softswitch panes.

Unload Mode
Enables unload mode in the Unload menu.

AutoVerify Mode
Enables the AutoVerify softswitch in the Material menu which runs a step by step wizard that can be used to verify the calibration of each material.

Blast Mode
Sets Blast to operate for either a set Time or a set Distance each time the Blast button is pressed.

Blast Time
Sets the amount of seconds blast will run when it is activated in Blast Time mode.

If simultaneous application is active, Direct Liquid's Blast Time will have no effect and the Granular Blast Time will be used.

Blast Distance
Sets the distance that blast will run when it is activated in Blast Distance mode.

If simultaneous application is active, Direct Liquid's Blast Distance will have no effect and the Granular Blast Distance will be used.

Loop Mode
Sets the control output into either Closed Loop or Open Loop Mode.

Materials Enabled
Sets how many materials will be available to the user.

Materials
Settings for each of the enabled Direct materials.

Material 1, Material 2, Material 3, etc.
Settings available for each enabled direct liquid material.

Material Name
Sets a custom name for the direct liquid material. This name appears on the spreader operating screen and in the material select menu.

# of Set Rates
Sets how many rates will be available to the user during operation.

Set Rates
Custom set rates for Direct materials.

Set Rate 1, Set Rate 2, Set Rate 3, etc.
Sets the Direct rate for each setting.

Blast Rate
Sets the output rate when operating in Blast mode.

Dust Control Materials

Settings used for dust control liquid application.

Enabled Options
General dust control application settings that can apply to the truck application systems.

Manual Mode
Enables the Dust Manual soft switch on the DUST softswitch pane.

Unload Mode
Enables unload mode in the Unload menu.

AutoVerify Mode
Enables the AutoVerify softswitch in the Material menu which runs a step by step wizard that can be used to verify the calibration of the material.

Loop Mode
Sets the control output into either Closed Loop or Open Loop Mode.

Left Boom, Center Boom, Right Boom Width
Sets the actual width of each control boom. This is used in calculation of the material rate.

Materials
Settings related to the dust control material.

Material 1
Settings available for the dust control material.

Material Name
Sets a custom name for the material. This name appears on the spreader operating screen and in the material select menu.

# of Set Rates
Sets how many rates will be available to the user during operation.

Set Rates
Adjusts custom set rates available for each material.

Set Rate 1, Set Rate 2, Set Rate 3, etc.
Sets the material rate for each setting.

Blast Rate
Sets the output rate when operating in Blast mode.

Herbicide Materials

Settings used for herbicide application.

Enabled Options
General herbicide settings that can apply to the truck application systems.

Manual Mode
Enables the Herbicide Manual soft switch on the HERBICIDE softswitch pane.

Unload Mode
Enables unload mode in the Unload menu.

AutoVerify Mode
Enables the AutoVerify softswitch in the Material menu which runs a step by step wizard that can be used to verify the calibration of the material.

Loop Mode
Sets the control output into either Closed Loop or Open Loop Mode.

Left Boom, Center Boom, Right Boom Width
Sets the actual width of each control boom. This is used in calculation of the material application rate.

Materials
Settings related to the herbicide material.

Material 1
Settings available for the herbicide material.

Material Name
Sets a custom name for the herbicide material. This name appears on the spreader operating screen and in the material select menu.

# of Set Rates
Sets how many rates will be available to the user during operation.

Set Rates
Custom set rates for the herbicide application.

Set Rate 1, Set Rate 2, Set Rate 3, etc.
Sets the rate for each setting.

Truck / Tow Plow

Settings related to both the truck mounted and tow plow systems including generic operating modes and material-specific options. Note that the actual settings available in this section of the Calibration menu will vary depending on the specific configuration of the system and will likely not have all of these settings and options.

Note: If your system uses Implements, make sure the associated Implement and material type you wish to calibrate is selected in the Implements menu before attempting to run outputs and calibrate the material. If your system contains multiple Implements with different material types and/or valve outputs, you will need to exit Calibration, select another implement, and re-enter calibration to set those up.

Auger / Conveyor
Settings for the Truck and/or Tow Plow granular system.

Enabled Options
Auger and conveyor settings that can be enabled or disabled.

Auger Reverse
Enables the Auger Reverse soft switch on the GRAN softswitch pane.

Clear Jam
Enables the Clear Jam Soft Switch on the GRAN softswitch pane.

Calib/Unload Auger
Defines the direction the Auger runs when in Calibration or Unload Mode.

Calib/Unload Cross
Defines the direction of the Cross Auger when in Calibration or Unload Mode.

Pulses per Revolution
Sets how many pulses the auger sensor produces in 1 revolution of the auger.

Valve Outputs - Auger Forward, Auger Reverse, Cross Augers 1-4, Tow Auger
Settings for optimizing system response by calibrating the valve drive Min and Max settings.

The actual number of outputs and the specific names for each of the outputs is dependent on how your system is configured. The process of calibrating the Min and Max settings should be repeated for each output.

Min DC
Raise this setting up to a point where the function is moving slowly and then reduce it until it just comes to a stop.

Max DC
Start with a high value and slowly reduce it until the function begins to slow down, then raise it back up until it just reaches full speed.

Maximum RPM (Forward, Reverse & Tow Augers)
Optimizes performance and accuracy by telling the system what the highest RPM that the function can achieve when running at maximum duty cycle.

Closed Loop Gain
Adjusts the responsiveness of the system in closed loop mode. Decrease this value to stabilize a hunting system, or increase this value to speed up a sluggish system.

Gate Mode (Truck only)
Selects the type of gate used by a conveyor style granular system. Two position requires sensors on the gate. Adjustable requires the operator to manually match the gate setting on the controller to the actual gate height on the spreader.

Material Settings
Configures the enabled granular materials that are specific to the application system.

Material X, Material Y, Material Z, etc.
Custom settings available for each granular material. The material names in this menu are defined in the Granular Materials – Materials menu section.

Calib Gate Height (Truck only)
Sets the gate height that is used when calibrating a given material. If this value is changed, it will require re-calibrating of the auger displacement.

Two Position Gate (Truck only)
Sets the expected gate position (high or low) to be used for each material.

Displacement
Sets the amount of material dispensed by the auger in one revolution of the auger sensor.

Pressing the AUTOCAL softswitch launches a step by step wizard that assists with determining the displacement setting.

Enabled Spinners (Tow Plow only)
Allows configuration of what spinners are enabled when the Tow Plow implement is activated

Spinner
Settings for the Truck and/or Tow Plow spinner(s).

Spinner Reverse (Truck only)
Enables the ability to reverse the rotational direction of the spinner.

Calib/Unload Spinner
Defines which Spinner will run when in Calibration or Unload mode.

Pulses per Revolution (Truck only)
Configures how many pulses from the spinner sensor are expected in 1 revolution of the spinner. Used to display the spinner RPM on one of the operation screen data items.

Separate Spread Width (Tow Plow Only)
Enables the ability to control the truck spinner's and tow plow spinner's spread width independently.

Spinner 1 - 4
Settings for optimizing system response by calibrating the valve drive Min and Max settings.

The actual number of outputs and the specific names for each of the outputs is dependent on how your system is configured. The process of calibrating the Min and Max settings should be repeated for each output.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu to make them available for calibration.

Min DC
Raise this setting up to a point where the function is moving slowly and then reduce it until it just comes to a stop.

Max DC
Start with a high value and slowly reduce it until the function begins to slow down, then raise it back up until it just reaches full speed.

Actuator Min
Sets the minimum valid voltage for the spinner position sensor. Only visible if the system is configured to use a Directional Spinner.

Actuator Max
Sets the maximum valid voltage for the spinner position sensor. Only visible if the system is configured to use a Directional Spinner.

Five Second Run On (Truck only)
Enables a mode that keeps the spinner running for 5 seconds after the spreader stops to keep the spinner disk clear of material.

Spinner Skip (Truck only)
Determines if the spinner stops during the Skip Off interval.

Prewet
Settings for the Truck and/or Tow Plow Prewet system.

Drive Type (Truck only)
Configures the Prewet drive method.

"Standard" uses a proportional valve on the valve stack. "Exhaust" uses a valve on the auger to send a portion of the oil flow to the prewet motor.

Pulses per Revolution
Configures how many pulses are expected in 1 revolution of the prewet flowmeter.

Prewet Output
Settings for optimizing system response by calibrating the valve drive Min and Max settings. The specific name of the output is dependent on how your system is configured.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu to make them available for calibration.

Min DC
Raise this setting up to a point where the function is moving slowly and then reduce it until it just comes to a stop.

Max DC
Start with a high value and slowly reduce it until the function begins to slow down, then raise it back up until it just reaches full speed.

Maximum RPM
Optimizes performance and accuracy by telling the system what the highest RPM that the function can achieve when running at maximum duty cycle.

Closed Loop Gain
Adjusts the responsiveness of the system in closed loop mode. Decrease this value to stabilize a hunting system, or increase this value to speed up a sluggish system.

Material Countdown
Sets up the material countdown functions that show the amount of liquid remaining in the tank

Material Countdown
Enables the material countdown function.

Tank Size
Sets the size of the liquid tank as a starting point for material countdown.

Low Liquid Level
Sets the percentage of remaining liquid that triggers the Low Liquid indication.

Material Settings
Configures the enabled Prewet materials that are specific to the application system.

Material X, Material Y, Material Z, etc.
Custom settings available for each particular prewet material. The material names in this menu are defined in the Prewet Materials – Materials menu.

Displacement
Sets the amount of material dispensed in one revolution of the prewet flowmeter.

Pressing the AUTOCAL softswitch launches a step by step wizard that assists with determining the displacement setting.

Direct Liquid
Settings for the Truck and/or Tow Plow Direct Liquid system.

Pulses per Revolution
Configures how many pulses are expected in 1 revolution of the direct liquid flowmeter.

Direct Output
Settings for optimizing system response by calibrating the valve drive Min and Max settings. The specific name of the output is dependent on how your system is configured.

> **Min DC**
> Raise this setting up to a point where the function is moving slowly and then reduce it until it just comes to a stop.
>
> **Max DC**
> Start with a high value and slowly reduce it until the function begins to slow down, then raise it back up until it just reaches full speed.

Maximum RPM
Optimizes performance and accuracy by telling the system what the highest RPM the function can achieve when running at maximum duty cycle.

Closed Loop Gain
Adjusts the responsiveness of the system in closed loop mode. Decrease this value to stabilize a hunting system, or increase this value to speed up a sluggish system.

High Boom
Sets the flow rate that determines when the flow should be redirected from the low boom to the high boom.

High/Low Boom
Sets the flow rate that determines when both the high and low booms will be used simultaneously to apply the direct liquid material.

Material Countdown
Sets up the material countdown functions that show the amount of liquid remaining in the tank

> **Material Countdown**
> Enables the material countdown function.
>
> **Tank Size**
> Sets the size of the liquid tank as a starting point for material countdown.
>
> **Low Liquid Level**
> Sets the percentage of remaining liquid that triggers the Low Liquid indication.

Material Settings
Configures the enabled Direct materials that are specific to the application system.

Material X, Material Y, Material Z, etc.
Custom settings available for each particular direct material. The material names in this menu are defined in the Direct Materials – Materials menu.

Displacement
Sets the amount of material dispensed in one revolution of the direct flowmeter.

Pressing the AUTOCAL softswitch launches a step by step wizard that assists with determining the displacement setting.

Dust Control (Truck only)
Settings for the vehicle's dust control liquid output.

Pulses per Revolution
Configures how many pulses are expected in 1 revolution of the Dust Control liquid flowmeter.

Dust Control Output
Settings for optimizing system response by calibrating the valve drive Min and Max settings. The specific name of the output is dependent on how your system is configured.

Min DC
Raise this setting up to a point where the function is moving slowly and then reduce it until it just comes to a stop.

Max DC
Start with a high value and slowly reduce it until the function begins to slow down, then raise it back up until it just reaches full speed.

Maximum RPM
Optimizes performance and accuracy by telling the system what the highest RPM the function can achieve when running at maximum duty cycle.

Closed Loop Gain
Adjusts the responsiveness of the system in closed loop mode. Decrease this value to stabilize a hunting system, or increase this value to speed up a sluggish system.

Material Settings
Configures the enabled Dust Control materials that are specific to the truck application system.

Material X
Custom settings available for each particular dust control material. The material names in this menu are defined in the Dust Control Materials – Materials menu.

Displacement
Sets the amount of material dispensed in one revolution of the dust control flowmeter.

Pressing the AUTOCAL softswitch launches a step by step wizard that assists with determining the displacement setting.

Herbicide (Truck only)
Settings for the vehicle's herbicide liquid output.

Pulses per Revolution
Configures how many pulses are expected in 1 revolution of the herbicide liquid flowmeter.

Herbicide Output
Settings for optimizing system response by calibrating the valve drive Min and Max settings. The specific name of the output is dependent on how your system is configured.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu to make them available for calibration.

Min DC
Raise this setting up to a point where the function is moving slowly and then reduce it until it just comes to a stop.

Max DC
Start with a high value and slowly reduce it until the function begins to slow down, then raise it back up until it just reaches full speed.

Maximum RPM
Optimizes performance and accuracy by telling the system what the highest RPM the function can achieve when running at maximum duty cycle.

Closed Loop Gain
Adjusts the responsiveness of the system in closed loop mode. Decrease this value to stabilize a hunting system, or increase this value to speed up a sluggish system.

Material Settings
Configures the herbicide material.

Material X
Settings available for the herbicide material. The material name is defined in the Herbicide Materials – Materials menu.

Displacement
Sets the amount of material dispensed in one revolution of the herbicide control flowmeter.

Pressing the AUTOCAL softswitch launches a step by step wizard that assists with determining the displacement setting.

Inputs
Settings for various inputs, sensors, and joysticks on the 6100 system.

Note that the actual settings available in this section of the Calibration menu will vary depending on the specific configuration of the system and will likely not have all of these settings and options.

Hub
Settings related to the inputs specific to the hub.

Input 1, 2, 3 Type
Sets the input to either interface to a Grounding or Sourcing type signal.

Joysticks
Contains input related settings that can be changed for 6100 systems with joystick controls.

Interlocks
Lists each joystick with a pushbutton interlock and allows you to change the interlock time. For MPJC type joysticks, the corresponding joystick label will blink to help you determine which interlock you are changing.

Auto Recall Times
Lists each auto recall setup in the system and allows you to set the corresponding recall time.

Float Delays
Lists each float setup in the system and allows you to set the corresponding delay.

Float Increment
Sets the size of the adjustment value used by the operator to set the Adjustable Power Float pressure using the FLOAT softswitches.

CommandAll® Single
Contains settings specific to a CommandAll Single Joystick.

Interlock Time
Adjusts how long the interlock will remain active after the joystick has been returned to center.

Main Function Activation
Adjusts how joystick functions behave. Latched joystick functions remain active until another joystick function is activated. Momentary joystick functions remain active until the joystick has been returned to center.

X Interlock, Y Interlock, Z Interlock, etc.
Enables or disables the interlock for the selected joystick function.

Outputs
Settings related to the outputs connected to the SSC6100.

Note: If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs and calibrate them. If your system contains multiple Implements you may need to exit Calibration, select another implement, and re-enter calibration to set those up.

Valve Frequency
Changes the PWM frequency of all the valve modules.

Joystick Outputs
Contains the adjustments associated with the joystick movements.

A “NORMALIZE JOYSTICKS” soft switch appears for certain joystick types. This function is used to recalibrate the joysticks in the event that a joystick or a related system component was replaced. See Joystick Normalization on page **Error! Bookmark not defined.** for more information.

Function Name
Lists all the joystick functions as defined in the hardware configuration file and allows access to the Min/Max settings for each one.

Min DC
Provides an adjustment to cause the function to come to a smooth stop at the same time the joystick is returned to center.

Max DC
Provides an adjustment to cause the function to just reach full speed at the same time the joystick reaches full travel.

Switch Outputs
Contains the output functions that are associated with the switches.

Switch Function Name
Lists all the Switch functions as defined in the hardware configuration file and allows access to the Max setting for each one.

Max
Sets the duty cycle that will be used by the output when it is active. This can be used to limit the full speed of the function.

Event Logging

Contains settings to configure the Event Logging system.

Intervals

Sets various trigger events based on various intervals.

Time

Enables the generation of repeated events based on a time interval.

Time

Sets an amount of time for a Time interval.

Distance

Enables the generation of repeated events based on a distance interval.

Distance

Sets the distance travelled between distance-based events.

Gran. Displacement

Enables the generation of repeated events based on a granular displacement interval.

Gran. Displacement

Sets the amount of granular material dispensed between Granular Displacement-based events.

Prewet Displacement

Enables the generation of repeated events based on a Prewet displacement interval.

Prewet Displacement

Sets the amount of Prewet material dispensed between Prewet Displacement-based events.

Direct Displacement

Enables the generation of repeated events based on a direct displacement interval.

Direct Displacement

Sets the amount of direct material dispensed between Direct Displacement-based events.

Generate in Standby

Enables the generation of events from intervals when the system is in Standby.

Alarms

Contains settings for the audible portion of each type of warning that is configured on the system.

Minimum Volume
Sets the minimum volume level for the system.

Blast
Contains settings unique to the Blast Warning.

Blast Alarm
Sets the audible alarm level that occurs when Blast Mode becomes active.

Body Up
Contains settings for the Body Up Warning.

Alarm
Sets the audible alarm level that occurs when the Body Up warning becomes active.

Driver ID
Contains settings for the Driver ID Login Warning.

Alarm
Sets the audible alarm level that occurs when the Driver ID login warning becomes active.

High Filter Bypass
Contains settings unique to the High Filter Bypass warning.

Alarm
Sets the audible alarm level that occurs when the High Filter Bypass warning becomes active.

Low Filter Bypass
Contains settings unique to the Low Filter Bypass warning.

Alarm
Sets the audible alarm level that occurs when the Low Filter Bypass warning becomes active.

Oil Level Warning
Contains settings unique to the Oil Level Warning.

Alarm
Sets the audible alarm level that occurs when the Oil Level warning becomes active.

Oil Temp Warning
Contains settings unique to the Oil Temp Warning.

Alarm
Sets the audible alarm level that occurs when the Oil Temp warning becomes active.

Overspeed Warning
Contains settings unique to the Overspeed Warning.

Alarm
Sets the audible alarm level that occurs when the Overspeed warning becomes active.

T-Comp Error
Contains settings unique to the T-Comp Error.

Alarm
Sets the audible alarm level that occurs when the T-Comp Error becomes active.

Granular
Contains settings unique to Granular Alarms.

Low Material Action
Sets the action that takes place when the Granular Low Material error becomes active.

Low Material Alarm
Sets the audible alarm level that occurs when the Granular Low Material warning becomes active.

Range Alarm
Sets the audible alarm level that occurs when the Auger/Conveyor Range Error becomes active.

Feedback Alarm
Sets the audible alarm level that occurs when the Auger/Conveyor Feedback Error becomes active.

Auger/Conveyor Unload Alarm
Sets the audible alarm level that occurs when Auger/Conveyor Unload becomes active.

Two Position Gate Alarm
Sets the audible alarm level that occurs when the Two Position Gate warning becomes active.

Clear Jam Alarm
Sets the audible alarm level that occurs when Clear Jam is requested.

Prewet
Contains settings unique to the Prewet Alarms.

Low Liquid Action
Sets the action that takes place when the Prewet Low Liquid error becomes active.

Low Liquid Alarm
Sets the audible alarm level that occurs when the Prewet Low Liquid error becomes active.

Range Alarm
Sets the audible alarm level that occurs when the Prewet Range Error becomes active.

Feedback Alarm
Sets the audible alarm level that occurs when the Prewet Feedback Error becomes active.

Unload Alarm
Sets the audible alarm level that occurs when Prewet Unload becomes active.

Direct
Contains settings unique to the Direct Alarms.

Low Liquid Action
Sets the action that takes place when the Direct Low Liquid Error becomes active.

Low Liquid Alarm
Sets the audible alarm level that occurs when the Direct Low Liquid Error becomes active.

Anti-Ice Low Liquid Alarm
Sets the audible alarm level that occurs when the Anti-Ice Low Liquid Error becomes active.

Range Alarm
Sets the audible alarm level that occurs when the Direct Range Error becomes active.

Feedback Alarm
Sets the audible alarm level that occurs when the Direct Feedback Error becomes active.

Unload Alarm
Sets the audible alarm level that occurs when the Direct Unload becomes active.

Dust Control
Contains settings unique to the Dust Control Alarms.

Low Liquid Action
Sets the action that takes place when the Dust Control Low Liquid Error becomes active.

Low Liquid Alarm
Sets the audible alarm level that occurs when the Dust Control Low Liquid Error becomes active.

Range Alarm
Sets the audible alarm level that occurs when the Dust Control Range Error becomes active.

Feedback Alarm
Sets the audible alarm level that occurs when the Dust Control Feedback Error becomes active.

Unload Alarm
Sets the audible alarm level that occurs when the Dust Control Unload becomes active.

Herbicide
Contains settings unique to the Herbicide Alarms.

Low Liquid Action
Sets the action that takes place when the Herbicide Low Liquid Error becomes active.

Low Liquid Alarm
Sets the audible alarm level that occurs when the Herbicide Low Liquid Error becomes active.

Range Alarm
Sets the audible alarm level that occurs when the Herbicide Range Error becomes active.

Feedback Alarm
Sets the audible alarm level that occurs when the Herbicide Feedback Error becomes active.

Unload Alarm
Sets the audible alarm level that occurs when the Herbicide Unload becomes active.

Spinner
Contains settings unique to the Spinner Alarms.

Range Alarm
Sets the audible alarm level that occurs when the Spinner Range Error becomes active.

Feedback Alarm
Sets the audible alarm level that occurs when the Spinner Feedback Error becomes active.

Hardware Config Warnings
Contains settings that relate to custom warning inputs that are defined in Hardware Configuration.

Warning Name
Sets the audible alarm level that occurs for each of the custom Hardware Configuration defined warnings when they become active.

Systems Management

Contains settings and information related to the general operation of the system.

Settings Management

Provides tools for exporting, importing, or restoring calibration settings to their default settings.

If you experience issues importing or exporting data from your flash drive, see FORCE America Technical Service Bulletin TSB0004.

For a complete list of Fleet-Wide, Vehicle Specific, and Default settings, see Appendix A – Default Settings and Import/Export Types on page **Error! Bookmark not defined.**.

Import All Settings (OTA)

Imports all your configuration settings from a .CONFIG file received OTA. Receipt of a valid .CONFIG file will activate the option.

Import All Settings (USB)

Imports all your configuration settings from a .CONFIG file selected on a USB flash drive. Insert a USB flash drive to activate the menu.

Import Fleet Settings (OTA)

Imports all your configuration settings from a .CONFIG file received OTA. Receipt of a valid .CONFIG file will activate the option.

Import Fleet Settings (USB)

Imports only the fleet configuration settings from a .CONFIG from a file selected on a USB flash drive. Insert a USB flash drive to activate the menu.

Clear OTA Calib File

Clears the .CONFIG file that was received OTA.

Export All Settings (USB)

Exports all the configuration settings to a USB flash drive as both a .CONFIG and .TXT file using a specified file name. Insert a USB flash drive to activate the menu.

Restore Default Settings

Restores the 6100 system to all of its default settings. This will not affect the Hardware Configuration settings.

Date/Time

Allows setting of the time zone used by the system to automatically set the correct date and time from a GPS or Cellular connection.

Time Zone

Allows selecting the time zone to match your location. Selecting a Time Zone automatically selects whether or not your system supports Daylight Savings Time.

Shutdown
Provides the ability to manually restart the spreader control.

Restart Now
Restarts system without having to cycle the dashkey power on the truck.

Devices
Contains settings to configure external CAN modules connected to the system.

Module Name (MPJC, CommandAll, 20 Port, 10 Port, DLA, IMO4)
Allows each CAN module setup in the Hardware Config to be assigned by serial number. Choose from the list of available modules on the list. To swap between two module serial numbers, first set both to Nonconfigured. Devices can be paired by serial number for future use without having to reselect them.

Version Menu
Provides information about the various system firmware versions, serial numbers, and provides diagnostic tools for troubleshooting.

Firmware Upgrade
Provides methods of upgrading the main operating system firmware.

Over the Air (OTA) Upgrade
Performs an upgrade from a file received via cellular connection. PreCise MRM subscription required.

USB Upgrade
Performs an upgrade from a .UPGRADE file on a USB flash drive. Insert a USB flash drive to activate the menu.

Hardware Config
Provides methods of managing the hardware configuration settings that determine the capabilities of the system.

Import HW Config File
Allows the import of a new Hardware Configuration File from a USB flash drive by choosing from a list of available files. Insert a USB flash drive to activate the menu.

Restore Previous HW Config
Reverts the system to the hardware configuration prior to the last import.

Restore Factory HW Config
Reverts the system to the hardware configuration with the most recent hardware configuration that matches the number that the unit was initially shipped with.

Unlock HW Config
Unlocks hardware configuration settings for modification and export. Reserved for FORCE America personnel.

Export Diagnostic Log (USB)
Exports system logs and other information to a connected USB flash drive to allow a Force America Technical Support Representative to help with troubleshooting.

Send Diagnostic Log
Exports system logs and other information via an Over the Air connection to allow a Force America Technical Support Representative to help with troubleshooting.

LCD Firmware
Displays the current version of main system firmware.

HW Config File
Displays the Hardware Configuration File number and version.

Hub (SN x)
Displays the firmware revision of the 6100 connection hub.

Operator Interface (Sn x)
Displays the firmware version of the operator interface.

System Modules - MPJC, CommandAll, 20-Port, 10-Port, DLA, IM04
Displays the current version for each of the connected modules as defined in the Hardware Config file.

Modem Type (SN 000000)
Displays the model of the PreCise MRM communications modem.

ICC ID
Displays the unique modem ID used with the activation code for registering the system on the PreCise MRM service.

Activation Code
Displays the unique activation code used with the ICC ID for registering the system on the PreCise MRM service.

Auto Calibration

A set of wizards can be used to guide the process of calibrating the ground speed pickup and each of the materials. An “AUTOCAL” softswitch is present on any calibration item that supports auto calibration.

Pressing this softswitch button starts a step-by-step Autocal wizard. AutoCal can be cancelled at any time by pressing the “CANCEL” soft switch button.

AutoCalibration of Axle Pulses

Calibrates the axle pulses to match the speedometer output on the vehicle so that the spreader control can accurately dispense material over the distance travelled.

Before Calibrating the Axle Pulses:

1. Set the speedometer type and sensitivity.
2. Verify that the system can read the ground speed signal from the vehicle.
3. Drive the vehicle to the starting point of an accurately measured distance (1 mile or 1 kilometer).

To AutoCalibrate the Axle Pulses:

STEP 1: Navigate into the Ground Speed menu. See page 7.
STEP 2: Navigate into the Axle Pulses calibration item.
STEP 3: Press the Filled Circle Soft Switch on the Operator Interface labeled “AutoCal”.
STEP 4: Follow the steps on the screen to measure the axle pulses value.
STEP 5: Upon completing the wizard, the measured axle pulses value will be displayed.
STEP 6: The Auto Call wizard will detect and offer suggestions to remedy any issues that might occur during the autocal process.
STEP 7: Press the navstick pushbutton to save the value.

AutoCalibration of Granular Material Displacements

Calibrates the displacement for each granular material for the truck and tow plow augers / conveyors. Granular displacement calibration requires a method of weighing the granular material using either a portable scale or truck scale.

Before Calibrating the Granular Material Displacements:

1. Select the associated Implement in the Implements menu (if applicable).
2. Set the Auger Feedback Sensor pulses per revolution.
3. Adjust the Auger Forward Minimum and Maximum Duty Cycle.
4. If applicable, choose a calibrated gate height and physically adjust the gate and set the calibrated gate height in calibration screen to that height.
5. Fill the spreader about half full with the material to be calibrated.
6. Drive to an area where material can be dispensed from the spreader.

To Auto Calibrate a Granular Material’s Displacement value:

STEP 1: Navigate into the Truck Granular Material Settings menu, see page **Error! Bookmark not defined.**.
STEP 2: Select the Granular Material you wish to calibrate.

STEP 3: Navigate into the Displacement calibration item.
STEP 4: Press the Filled Circle Soft Switch on the Operator Interface labeled “AutoCal”.
STEP 5: Follow the steps on the screen to calibrate the displacement value.
STEP 6: The Auto Call wizard will detect and offer suggestions to remedy any issues that might occur during the autocal process.
STEP 7: Press the navstick pushbutton to save the value.

AutoCalibration of Liquid Material Displacements

Calibrates the displacement for each liquid material for the Prewet, Direct Application, Dust Control, and Herbicide systems. Liquid displacement calibration requires a method of capturing and measuring the volume of dispensed liquid.

Before Calibrating Liquid Material Displacements:

1. Select the associated Implement in the Implements menu (if applicable).
2. Set the associated liquid Feedback Sensor pulses per revolution.
3. Adjust the liquid output’s Minimum and Maximum Duty Cycle settings.
4. If using Auger-exhaust prewet mode, it is recommended that the spreader be empty of granular material because it will be necessary to run the auger during prewet calibration.
5. Fill the liquid tank about half full with the material to be calibrated.
6. Drive to an area where material can be dispensed and captured.

To AutoCalibrate a Liquid Material Displacement:

STEP 1: Navigate into the associated Liquid Material Settings menu.
STEP 2: Select the Liquid Material you wish to calibrate.
STEP 3: Navigate into the Displacement calibration item.
STEP 4: Press the Filled Circle Soft Switch on the Operator Interface labeled “AutoCal”.
STEP 5: Follow the steps on the screen to calibrate the displacement value.
STEP 6: The Auto Call wizard will detect and offer suggestions to remedy any issues that might occur during the autocal process.
STEP 7: Press the navstick pushbutton to save the value.

Joystick Normalization

MPJC Ultra and Spartan SPJC™ joysticks are normalized at the factory prior to shipment. In the case that a joystick has been replaced with a new one, or the system has reported a joystick normalization error, the SSC6100 provides a means of normalizing the joystick.

To Normalize a Joystick:

STEP 1: Enter the Calibration Menu and navigate into the Joysticks submenu located in the Outputs menu.
STEP 2: Press the NORMALIZE JOYSTICKS soft switch.
STEP 3: The Joystick Normalization wizard will appear.
STEP 4: Follow the steps on the screen to select and normalize a joystick.
STEP 5: The Joystick Normalization wizard will detect and offer suggestions to remedy any issues that might occur during the normalization process.

Appendix A – Default Settings and Import/Export Types

This section lists each calibration item, its default value, and whether it is a Fleet-Wide setting or a Vehicle Specific setting. Note that these settings are all in English (Imperial) units.

Calibration Item	Default Value	Type
CONFIGURATION		
Access Code	000000	Fleet-Wide
Vehicle Name	TRUCK 1	Vehicle Specific
Minimum Volume	2	Fleet-Wide
Measurement Units	English	Fleet-Wide
SimSpeed	Disabled	Fleet-Wide
Distance Measure	Disabled	Fleet-Wide
Aux Power	Disabled	Vehicle Specific
Event Logging (Serial)	Disabled	Fleet-Wide
Event Logging (OTA)	Disabled	Fleet-Wide
Driver ID	Disabled	Fleet-Wide
Momentary Spreading	Disabled	Fleet-Wide
Dual Camera Mode	Disabled	Vehicle Specific
Orientation	None	Vehicle Specific
Manual Select	Disabled	Vehicle Specific
Trigger	Disabled	Vehicle Specific
Triggered Shutoff Delay	0 seconds	Vehicle Specific
Sensor Type	None	Fleet-Wide
Temp Comp	Disabled	Fleet-Wide
T-Comp Averaging	1	Fleet-Wide
Sensor Id	0000000000000000	Vehicle Specific
Report Interval	2 seconds	Fleet-Wide
Wake Interval	10 seconds	Fleet-Wide
Acceleration Threshold	3	Fleet-Wide
Aux Power Ramp Time	10 seconds	Vehicle Specific
Protect Current Data	Enabled	Fleet-Wide
Current Clear Code	314159	Fleet-Wide

GROUND SPEED		
Speedometer Type	Electronic	Vehicle Specific
J1939 Baud Rate	1 (250k/bit)	Vehicle Specifc
Pickup Sensitivity	High	Vehicle Specific
Low Trip Point	0.5	Vehicle Specific
High Trip Point	2.0	Vehicle Specific
Axle Pulses	40000 Pulse/MI	Vehicle Specific
Jump Start Speed	15 MPH	Fleet-Wide
Overspeed Alarm	Disabled	Fleet-Wide
Overspeed Speed	45 MPH	Fleet-Wide
GRANULAR MATERIALS		
Manual Mode	Enabled	Fleet-Wide
Unload Mode	Disabled	Fleet-Wide
AutoVerify Mode	Enabled	Fleet-Wide
Blast Mode	Time	Fleet-Wide
Blast Time	10 seconds	Fleet-Wide
Blast Distance	250 FT	Fleet-Wide
Skip Mode	Disabled	Fleet-Wide
Skip On Distance	250 FT	Fleet-Wide
Skip Off Distance	250 FT	Fleet-Wide
Loop Mode	Closed	Fleet-Wide
Materials Enabled	1	Fleet-Wide
Material Name	MAT1	Fleet-Wide
# of Set Rates	10	Fleet-Wide
Set Rate 1	100 lbs/mi	Fleet-Wide
Set Rate 2	200 lbs/mi	Fleet-Wide
Set Rate 3	300 lbs/mi	Fleet-Wide
Set Rate 4	400 lbs/mi	Fleet-Wide
Set Rate 5	500 lbs/mi	Fleet-Wide
Set Rate 6	600 lbs/mi	Fleet-Wide
Set Rate 7	700 lbs/mi	Fleet-Wide
Set Rate 8	800 lbs/mi	Fleet-Wide
Set Rate 9	900 lbs/mi	Fleet-Wide

Set Rate 10	1000 lbs/mi	Fleet-Wide
Blast Rate	1000 lbs/mi	Fleet-Wide
Compensation at 0F	100 %	Fleet-Wide
Compensation at 2F	100 %	Fleet-Wide
Compensation at 4F	100 %	Fleet-Wide
Compensation at 6F	100 %	Fleet-Wide
Compensation at 8F	100 %	Fleet-Wide
Compensation at 10F	100 %	Fleet-Wide
Compensation at 12F	100 %	Fleet-Wide
Compensation at 14F	100 %	Fleet-Wide
Compensation at 16F	100 %	Fleet-Wide
Compensation at 18F	100 %	Fleet-Wide
Compensation at 20F	100 %	Fleet-Wide
Compensation at 22F	100 %	Fleet-Wide
Compensation at 24F	100 %	Fleet-Wide
Compensation at 26F	100 %	Fleet-Wide
Compensation at 28F	100 %	Fleet-Wide
Compensation at 30F	100 %	Fleet-Wide
Compensation at 32F	100 %	Fleet-Wide
Compensation at 34F	100 %	Fleet-Wide
Compensation at 36F	100 %	Fleet-Wide
Compensation at 38F	100 %	Fleet-Wide
PREWET MATERIALS		
Manual Mode	Disabled	Fleet-Wide
Unload Mode	Disabled	Fleet-Wide
AutoVerify Mode	Enabled	Fleet-Wide
Blast Mode	Time	Fleet-Wide
Blast Time	10 seconds	Fleet-Wide
Blast Distance	250 FT	Fleet-Wide
Loop Mode	Closed	Fleet-Wide
Materials Enabled	1	Fleet-Wide
Material Name	PWT1	Fleet-Wide
# of Set Rates	6	Fleet-Wide

Set Rate 1	3 gal/ton	Fleet-Wide
Set Rate 2	4 gal/ton	Fleet-Wide
Set Rate 3	5 gal/ton	Fleet-Wide
Set Rate 4	6 gal/ton	Fleet-Wide
Set Rate 5	7 gal/ton	Fleet-Wide
Set Rate 6	8 gal/ton	Fleet-Wide
Set Rate 7	9 gal/ton	Fleet-Wide
Set Rate 8	10 gal/ton	Fleet-Wide
Set Rate 9	11 gal/ton	Fleet-Wide
Set Rate 10	12 gal/ton	Fleet-Wide
# of Spray Bar Set Rates	0	Fleet-Wide
Spray Bar Set Rate 1	20 gal/mi	Fleet-Wide
Spray Bar Set Rate 2	25 gal/mi	Fleet-Wide
Spray Bar Set Rate 3	30 gal/mi	Fleet-Wide
Spray Bar Set Rate 4	35 gal/mi	Fleet-Wide
Spray Bar Set Rate 5	40 gal/mi	Fleet-Wide
Spray Bar Set Rate 6	45 gal/mi	Fleet-Wide
Spray Bar Set Rate 7	50 gal/mi	Fleet-Wide
Spray Bar Set Rate 8	55 gal/mi	Fleet-Wide
Spray Bar Set Rate 9	60 gal/mi	Fleet-Wide
Spray Bar Set Rate 10	65 gal/mi	Fleet-Wide
Blast Rate	65 gal/mi	Fleet-Wide
Compensation at 0F	100 %	Fleet-Wide
Compensation at 2F	100 %	Fleet-Wide
Compensation at 4F	100 %	Fleet-Wide
Compensation at 6F	100 %	Fleet-Wide
Compensation at 8F	100 %	Fleet-Wide
Compensation at 10F	100 %	Fleet-Wide
Compensation at 12F	100 %	Fleet-Wide
Compensation at 14F	100 %	Fleet-Wide
Compensation at 16F	100 %	Fleet-Wide
Compensation at 18F	100 %	Fleet-Wide
Compensation at 20F	100 %	Fleet-Wide

Compensation at 22F	100 %	Fleet-Wide
Compensation at 24F	100 %	Fleet-Wide
Compensation at 26F	100 %	Fleet-Wide
Compensation at 28F	100 %	Fleet-Wide
Compensation at 30F	100 %	Fleet-Wide
Compensation at 32F	100 %	Fleet-Wide
Compensation at 34F	100 %	Fleet-Wide
Compensation at 36F	100 %	Fleet-Wide
Compensation at 38F	100 %	Fleet-Wide
DIRECT MATERIALS		
Manual Mode	Disabled	Fleet-Wide
Unload Mode	Disabled	Fleet-Wide
AutoVerify Mode	Enabled	Fleet-Wide
Blast Mode	Time	Fleet-Wide
Blast Time	10 seconds	Fleet-Wide
Blast Distance	250 FT	Fleet-Wide
Loop Mode	Closed	Fleet-Wide
Materials Enabled	1	Fleet-Wide
Material Name	DIR1	Fleet-Wide
# of Set Rates	10	Fleet-Wide
Set Rate 1	20 gal/mi	Fleet-Wide
Set Rate 2	25 gal/mi	Fleet-Wide
Set Rate 3	30 gal/mi	Fleet-Wide
Set Rate 4	35 gal/mi	Fleet-Wide
Set Rate 5	40 gal/mi	Fleet-Wide
Set Rate 6	45 gal/mi	Fleet-Wide
Set Rate 7	50 gal/mi	Fleet-Wide
Set Rate 8	55 gal/mi	Fleet-Wide
Set Rate 9	60 gal/mi	Fleet-Wide
Set Rate 10	65 gal/mi	Fleet-Wide
Blast Rate	65 gal/mi	Fleet-Wide
DUST CONTROL MATERIALS		
Manual Mode	Disabled	Fleet-Wide

Unload Mode	Disabled	Fleet-Wide
AutoVerify Mode	Disabled	Fleet-Wide
Loop Mode	Closed	Fleet-Wide
Left Boom Width	120 in	Fleet-Wide
Center Boom Width	120 in	Fleet-Wide
Right Boom Width	120 in	Fleet-Wide
Material Name	DUST	Fleet-Wide
# of Set Rates	10	Fleet-Wide
Set Rate 1	0.10 gal/yd^2	Fleet-Wide
Set Rate 2	0.15 gal/yd^2	Fleet-Wide
Set Rate 3	0.20 gal/yd^2	Fleet-Wide
Set Rate 4	0.25 gal/yd^2	Fleet-Wide
Set Rate 5	0.30 gal/yd^2	Fleet-Wide
Set Rate 6	0.35 gal/yd^2	Fleet-Wide
Set Rate 7	0.40 gal/yd^2	Fleet-Wide
Set Rate 8	0.45 gal/yd^2	Fleet-Wide
Set Rate 9	0.50 gal/yd^2	Fleet-Wide
Set Rate 10	0.55 gal/yd^2	Fleet-Wide
HERBICIDE MATERIALS		
Manual Mode	Disabled	Fleet-Wide
Unload Mode	Disabled	Fleet-Wide
AutoVerify Mode	Disabled	Fleet-Wide
Loop Mode	Closed	Fleet-Wide
Left Boom Width	120 in	Fleet-Wide
Center Boom Width	120 in	Fleet-Wide
Right Boom Width	120 in	Fleet-Wide
Material Name	HERB	Fleet-Wide
# of Set Rates	10	Fleet-Wide
Set Rate 1	5 GAL/AC	Fleet-Wide
Set Rate 2	10 GAL/AC	Fleet-Wide
Set Rate 3	15 GAL/AC	Fleet-Wide
Set Rate 4	20 GAL/AC	Fleet-Wide
Set Rate 5	25 GAL/AC	Fleet-Wide

Set Rate 6	30 GAL/AC	Fleet-Wide
Set Rate 7	35 GAL/AC	Fleet-Wide
Set Rate 8	40 GAL/AC	Fleet-Wide
Set Rate 9	45 GAL/AC	Fleet-Wide
Set Rate 10	50 GAL/AC	Fleet-Wide
TRUCK – AUGER / CONVEYOR		
Auger Reverse	Disabled	Fleet-Wide
Clear Jam	Disabled	Fleet-Wide
Calib/Unload Auger	Forward	Fleet-Wide
Calib/Unload Cross	Disabled	Fleet-Wide
Pulses per Revolution	512	Fleet-Wide
Minimum Duty Cycle (Forward Outputs)	20 %	Vehicle Specific
Maximum Duty Cycle (Forward Outputs)	75 %	Vehicle Specific
Maximum Forward RPM	100	Vehicle Specific
Minimum Duty Cycle (Reverse Outputs)	20 %	Vehicle Specific
Maximum Duty Cycle (Reverse Outputs)	75 %	Vehicle Specific
Maximum Reverse RPM	100	Vehicle Specific
Minimum Duty Cycle (Cross 1 Outputs)	20 %	Vehicle Specific
Maximum Duty Cycle (Cross 1 Outputs)	75 %	Vehicle Specific
Minimum Duty Cycle (Cross 2 Outputs)	20 %	Vehicle Specific
Maximum Duty Cycle (Cross 2 Outputs)	75 %	Vehicle Specific
Minimum Duty Cycle (Cross 3 Outputs)	20 %	Vehicle Specific
Maximum Duty Cycle (Cross 3 Outputs)	75 %	Vehicle Specific
Minimum Duty Cycle (Cross 4 Outputs)	20 %	Vehicle Specific
Maximum Duty Cycle (Cross 4 Outputs)	75 %	Vehicle Specific
Closed Loop Gain	250	Vehicle Specific
Gate Mode	None	Fleet-Wide
TRUCK – AUGER / CONVEYOR – MATERIAL SETTINGS		
Calib Gate Height	4.0 in	Fleet-Wide
Two Position Gate	Low	Fleet-Wide
Displacement	10.0 lbs/rev	Vehicle Specific
TRUCK – SPINNER		
Spinner Reverse	Disabled	Fleet-Wide

Calib/Unload Spinner	1	Fleet-Wide
Pulses Per Revolution	60	Vehicle Specific
Minimum Duty Cycle (Spinner 1 Output)	20 %	Vehicle Specific
Maximum Duty Cycle (Spinner 1 Output)	75 %	Vehicle Specific
Minimum Duty Cycle (Spinner 2 Output)	20 %	Vehicle Specific
Maximum Duty Cycle (Spinner 2 Output)	75 %	Vehicle Specific
Minimum Duty Cycle (Spinner 3 Output)	20 %	Vehicle Specific
Maximum Duty Cycle (Spinner 3 Output)	75 %	Vehicle Specific
Minimum Duty Cycle (Spinner 4 Output)	20 %	Vehicle Specific
Maximum Duty Cycle (Spinner 4 Output)	75 %	Vehicle Specific
Actuator Min	0.4	Fleet-Wide
Actuator Max	4.6	Fleet-Wide
Five Second Run On	Disabled	Fleet-Wide
Spinner Skip	Disabled	Fleet-Wide
TRUCK – PREWET		
Drive Type	Standard	Fleet-Wide
Pulses per Revolution	12	Fleet-Wide
Minimum Duty Cycle	20 %	Vehicle Specific
Maximum Duty Cycle	75 %	Vehicle Specific
Maximum RPM	1500	Vehicle Specific
Closed Loop Gain	250	Vehicle Specific
Material Countdown	Disabled	Fleet-Wide
Tank Size	200 gal	Fleet-Wide
Low Liquid Level	10 %	Fleet-Wide
TRUCK – PREWET – MATERIAL SETTINGS		
Displacement	0.35 oz/rev	Vehicle Specific
TRUCK – DIRECT LIQUID		
Pulses Per Revolution	10	Fleet-Wide
Minimum Duty Cycle	20 %	Vehicle Specific
Maximum Duty Cycle	75 %	Vehicle Specific
Maximum RPM	1500	Vehicle Specific
Closed Loop Gain	250	Vehicle Specific
High Boom	30 GPM	Vehicle Specific

High/Low Boom	60 GPM	Vehicle Specific
Material Countdown	Disabled	Fleet-Wide
Tank Size	1800 gal	Fleet-Wide
Low Liquid Level	20 %	Fleet-Wide
TRUCK – DIRECT LIQUID – MATERIAL SETTINGS		
Displacement	13.20 oz/rev	Vehicle Specific
TRUCK – DUST CONTROL		
Pulses Per Revolution	10	Fleet-Wide
Minimum Duty Cycle	20 %	Vehicle Specific
Maximum Duty Cycle	75 %	Vehicle Specific
Maximum RPM	1500	Vehicle Specific
Closed Loop Gain	250	Vehicle Specific
TRUCK – DUST CONTROL – MATERIAL SETTINGS		
Displacement	13.20 oz/rev	Vehicle Specific
TRUCK HERBICIDE		
Pulses Per Revolution	10	Fleet-Wide
Minimum Duty Cycle	20 %	Vehicle Specific
Maximum Duty Cycle	75 %	Vehicle Specific
Maximum RPM	1500	Vehicle Specific
Closed Loop Gain	250	Vehicle Specific
TRUCK – HERBICIDE – MATERIAL SETTINGS		
Displacement	13.20 oz/rev	Vehicle Specific
TOW PLOW – AUGER / CONVEYOR		
Pulses per Revolution	512	Fleet-Wide
Minimum Duty Cycle	20 %	Vehicle Specific
Maximum Duty Cycle	75 %	Vehicle Specific
Maximum RPM	100	Vehicle Specific
Closed Loop Gain	250	Vehicle Specific
TOW PLOW – AUGER / CONVEYOR – MATERIAL SETTINGS		
Displacement	10.0 lbs/rev	Vehicle Specific
Enabled Spinners	Tow Plow Only	Vehicle Specific
TOW PLOW – SPINNER		
Separate Spread Width	Disabled	Vehicle Specific

Minimum Duty Cycle	20 %	Vehicle Specific
Maximum Duty Cycle	75 %	Vehicle Specific
TOW PLOW – PREWET		
Pulses per Revolution	20	Fleet-Wide
Minimum Duty Cycle	20 %	Vehicle Specific
Maximum Duty Cycle	75 %	Vehicle Specific
Maximum RPM	100	Vehicle Specific
Closed Loop Gain	250	Vehicle Specific
Material Countdown	Disabled	Fleet-Wide
Tank Size	200 gal	Fleet-Wide
Low Liquid Level	10 %	Fleet-Wide
TOW PLOW – PREWET – MATERIAL SETTINGS		
Displacement	0.35 oz/rev	Vehicle Specific
TOW PLOW DIRECT LIQUID		
Pulses Per Revolution	10	Fleet-Wide
Minimum Duty Cycle	20 %	Vehicle Specific
Maximum Duty Cycle	75 %	Vehicle Specific
Maximum RPM	1500	Vehicle Specific
Closed Loop Gain	250	Vehicle Specific
High Boom	30 GPM	Vehicle Specific
High/Low Boom	60 GPM	Vehicle Specific
Material Countdown	Disabled	Fleet-Wide
Tank Size	1800 gal	Fleet-Wide
Low Liquid Level	20 %	Fleet-Wide
TOW PLOW – DIRECT LIQUID – MATERIAL SETTINGS		
Displacement	13.20 oz/rev	Vehicle Specific
INPUTS		
Input 1 Type	Sourcing	Vehicle Specific
Input 2 Type	Sourcing	Vehicle Specific
Input 3 Type	Sourcing	Vehicle Specific
JOYSTICKS		
Interlocks	0	Vehicle Specific
Auto Recall Times	0	Vehicle Specific

Float Delays	0	Vehicle Specific
Float Increment	5%	Vehicle Specific
CommandAll® Single		
Interlock Time	0	Vehicle Specific
Activations	Momentary	Vehicle Specific
Interlocks	Enabled	Vehicle Specific
OUTPUTS		
Valve Frequency	200 Hz	Fleet-Wide
JOYSTICK FUNCTION NAME		
Min	20%	Vehicle Specific
Max	75%	Vehicle Specific
SWITCH FUNCTION NAME		
Max	100%	Vehicle Specific
EVENT LOGGING – INTERVALS		
Time	Disabled	Fleet-Wide
Time	300 seconds	Fleet-Wide
Distance	Disabled	Fleet-Wide
Distance	2000 feet	Fleet-Wide
Gran. Displacement	Disabled	Fleet-Wide
Gran. Displacement	2000 lbs	Fleet-Wide
Prewet Displacement	Disabled	Fleet-Wide
Prewet Displacement	768 oz	Fleet-Wide
Direct Displacement	Disabled	Fleet-Wide
Direct Displacement	250 gal	Fleet-Wide
Generate in Standby	Disabled	Fleet-Wide
ALARMS		
Minimum Volume	2	Fleet-Wide
Blast Warning Alarm	Single Beep	Fleet-Wide
Body Up Warning Alarm	Single Beep	Fleet-Wide
Driver ID Warning Alarm	Off	Fleet-Wide
High Filter Bypass Alarm	Single Beep	Fleet-Wide
Low Filter Bypass Alarm	Single Beep	Fleet-Wide
Oil Level Warning Alarm	Solid Tone	Fleet-Wide

Oil Temp Warning Alarm	Solid Tone	Fleet-Wide
Overspeed Warning Alarm	Solid Tone	Fleet-Wide
T-Comp Error	Off	Fleet-Wide
ALARMS – GRANULAR		
Low Material Action	Warn	Fleet-Wide
Low Material Alarm	Off	Fleet-Wide
Range Alarm	Solid Tone	Fleet-Wide
Feedback Alarm	Solid Tone	Fleet-Wide
Unload Alarm	Off	Fleet-Wide
Two Position Gate Alarm	Off	Fleet-Wide
Clear Jam Alarm	Single Beep	Fleet-Wide
ALARMS – PREWET		
Low Liquid Action	Warn & Disable	Fleet-Wide
Low Liquid Alarm	Single Beep	Fleet-Wide
Range Alarm	Solid Tone	Fleet-Wide
Feedback Alarm	Solid Tone	Fleet-Wide
Unload Alarm	Off	Fleet-Wide
ALARMS – DIRECT		
Low Liquid Action	Warn & Disable	Fleet-Wide
Direct Low Liquid Alarm	Single Beep	Fleet-Wide
Anti-Ice Low Liquid Alarm	Single Beep	Fleet-Wide
Range Alarm	Solid Tone	Fleet-Wide
Feedback Alarm	Solid Tone	Fleet-Wide
Unload Alarm	Off	Fleet-Wide
ALARMS –DUST CONTROL		
Low Liquid Action	Warn & Disable	Fleet-Wide
Low Liquid Alarm	Single Beep	Fleet-Wide
Range Alarm	Solid Tone	Fleet-Wide
Feedback Alarm	Solid Tone	Fleet-Wide
Unload Alarm	Off	Fleet-Wide
ALARMS –HERBICIDE		
Low Liquid Action	Warn & Disable	Fleet-Wide
Low Liquid Alarm	Single Beep	Fleet-Wide

Range Alarm	Solid Tone	Fleet-Wide
Feedback Alarm	Solid Tone	Fleet-Wide
Unload Alarm	Off	Fleet-Wide
ALARMS - SPINNER		
Range Alarm	Solid Tone	Fleet-Wide
Feedback Alarm	Solid Tone	Fleet-Wide
ALARMS – HARDWARE CONFIG WARNINGS		
HW Config Warning Item	Off	Vehicle Specific
DATE / TIME		
Time Zone	USA Central	Fleet-Wide

Appendix B – Sample Exported Calibration Text File

This section shows a sample abridged calibration text file. The actual exported file may be different depending on the systems calibration settings.

```
SSC6100 Gen5 Calibration Settings
Firmware Rev                                  0.50
HW Config File                             Default
HW Config Rev                                   A
Date Exported                 12/31/20 12:00:00 pm

Calibration

 Configuration
  Access Code                              000000
  Vehicle Name                            TRUCK 1
  Measurement Units                       English

  Enabled Options
   Sim Speed                             Disabled
   Distance Measure                      Disabled
   Aux Power                             Disabled
   Event Logging (Serial)                Disabled
   Event Logging (OTA)                   Disabled
   Driver ID                             Disabled
   Momentary Spreading                   Disabled
   Diagnostics                           Disabled

  Cameras
   Dual Camera Mode                      Disabled

   Camera 1
    Orientation                             None
    Manual Select                         Disabled
    Trigger                                  Off
    Triggered Shutoff Delay                  0 s

   Camera 2
    Orientation                             None
    Manual Select                         Disabled
    Trigger                                  Off
    Triggered Shutoff Delay                  0 s

   Camera 3 (Full Screen Camera)
    Orientation                             None
    Manual Select                         Disabled
    Trigger                                  Off
    Triggered Shutoff Delay                  0 s

  Temperature Sensor
   Sensor Type                              None
   Temp Comp                             Disabled
   T-Comp Averaging                             1
```

Document No: M0136-F
Released: 09/28/2021