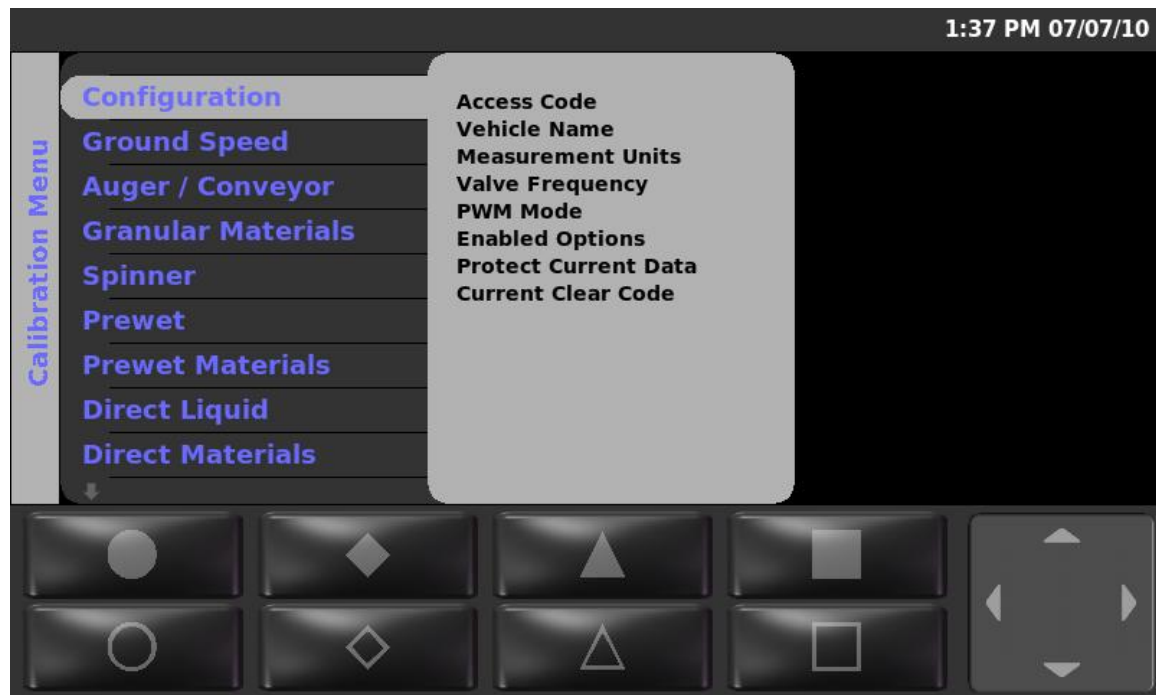


SSC6100 CAN ULTRA Spreader Control Calibration Manual



Firmware Version
0.92.10004



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First Use Guide

The first time you configure your SSC6100, you will need to complete the following steps to ensure that your vehicle runs at optimum efficiency:

Step:	Page Number:
1. Configure your system-wide options.	9
2. Calibrate your ground speed sensor.	11
3. Calibrate your auger minimum and maximum settings.	13
4. Calibrate your auger maximum RPM.	13
5. Define your granular material settings.	16
6. Calibrate each granular material's displacement rates.	17

If you use prewet systems, also complete the following steps:

Step:	Page Number:
7. Calibrate your prewet minimum and maximum settings, if necessary.	21
8. Calibrate your prewet maximum RPM, if necessary.	21
9. Define your prewet material settings.	22
10. Calibrate each prewet material's displacement rates.	22

If you use direct systems, also complete the following steps:

Step:	Page Number:
11. Calibrate your direct minimum and maximum settings, if necessary.	23
12. Calibrate your direct maximum RPM, if necessary.	24
13. Define your direct material settings.	24
14. Calibrate each direct material's displacement rates.	25

If you use event logging, also complete the following steps:

Step:	Page Number:
15. Follow the steps outlined in the Event Logging section, depending on whether you use PreCise MRM or AVL event logging.	3



It is recommended that you export all your settings to a USB flash drive after configuring them. They can then be imported into other vehicles to save time. See page 43.

Hardware

Operator Interface (PN: 1018744)

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

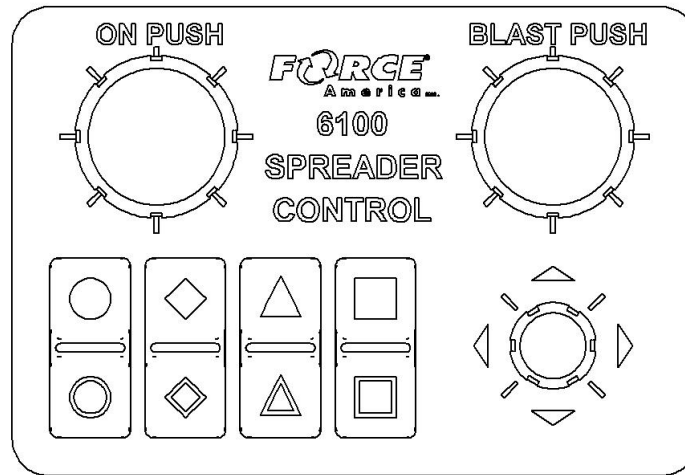


Figure 1: 94042A001/94042A002 Operator Interface

The Operator Interface has a single-axis, green On/Standby encoder, a single-axis, blue Blast encoder, a triple-axis gray Navigation Joystick (Nav Stick), and eight “soft switches” that act as pushbuttons for SSC6100 functions. The functions of all these encoders and buttons change depending on portion of the SSC6100 system is active.

You will use the Operator Interface to navigate the Calibration Menu. For more information on which encoders and buttons perform which functions, see Calibration Menu Navigation on page 6.

Event Logging

Event Logging is a method of vehicle usage monitoring that sends spreader data from the 6100 spreader control to an external device for processing.

To use Event Logging with a PreCise™ MRM device:

1. Contact your local FORCE America Representative to purchase PreCise MRM devices that fit your needs.
2. Connect one PreCise MRM device to each vehicle you wish to equip with Event Logging. The PreCise MRM devices connect to a DB-9 connector on the included RS-232 Serial Harness.
3. Enter the 6100's Calibration Menu.
4. Set the Configuration → Enabled Options → Event Logging menu item to PreCise MRM.
5. Configure your Event Logging settings in the Configuration → Event Logging menu. See page 35 for more detailed information.
6. Exit the Calibration Menu.

Upon leaving Calibration, the 6100 will authenticate with the PreCise MRM device. Once a successful connection has been established, the 6100 shall begin sending event data to the PreCise MRM device.

To use Event Logging with an AVL device other than PreCise™ MRM:

1. Work with your preferred AVL developer and your local FORCE America Representative to purchase an Event Logging Authentication Module for each vehicle you wish to equip with Event Logging.
2. Connect an Event Logging Authentication Module to each vehicle you wish to equip with Event Logging. These connect to a two-pin connector attached to the External 12-pin Harness (P/N 14403A001).
3. Connect one AVL device (provided by the AVL developer) to each vehicle you wish to equip with Event Logging. The AVL device connects to a DB-9 connector on the included RS-232 Serial Harness.
4. Enter the 6100's Calibration Menu.
5. Set the Configuration → Enabled Options → Event Logging menu item to AVL.
6. Exit the Calibration Menu.

Upon leaving Calibration, the 6100 will authenticate with the Event Logging Authentication Module and the AVL Device. Once a successful connection has been established, the 6100 shall begin sending event data to the AVL device.

Troubleshooting Event Logging

Please see the Troubleshooting & Error Conditions section in the 6100 CAN Ultra Operation Manual, M0107.

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 CALIB 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 three methods:
 - a. Connect the Supervisor USB Key.
 - b. Hold the Supervisor iButton to the iButton port on the Operator Interface.
 - c. Use the Nav Stick and the table below to enter the Access Code.

When entering the Access Code, the Nav Stick has the following functions:

Input	Action	Function
Gray Nav Stick 	Twist Left	Decrease highlighted digit by 1.
	Twist Right	Increase highlighted digit by 1.
	Up	Increase highlighted digit by 1.
	Down	Decrease highlighted digit by 1.
	Left	Highlight previous digit.
	Right	Highlight next digit.
	Pushbutton	Enter Access Code.



The default access code is 000000. For information on changing the Access Code, see page 9.

The Calibration Menu

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.

Fleet-Wide Settings

Fleet-Wide Settings are likely to be set the same across an entire fleet of vehicles. These include things such as the supervisor's access code, the measurement units, granular and prewet loop modes, and material set rates.

Vehicle Specific Settings

Vehicle Specific Settings are likely to vary between each vehicle. These include hardware related settings, such as axle pulses, minimum and maximum currents, and displacement values which may change due to manufacturing or installation differences.



For a complete list of Fleet-Wide and Vehicle Specific Settings, see Appendix A – Default Settings and Import/Export Types on page 58.

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.

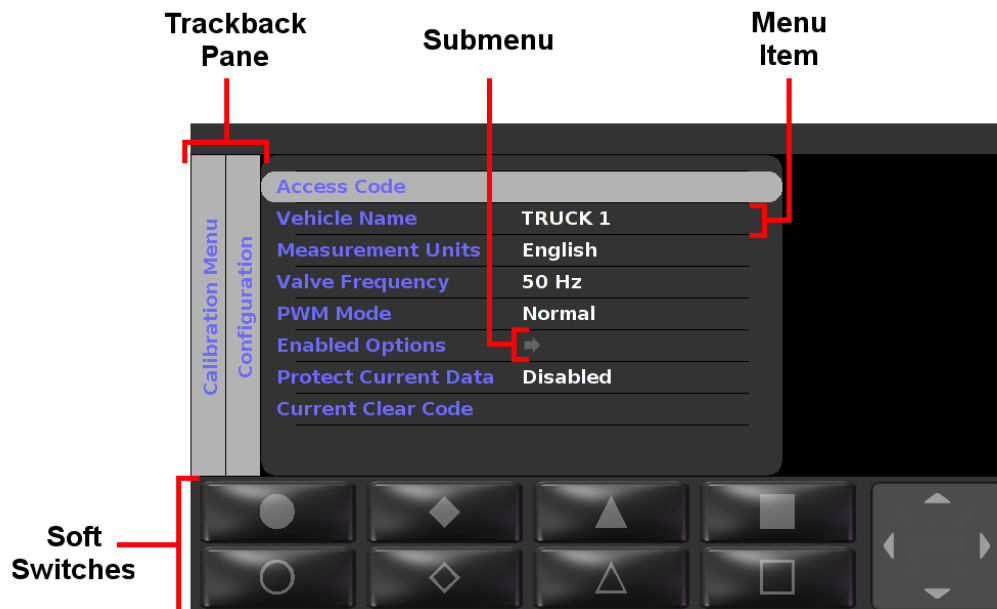


Figure 3: Calibration Menu

The Trackback Pane

The Trackback Pane records your current location within the Calibration Menu. It will always list the submenus you traveled through to see your current screen. The submenu you are currently viewing will always be the furthest right in the Trackback Pane. For example, in Figure 3, the user has entered the Calibration Menu and is viewing the Configuration submenu.

Submenus

Submenus are not calibration settings, but instead are containers for other calibration settings. For example, all system-wide calibration settings are contained under the Configuration submenu.

A calibration item is a submenu if it displays an arrow instead of a calibration value. Also, submenus will show a preview pane when they are highlighted, while normal calibration items will not. The preview pane shows all of the calibration items available within the submenu.

If a submenu has gray text instead of blue, none of the calibration options within the submenu will be able to be change because another calibration item has disabled it. For example, the Direct Liquid submenu will be gray if Calibration → Enabled Options → Direct is disabled.

Calibration Items

Calibration items are changeable settings. They have a name and display a value in the menu.

If a Calibration item has gray text instead of blue, it is unable to be changed because another calibration item has disabled it. For example, the Calibration → Enabled Options → Simultaneous Gran/Dir calibration item will be gray if Calibration → Enabled Options → Direct is disabled.

The Soft Switches


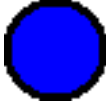

The Soft Switches are located on the bottom left of the 6100's display and are used to instantly activate or deactivate menu functions. These 8 soft switches directly correspond to the labeled buttons on the Operator Interface. For example, pressing the Filled Circle button on the Operator Interface will activate the function shown on the Filled Circle soft switch.

Within the Calibration Menu, the Soft Switches no longer correspond to the functions available in the Soft Switch Panes on the Operator Screen (see the 6100 Operation Manual, M0107). Instead, they run their own custom functions depending on your location within the Calibration Menu.

Calibration Menu Navigation

All actions within the Calibration Menu are done using the Operator Interface. Most actions are completed with the gray Nav Stick, but the green On/Standby and blue Blast encoders do occasionally run functions.

All actions on the 6100 are activated using the Operator Interface. The table below describes each button and its actions while in the Calibration Menu. Not all actions are available at all locations within the menu.

Input	Action	Function
Green On/Standby Encoder 	Twist Left	Decrease the auger set rate.
	Twist Right	Increase the auger set rate.
	Pushbutton	Run outputs. Stop outputs.
Blue Blast Encoder 	Twist Left	Decrease the spinner set rate.
	Twist Right	Increase the spinner set rate.
	Pushbutton	None.
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.

To highlight a different calibration item or submenu:

1. Move the Nav Stick up or down until the menu item you want is highlighted.

To edit a calibration item or enter a submenu:

1. Highlight the calibration item you wish to change.
2. Press the Nav Stick's pushbutton.

To save a calibration item being edited:

1. Press the Nav Stick's pushbutton. You will be returned to the submenu containing the calibration item.

To exit the Calibration Menu:

1. Move the Nav Stick left until you reach the main Calibration Menu screen.
2. Move the Nav Stick left one more time. You will be returned to the Operation Screen.

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 58.

Configuration

The Configuration menu allows you to configure vehicle-wide settings, such as the supervisor access and clear codes, the vehicle's name, its valve frequencies, and enabled output modes.

Access Code

The Access Code menu item changes the supervisor code required to enter the Calibration Menu or clear season data totals. It consists of 6 numbers which are set individually. The default value is 000000.

Vehicle Name

The Vehicle Name menu item 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 10 alphanumeric characters. The default value is TRUCK1.

Measurement Units

The Measurement Units menu item changes the type of measurement system the vehicle uses for inputs and outputs. The available options are English and Metric. The default value is English.

When switching from English to Metric or vice-versa, all configuration items that use the previous measurement units will be converted to the new units.

Valve Frequency

The Valve Frequency menu item changes the frequency the 94043A001 8 Port Valve Module or the 94185A001 20 Port Valve Module uses to run its valves. The available options are any numeric value between 50 Hz and 250 Hz. The default value is 50 Hz.

PWM Mode

The PWM Mode setting adjusts the PWM output from the 94043A001 8 Port Valve Module or the 94185A001 20 Port Valve Module. "Normal" PWM mode is used with 6 ohm valve coils, while "Profile 1" mode is used with 3 ohm coils. The default value is Normal.

Enabled Options

The Enabled Options submenu lists all of the system-wide settings that can be enabled or disabled.

Granular

The Granular menu item enables or disables Granular application for the entire system, from the Operation Screen to Material Unload. The default value is enabled.

Direct

The Direct menu item enables or disables Direct Liquid application for the entire system, from the Operation Screen to Material Unload. The default value is disabled.

Simultaneous Gran / Dir

The Simultaneous Gran / Dir menu item enables “Simultaneous Application Mode” where both granular material and direct liquid can be spread from the vehicle at the same time. Requires that Granular and Direct are enabled. The default value is disabled.

Prewet

The Prewet menu item enables or disables Prewet application for the entire system, from the Operation Screen to Material Unload. The default value is disabled.

Tow Plow

The Tow Plow menu item enables or disables the tow plow application for the entire system. The default value is disabled. If Spinner → Type is set to Directional (Closed) or Directional (Manual), this menu item will be disabled.

Mixed Material

The Mixed Material menu item enables mixed material application for the entire system. This should only be used with a Highway Equipment Xzalt™ system. The default value is disabled.

For more information on Mixed Material, see the SSC6100 CAN Ultra with Xzalt™ Operation Manual (M0109) and the SSC6100 CAN Ultra with Xzalt™ Calibration Manual (M0110). These manuals will be included with your Xzalt™ system.

Temperature Sensor

The Temperature Sensor menu item enables or disables temperature monitoring for the entire system. The default value is disabled.

Sim Speed

The SimSpeed menu item enables or disables SimSpeed operation. Enabling SimSpeed will show the SimSpeed data item and the SimSpeed soft switches in the UTIL soft switch pane. The default value is disabled.

SimSpeed will automatically be disabled if the vehicle's speed exceeds 5 mph/kph. SimSpeed is not reset to disabled when Restoring Defaults.

Distance Measure

The Distance Measure menu item enables or disables distance measurement operation. Enabling Distance Measure will show the DISTANCE data item in the top data item slot. It will also show the MEASURE DISTANCE and RESET DISTANCE soft switches in the UTIL soft switch pane. The default value for the Distance Measure menu item is disabled.

When SimSpeed is active, the SSC6100 will lock the MEASURE DISTANCE and RESET DISTANCE soft switches. It will also put the SIMSPD data item in place of the DISTANCE data item for as long as SimSpeed is enabled in Calibration.

Aux Power

The Aux Power menu item enables or disables the use of the auger valve to run auxiliary functions. The default value is disabled. Aux Power cannot be enabled if Granular is disabled.

Event Logging

The Event Logging menu item selects the kind of event logging that will be used with the system. The options are Disabled, PreCise® MRM and AVL. The default value is Disabled.

For more information on Event Logging, see Event Logging on page 3.

Driver ID

The Driver ID menu item enables or disables the driver login. Enabling Driver ID will require the driver to log in using their Driver ID Key before running spreader outputs. The Default value is disabled.

Aux Power Ramp Time

The Aux Power Ramp Time setting will affect how quickly or slowly the Aux Power output will scale from minimum mA to maximum mA. Setting a longer ramp time will cause the output to increase at a slower rate. This may be useful if the auxiliary function's motor is smaller than the auger motor. The default value is 10 seconds. The range is 0 seconds to 10 seconds.

Temp Sensor Type

The Temp Sensor Type menu item selects the kind of temperature sensor attached to the 6100. The options are RoadWatch, Vaisala and PreCise® MRM. The default value is RoadWatch. This setting can only be adjusted if Temperature Sensor is Enabled.

Protect Current Data

The Protect Current Data menu item enables or disables a password screen when clearing "Current Data" from the Data menu. The clear code for current data is not the same code as the supervisor access code required to enter the Calibration Menu or clear season data. The default value is Enabled.

Clear Current Code

The Clear Current Code menu item changes the code required to clear the current data from the Data menu. This code is not the same code as the supervisor access code required to enter the Calibration Menu or clear season data totals. If Protect Current Data is Disabled, this code does nothing. The default value is 314159.

Create Driver ID

The Create Driver ID menu item opens the Driver Key Wizard which is used to create Driver ID Keys. See Driver Key Creation on page 56 for more information. If Driver ID is Disabled this menu item does nothing.

Ground Speed

The Ground Speed menu allows you to configure settings for the vehicle's speedometer input.

Speedometer Type

The Speedometer Type setting selects the type of speedometer the SSC6100 Core Module is connected to, either Electronic or Mechanical. Selecting one or the other determines which kind of speedometer counts the core will listen for. The default value is Electronic.

Pickup Sensitivity

The Pickup Sensitivity menu item changes the hardware sensitivity to the speedometer signal. The available options are High, Low, and Custom. The default value is Low.

Low Trip Point

The Low Trip Point sets the voltage that the speedometer signal must drop below in order to cause a pulse. This value will only be editable when the Pickup Sensitivity is set to Custom. The default value is 0.5 V.

The Low Trip Point should be set when the vehicle is moving. Have a passenger slowly increase the low trip point until the menu item shows a mph/kph value greater than 0.

High Trip Point

The High Trip Point sets the voltage that the speedometer signal must climb above in order to cause a pulse. This value will only be editable when the Pickup Sensitivity is set to Custom. The default value is 2.0 V.

The High Trip Point should be set when the vehicle is moving. Have a passenger slowly decrease the high trip point until the menu item shows a mph/kph value greater than 0.

Axle Pulses

The Axle Pulses menu item defines how many pulses from the speedometer input are expected in 1 mile. Axle Pulses are used in all closed and open loop operating modes, and should be configured as accurately as possible. The default value is 40000 pulses per mile or 24855 pulses per kilometer.

The Axle Pulses should be set when 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

The Jump Start Speed menu item sets a speed that the spreader will run at until that speed is surpassed. For example, if Jump Start Speed is set to 15 mph, the spreader will run as if ground speed was at 15 mph until the actual vehicle speed is above 15 mph. The default value is 15 mph or 24 kph.

Overspeed Alarm

The overspeed alarm alerts the driver that he is exceeding the maximum allowed speed. The options are Disabled, Spreading, and Always. The default value is Disabled. The value of Spreading means that the alarm will only occur when the vehicle is spreading and the Overspeed Speed is exceeded. The value of Always means that the alarm will occur anytime the Overspeed Speed is exceeded.

Overspeed Speed

The Overspeed Speed menu item sets the speed that the vehicle must exceed for the system to display the Overspeed Warning, if enabled. The default value is 45 mph or 72 kph.

Auger / Conveyor

The Auger / Conveyor menu allows you to configure settings for the vehicle's granular output. These settings are not particular to any granular material. None of the settings in this menu have any effect if Granular is disabled in the Configuration → Enabled Options menu.

Loop Mode

The Loop Mode menu item sets the granular output into either Closed Loop or Open Loop Mode. The default is Closed Loop Mode.

Pulses per Revolution

The Pulses per Revolution menu item configures how many pulses from the auger sensor are expected in 1 revolution of the auger. Pulses per Revolution is used in all closed and open loop operating modes, and should be configured as accurately as possible. The default value is 512 pulses per revolution.

Auger Forward

The Auger Forward submenu contains settings for normal operation of the auger.

Minimum Current

The Minimum Current menu item configures the amount of current required to turn the auger at its slowest rate. Minimum Current is used in closed, open, manual, and unload modes, and should be configured as accurately as possible. The default value is 250 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum Current

The Maximum Current menu item configures the amount of current required to turn the auger at its fastest rate. Maximum Current is used in closed, open, manual, and unload modes, and should be configured as accurately as possible. The default value is 750 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum RPM

The Maximum RPM menu item configures the maximum number of revolutions per minute the auger can turn. Maximum RPM is used in all closed and open loop operating modes, and should be configured as accurately as possible. The default value is 100 RPM.

Auger Reverse

The Auger Reverse submenu contains settings for the auger during Auger Reverse mode. None of the settings in this submenu have any effect if Auger Reverse is disabled.

Minimum Current

The Minimum Current menu item configures the amount of current required to turn the auger at its slowest rate. Minimum Current is used in closed and open loop modes when Auger Reverse is enabled, and should be configured as accurately as possible. The default value is 250 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum Current

The Maximum Current menu item configures the amount of current required to turn the auger at its fastest rate. Maximum Current is used in closed and open loop modes when Auger Reverse is enabled, and should be configured as accurately as possible. The default value is 750 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum RPM

The Maximum RPM menu item configures the maximum number of revolutions per minute the auger can turn. Maximum RPM is used in closed and open loop modes when Auger Reverse is enabled, and should be configured as accurately as possible. The default value is 100 RPM.

Cross Auger 1

The Cross Auger 1 submenu contains the Minimum and Maximum Current settings for running a single direction cross auger, or a dual-direction cross auger in the left direction. The cross auger will run as set up in the hardware config file (usually when the auger is running in the forward direction). If Cross Auger is set to disabled, these settings will do nothing.

Minimum Current

The Minimum Current menu item configures the amount of current required to turn the cross auger at its slowest rate. The default value is 250 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum Current

The Maximum Current menu item configures the amount of current required to turn the cross auger at its fastest rate. The default value is 750 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Cross Auger 2

The Cross Auger 2 submenu contains the Minimum and Maximum Current settings for running a second cross auger or a dual-direction cross auger in the right direction. The second cross auger will run as setup in the hardware config file (usually when the auger is running in the forward direction and cross right is active). For the standard hardware config file if Dual Direction Cross is set to disabled, these settings will do nothing.

Minimum Current

The Minimum Current menu item configures the amount of current required to turn the cross auger at its slowest rate. The default value is 250 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum Current

The Maximum Current menu item configures the amount of current required to turn the cross auger at its fastest rate. The default value is 750 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Closed Loop Gain

The Closed Loop Gain setting is a multiplier applied to the closed loop mode, meant to speed up or slow down the granular application's response to a change in vehicle speed or granular set rate. The default value is 250.

Enabled Options

The Enabled Options submenu lists all of the auger and conveyor settings that can be enabled or disabled.

Auger Reverse

The Auger Reverse menu item enables Auger Reverse mode and the Auger Reverse soft switch on the Operation Screen. The default value is disabled.

Manual Mode

The Manual menu item enables Manual mode for all granular materials and the Manual soft switch on the Operation Screen. The default value is enabled.

Unload

The Material Unload menu item enables unload mode for all granular materials in the Unload menu. The default value is disabled.

Clear Jam

The Clear Jam setting enables Clear Jam mode and the Clear Jam Soft Switch on the Operation Screen. When the Clear Jam soft switch is pressed, the main auger/conveyor will operate at 100% reverse output until the soft switch is released. A cross auger will not be run while Clear Jam is active. The default value is disabled.

Cross Auger

The Cross Auger setting enables Cross Auger mode and the Cross 1 Data Item on the Operation Screen. In Cross Auger mode, the 6100 will run a second auger output at a rate proportional to the main auger. The default value is disabled.

Dual Direction Cross

The Dual Direction Cross setting enables Dual Direction Cross mode, the Spinner 2 Data Item, the Cross 2 Data Item, and the Cross Left Soft Switch on the Operation Screen. This allows you to run the cross auger in the reverse direction to switch lanes while spreading. The default value is disabled. In systems where the cross auger is setup in the hardware configuration file this setting will not be adjustable.

On systems configured with Dual Direction Cross, "Cross 1" assumes output goes to the left side of the truck and "Cross 2" assumes output goes to the right side of the truck.

Calib/Unload Auger

The Calib/Unload Auger setting defines the direction of the Auger when running the system in Calibration or Unload Mode. Whenever the main auger is run in Calibration or Unload Mode, the Auger will move in the set direction. The available options are "Forward" and "Reverse." The default value is "Forward."

Calib/Unload Cross

The Calib/Unload Cross setting defines the direction of the Cross Auger when running the system in Calibration or in Unload Mode. Whenever the main auger is run in Calibration or Unload Mode, the Cross Auger will move in the set direction. The available options are "Disabled", "Cross 1", or "Cross 2". The default value is disabled.

Skip Mode

The Skip Mode setting enables or disables the Skip Mode soft switch on the GRAN pane, which activates skipping for granular materials. The default value is disabled.

After enabling Skip Mode, set the Skip On and Skip Off Distance menu items appropriately.

Gate Mode

The Gate Mode menu item allows you to select a type of gate, either None, Adjustable, or Two Position. The default value is None. When Gate Mode is set to Adjustable, you will be able to select a Gate Height for each Granular Material, both in Calibration and in Operation. When Gate Mode is set to Two Position, you will be able to select the Two Position Gate for each Granular Material.

Blast Mode

The Blast Mode menu item sets Blast to either Time or Distance. When Blast is activated, it will either run for a set amount of time or distance. The default value is Time.

Blast Time

The Blast Time menu item sets the amount of seconds blast will run when it is activated in Blast Time mode. The default value is 10 seconds.

Blast Distance

The Blast Distance menu item sets the amount of distance blast will run when it is activated in Blast Distance mode. The default value is 250 feet.

Skip On Distance

The Skip On Distance menu item sets the amount of distance the auger / conveyor and spinner will operate normally when Skip Mode is active. The default value is 250 feet or 16 meters.

Skip Off Distance

The Skip Off Distance menu item sets the amount of distance the auger / conveyor and spinner will stop or “skip” when Skip Mode is active. The default value is 250 feet or 16 meters.

Granular Materials

The Granular Materials menu allows you to configure settings for up to 10 individual granular materials. These settings include custom displacement, set, and blast rates for each material. None of the settings in this menu have any effect if Granular is disabled in the Configuration → Enabled Options menu.

Materials Enabled

The Materials Enabled menu item changes how many granular materials will be available to the 6100 during operation, ranging from 1 to 10. If a granular material is configured with non-default settings and then is disabled with this menu item, its custom settings will not be cleared. The default value is 1.

Material 1, Material 2, Material 3, etc.

Entering the Material # submenu presents the custom settings available for a particular granular material.

Material Name

The Material Name menu item allows you to set a custom name for the granular material, such as “SAND” or “SALT”. A maximum of 5 characters can be used in the material name. This name will appear on the Operation Screen when selected, as well as in all Data Reports. The default value is MAT1, MAT2, MAT3, etc.

Calib Gate Height

The Calib Gate Height allows you to set the gate height for a given material. This gate height will be used during Calibration and should match the physical height of the vehicle's gate before calibrating Displacement. The Calib Gate Height menu item will only be editable when Auger / Conveyor → Gate Mode is set to Adjustable.

Displacement

The "Displacement" menu item sets the amount of material dispensed by the auger in one revolution of the auger's sensor. Displacement can be calibrated automatically; see AutoCalibration on page 45 for more information. The default value is 10 lbs/revolution.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Displacement calibration requires that the Auger Feedback Sensor has already been calibrated properly. See Pulses Per Revolution on page 13 to calibrate the Auger Feedback Sensor.

Displacement calibration requires that the Auger Forward Minimum Current has already been calibrated properly. See Minimum Current on page 13 to calibrate the Auger Forward Minimum Current.

Displacement calibration requires that the Auger Forward Maximum Current has already been calibrated properly. See Maximum Current on page 13 to calibrate the Auger Forward Maximum Current.

of Set Rates

The # of Set Rates menu item changes how many set rates will be available to the driver during operation, ranging from 1 to 10. The default value is 10. If a set rate is configured with non-default settings and then is disabled with this menu item, its custom settings will not be cleared.

Set Rates

Entering the Set Rate submenu presents a list of all the custom set rates available for the granular material.

Set Rate 1, Set Rate 2, Set Rate 3, etc.

The Set Rate menu item configures which pounds per mile or kilograms per kilometer setting will be output when the user chooses the corresponding set rate.

A Granular Material Set Rate has a range of 0 to 9999 pounds per mile, or 0 to 9999 kilograms per kilometer. The default value is 100, 200, 300, 400, etc. pounds per mile or kilograms per kilometer.

Set Rate 1 will always be used during operation when the green On/Standby Encoder is turned counter-clockwise more than 10 clicks. Turning the green On/Standby Encoder clockwise from Set Rate 1 will switch to the next Set Rate at 1 rate per click. Set Rate 2 will always be 1 click before Set Rate 3, and so on.

Blast Rate

The Blast Rate menu item sets the amount of granular material the spreader will spread when it is activated in Blast mode. The default value is 1000 pounds per mile or 750 kilograms per kilometer.

Two Position Gate

The Two Position Gate menu item sets the expected gate position for the material. The default value is Low. The Calib Gate Height menu item will only be editable when Auger / Conveyor → Gate Mode is set to Two Position.

Spinner

The Spinner menu allows you to configure settings for the vehicle's spinner output. These settings are not particular to any granular material. None of the settings in this menu have any effect if Granular is disabled in the Configuration → Enabled Options menu.

Spinner Type

The Spinner Type menu item configures the type of spinner the system is using. The types are Normal, Directional (Closed), and Directional (Manual). The Default is Normal. If Config → Enabled Options → Tow Plow is set to Enabled, this menu item will be disabled.

- **Normal.** The spinner will run in manual mode. The spinner's speed can be adjusted using the blue knob. The spinner's position will not be adjustable.
- **Directional (Closed).** The spinner will run in closed loop mode. The spinner speed can be adjusted using the blue knob and the spinner position can be adjusted using the green knob. The spinner's output will update based on the feedback it receives.
- **Directional (Manual).** The spinner will run in manual mode. The spinner speed can be adjusted using the blue knob and the spinner position can be adjusted via soft switches. The spinner speed and position will not use feedback in its calculations.

Pulses per Revolution

The Pulses per Revolution menu item configures how many pulses from the spinner sensor are expected in 1 revolution of the spinner. Pulses per Revolution is used in the Spinner 1 RPM data item, calibration of the Minimum and Maximum current. If the Spinner → Type is set to Directional (Closed), it is also used in all closed loop operating modes and should be configured as accurately as possible. The default value is 60 pulses per revolution.

Spinner 1

The Spinner 1 submenu contains settings for Spinner 1 during normal operation. The spinner will run as set up in the hardware config file (usually when the auger is running in the forward direction).

Minimum Current

The Minimum Current menu item configures the amount of current required to turn the spinner at its slowest rate. The default value is 250 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum Current

The Maximum Current menu item configures the amount of current required to turn the spinner at its fastest rate. The default value is 750 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum RPM

The Maximum RPM menu item configures the maximum number of revolutions per minute the directional spinner can turn. Maximum RPM is used in all closed loop operating modes and should be configured as accurately as possible. The default value is 1000 RPM.

Spinner 2

The Spinner 2 submenu contains settings for Spinner 2. The second spinner will run as set up in the hardware config file (usually when the system is in Auger Reverse mode or Cross Auger Right mode). For the standard hardware config file none of the settings in this submenu have any effect if Auger Reverse and Dual Direction Cross are disabled. Spinner 2 does not support feedback.

Minimum Current

The Minimum Current menu item configures the amount of current required to turn Spinner 2 at its slowest rate. The default value is 250 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum Current

The Maximum Current menu item configures the amount of current required to turn Spinner 2 at its fastest rate. The default value is 750 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Closed Loop Gain

The Closed Loop Gain setting is a multiplier applied to the closed loop mode, meant to speed up or slow down the directional spinner's response to a change in vehicle speed, spread width, or spinner position. The default value is 250. If Spinner→ Type is set to Normal or Directional (Manual) this menu item will be disabled.

Spinner Height

The Spinner Height menu item lets you select the distance from the directional spinner to the ground in inches. This setting affects directional spinner positioning and rpm for more accurate material placement. The available options are 12, 18, 24, 30, and 36 inches, or 30.48, 45.72, 60.96, 76.20, and 91.44 centimeters. The default value is 12 inches or 30.48 centimeters. If Spinner→ Type is set to Normal or Directional (Manual) this item will be disabled.

Actuator Min

The Actuator Min menu item sets the minimum valid voltage for the spinner actuator. If the spinner reports a voltage below this value the system will report an error. If Spinner→ Type is set to Normal or Directional (Closed) this item will be disabled.

Actuator Max

The Actuator Max menu item sets the maximum valid voltage for the spinner actuator. If the spinner reports a voltage above this value the system will report an error. If Spinner→ Type is set to Normal or Directional (Closed) this item will be disabled.

Five Second Run On

The Five Second Run On menu item enables or disables a five-second delay between when the vehicle stops moving and when the output shuts down. This keeps the spinner moving to remove excess granular material from it.

Even if Five Second Run On is Enabled, the spinner will immediately shut down if the system is placed in Standby.

The Five Second Run On menu item applies to both Spinner 1 and Spinner 2.

The default value is disabled.

Spinner Skip

The Spinner Skip menu item determines the spinner's operation during Skip Mode. If enabled, the spinner will skip with the auger / conveyor during the Skip Off distance. If disabled, the spinner will continue to run during the Skip Off distance. The default value is Disabled.

Prewet

The Prewet menu allows you to configure settings for the vehicle's prewet output. These settings are not particular to any prewet material. None of the settings in this menu have any effect if Prewet is disabled in the Configuration → Enabled Options menu.

Loop Mode

The Loop Mode menu item sets the prewet output into Closed Loop, Open Loop, or Manual Mode. The default is Closed Loop Mode.

Drive Type

The Drive Type menu item informs the SSC6100 of the hydraulic plumbing installed for the prewet system. The available options are Hydraulic, Adjustable Exhaust, and Fixed Exhaust. The default value is Hydraulic.

Hydraulic

Selecting Hydraulic will allow the prewet rate to be set independently from the auger rate. Closed, open, and manual prewet modes will be available.

This mode uses a proportional prewet valve on the valve block.

Adjustable Exhaust

Selecting Adjust. Exhaust will control the prewet rate partially through the hydraulic flow from the auger. Prewet rate will also be able to be controlled through a proportional valve using the prewet location on the valve module and the prewet set application rate. Closed, open, and manual prewet application modes will be available.

Adjust. Exhaust will also set Core Output 1 to "PREWET" which shall reflect the state of the prewet soft switch.

Fixed Exhaust

Selecting Fixed Exhaust will control the prewet rate entirely through the hydraulic flow from the auger. You will not be allowed to change the prewet set rate. Prewet application modes such as closed, open, and manual will not be available.

The Operation Screen will not show a prewet set rate or actual rate. Only the prewet material name and the status of OFF or STANDBY will be shown.

Fixed Exhaust will also set Core Output 1 to “PREWET” which shall reflect the state of the prewet soft switch.

Enabled Options

The Enabled Options submenu lists all of the prewet settings that can be enabled or disabled.

Manual

The Manual menu item enables Manual mode for all prewet materials and the Prewet Manual soft switch on the Operation Screen. The default value is disabled.

Material Unload

The Material Unload menu item enables unload mode for all prewet materials in the Unload menu. The default value is disabled.

Pulses per Revolution

The Pulses per Revolution menu item configures how many pulses from the prewet sensor are expected in 1 revolution of the prewet sensor. Pulses per Revolution is used in all closed and open loop operating modes, and should be configured as accurately as possible. The default value is 12 pulses per revolution.

Minimum Current

The Minimum Current menu item configures the amount of current required to run the prewet pump at its slowest rate. Minimum Current is used in closed, open, manual, and unload modes, and should be configured as accurately as possible. The default value is 250 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum Current

The Maximum Current menu item configures the amount of current required to run the prewet pump at its fastest rate. Maximum Current is used in closed, open, manual, and unload modes, and should be configured as accurately as possible. The default value is 750 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum RPM

The Maximum RPM menu item configures the maximum number of revolutions per minute the prewet sensor can run. Maximum RPM is used in all closed and open loop operating modes, and should be configured as accurately as possible. The default value is 1500 RPM.

Closed Loop Gain

The Closed Loop Gain setting is a multiplier applied to the closed loop mode, meant to speed up or slow down the prewet application's response to a change in vehicle speed, granular set rate, or prewet set rate. The default value is 250.

Prewet Materials

The Prewet Materials menu allows you to configure settings for up to 10 individual prewet materials. These settings include custom displacement, set, and blast rates for each material. None of the settings in this menu have any effect if Prewet is disabled in the Configuration → Enabled Options menu.

Materials Enabled

The Materials Enabled menu item changes how many prewet materials will be available to the 6100 during operation, ranging from 1 to 10. The default value is 1. If a prewet material is configured with non-default settings and then is disabled with this menu item, its custom settings will not be cleared.

Material 1, Material 2, Material 3, etc.

Entering the Material # submenu presents the custom settings available for a particular prewet material.

Material Name

The Material Name menu item allows you to set a custom name for the prewet material, such as “PWT1” or “CACL”. A maximum of 5 characters can be used in the material name. This name will appear on the Operation Screen when selected, as well as in all Data Reports. The default value is PWT1, PWT2, PWT3, etc.

Displacement

The “Displacement” menu item sets the amount of material dispensed by the prewet pump in one revolution of the prewet sensor. Displacement can be calibrated automatically; see AutoCalibration on page 45 for more information. The default value is 0.35 oz/rev.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Displacement calibration requires that the Prewet Feedback Sensor has already been calibrated properly. See Pulses Per Revolution on page 21 to calibrate the Prewet Feedback Sensor.

Displacement calibration requires that the Prewet Minimum Current has already been calibrated properly. See Minimum Current on page 21 to calibrate the Prewet Minimum Current.

Displacement calibration requires that the Prewet Maximum Current has already been calibrated properly. See Maximum Current on page 21 to calibrate the Prewet Maximum Current.

of Set Rates

The # of Set Rates menu item changes how many set rates will be available to the driver during operation, ranging from 1 to 10. If a set rate is configured with non-default settings and then is disabled with this menu item, its custom settings will not be cleared. The default value is 6.

Set Rates

Entering the Set Rate submenu presents a list of all the custom set rates available for the prewet material.

Set Rate 1, Set Rate 2, Set Rate 3, etc.

The Set Rate menu item configures which gallons per ton or liters per ton setting will be output when the user chooses the corresponding set rate.

A Prewet Material Set Rate has a range of 0.0 to 72.0 gallons per ton, or 0.0 to 72.0 liters per ton. The default value is 3.0, 4.0, 5.0, etc. gallons per ton.

Set Rate 1 will always be used during operation when the gray Nav Stick is turned counter-clockwise more than 10 clicks. Turning the gray Nav Stick clockwise from Set Rate 1 will switch to the next Set Rate at 1 rate per click. Set Rate 2 will always be 1 click before Set Rate 3, and so on.

Direct Liquid

The Direct Liquid menu allows you to configure settings for the vehicle's direct liquid output. These settings are not particular to any direct liquid material. None of the settings in this menu have any effect if Direct Liquid is disabled in the Configuration → Enabled Options menu.

Enabled Options

The Enabled Options submenu lists all of the direct settings that can be enabled or disabled.

Manual Mode

The Manual Mode menu item enables Manual mode for all direct materials and the Direct Manual soft switch on the Direct Soft Switch Pane. The default value is disabled.

Material Unload

The Material Unload menu item enables unload mode for all direct materials in the Unload menu. The default value is disabled.

Multi-Lane

The Multi-Lane menu item enables Left, Center, and Right soft switches on the Direct Soft Switch Pane, allowing you to turn on and off direct liquid application for specific lanes. The default value is disabled.

Dual Boom

The Dual Boom menu item enables the use of the high booms, if they are setup in your hardware configuration file. The Default value is disabled.

Loop Mode

The Loop Mode menu item sets the direct liquid output into either Closed Loop or Open Loop Mode. The default is Closed Loop Mode.

Pulses per Revolution

The Pulses per Revolution menu item configures how many pulses are expected in 1 revolution of the direct liquid sensor. Pulses per Revolution is used in all closed and open loop operating modes, and should be configured as accurately as possible. The default value is 10 pulses per revolution.

Minimum Current

The Minimum Current menu item configures the amount of current required to run the direct liquid pump at its slowest rate. Minimum Current is used in closed, open, manual, and unload modes, and should be configured as accurately as possible. The default value is 250 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum Current

The Maximum Current menu item configures the amount of current required to run the direct liquid pump at its fastest rate. Maximum Current is used in closed, open, manual, and unload modes, and should be configured as accurately as possible. The default value is 750 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum RPM

The Maximum RPM menu item configures the maximum number of revolutions per minute the direct liquid sensor can run. Maximum RPM is used in all closed and open loop operating modes, and should be configured as accurately as possible. The default value is 1500 RPM.

Closed Loop Gain

The Closed Loop Gain setting is a multiplier applied to the closed loop mode, meant to speed up or slow down the direct application's response to a change in vehicle speed or direct set rate. The default value is 250.

Blast Mode

The Blast Mode menu item sets Blast to either Time or Distance. When Blast is activated, it will either run for a set amount of time or distance. The default value is Time.

Blast Time

The Blast Time menu item sets the amount of seconds blast will run when it is activated in Blast Time mode. The default value is 10 seconds.

If Simultaneous Mode is enabled, Direct Liquid's Blast Time will have no effect. Instead, the Granular Blast Time will be used.

Blast Distance

The Blast Distance menu item sets the amount of distance blast will run when it is activated in Blast Distance mode. The default value is 250 feet.

If Simultaneous Mode is enabled, Direct Liquid's Blast Distance will have no effect. Instead, the Granular Blast Distance will be used.

High Boom

The High Boom menu item sets the flow rate that determines when the flow should be redirected from the low boom to the high boom. The default value is 30 gallons per minute.

High/Low Boom

The High/Low Boom menu item sets the flow rate that determines when both the high and low booms will be used simultaneously to apply the direct liquid material. The default is 60 gallons per minute.

Direct Materials

The Direct Materials menu allows you to configure settings for up to 10 individual direct liquid materials. These settings include custom displacement, set, and blast rates for each material. None of the settings in this menu have any effect if Direct Liquid is disabled in the Configuration → Enabled Options menu.

Materials Enabled

The Materials Enabled menu item changes how many direct liquid materials will be available to the 6100 during operation, ranging from 1 to 10. The default value is 1. If a direct liquid material is configured with non-default settings and then is disabled with this menu item, its custom settings will not be cleared.

Material 1, Material 2, Material 3, etc.

Entering the Material # submenu presents the custom settings available for a particular direct liquid material.

Material Name

The Material Name menu item allows you to set a custom name for the direct liquid material, such as "DIR1" or "MGCL". A maximum of 5 characters can be used in the material name. This name will appear on the Operation Screen when selected, as well as in all Data Reports. The default value is DIR1, DIR2, DIR3, etc.

Displacement

The "Displacement" menu item sets the amount of material dispensed by the direct liquid pump in one revolution of the direct sensor. Displacement can be calibrated automatically; see AutoCalibration on page 45 for more information. The default value is 13.20 oz/rev or 390.4 mL/rev.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Displacement calibration requires that the Direct Feedback Sensor has already been calibrated properly. See Pulses Per Revolution on page 23 to calibrate the Direct Feedback Sensor.

Displacement calibration requires that the Direct Minimum Current has already been calibrated properly. See Minimum Current on page 23 to calibrate the Direct Minimum Current.

Displacement calibration requires that the Direct Maximum Current has already been calibrated properly. See Maximum Current on page 24 to calibrate the Direct Maximum Current.

of Set Rates

The # of Set Rates menu item changes how many set rates will be available to the driver during operation, ranging from 1 to 10. If a set rate is configured with non-default settings and then is disabled with this menu item, its custom settings will not be cleared. The default value is 10.

Set Rates

Entering the Set Rate submenu presents a list of all the custom set rates available for the direct liquid material.

Set Rate 1, Set Rate 2, Set Rate 3, etc.

The Set Rate menu item configures which gallons per mile or liters per kilometer setting will be output when the user chooses the corresponding set rate.

A Direct Liquid Material Set Rate has a range of 0.0 to 100 gallons per mile, or 0.0 to 250 liters per kilometer. The default value is 20, 25, 30, etc. gallons per mile or 50, 60, 70, etc. liters per kilometer.

Set Rate 1 will always be used during operation when the Direct Rate Down soft switch is pressed more than 10 times. Pressing the Direct Rate Up soft switch from Set Rate 1 will switch to the next Set Rate at 1 rate change per press. Set Rate 2 will always be 1 press before Set Rate 3, and so on.

Blast Rate

The Blast Rate menu item sets the amount of direct material the spreader will spread when it is activated in Blast mode. The default value is 65 gallons per mile or 140 liters per kilometer.

Tow Plow

The Tow Plow menu allows you to configure settings used with the tow plow trailer system for granular and prewet operation. None of the settings in this menu have any effect if Tow Plow is disabled in the Configuration → Enabled Options menu.

Auger / Conveyor

The Auger / Conveyor submenu allows you to configure settings for the tow plow's granular output. These settings are not particular to any granular material.

Pulses per Revolution

The Pulses per Revolution menu item configures how many pulses from the auger sensor are expected in 1 revolution of the tow plow auger. Pulses per Revolution is used in all closed and open loop operating modes, and should be configured as accurately as possible. The default value is 512 pulses per revolution.

Minimum Current

The Minimum Current menu item configures the amount of current required to turn the tow plow auger at its slowest rate. Minimum Current is used in closed, open, manual, and unload modes, and should be configured as accurately as possible. The default value is 250 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum Current

The Maximum Current menu item configures the amount of current required to turn the tow plow auger at its fastest rate. Maximum Current is used in closed, open, manual, and unload modes, and should be configured as accurately as possible. The default value is 750 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum RPM

The Maximum RPM menu item configures the maximum number of revolutions per minute the tow plow auger can turn. Maximum RPM is used in all closed and open loop operating modes, and should be configured as accurately as possible. The default value is 100 RPM.

Enabled Spinners

The Enabled Spinners menu allows you to configure what spinners become enabled when the Tow Plow is connected to the Truck. The options are:

- **None.** Both Tow Plow and Truck Spinners are disabled.
- **Truck Only.** Only the Truck mounted spinner is enabled. Tow Plow spinner is disabled.
- **Tow Plow Only.** Tow Plow Spinner is enabled and Truck spinner is disabled. This is also the option that Reset to Defaults operation sets.
- **Truck & Tow Plow.** Both Truck and Tow Plow spinners are enabled.

Spinner

The Spinner submenu allows you to configure settings for the tow plow's spinner output. These settings are not particular to any granular material. This submenu is disabled when None or Truck Only are selected as an option in Enabled Spinners.

Separate Spread Width

The Separate Spread Width menu item enables the ability to control the truck spinner and tow plow spinner spread widths independently. The default value is disabled.

Minimum Current

The Minimum Current menu item configures the amount of current required to turn the tow plow's spinner at its slowest rate. The default value is 250 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum Current

The Maximum Current menu item configures the amount of current required to turn the tow plow's spinner at its fastest rate. The default value is 750 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Granular Materials

The Granular Materials menu allows you to configure the custom displacement settings for up to 10 individual granular materials.

Material 1, Material 2, Material 3, etc.

Entering the Material # submenu presents the custom settings available for a particular granular material.

Material Name

The Material Name menu item displays the material name for the selected material. The name is setup under the truck's granular material settings. See page 16.

Displacement

The "Displacement" menu item sets the amount of material dispensed by the tow plow auger in one revolution of the auger's sensor. Displacement can be calibrated automatically; see AutoCalibration on page 45 for more information. The default value is 10 lbs/revolution.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Displacement calibration requires that the Tow Plow Auger Feedback Sensor has already been calibrated properly. See Pulses Per Revolution on page 26 to calibrate the Tow Plow Auger Feedback Sensor.

Displacement calibration requires that the Tow Plow Auger Minimum Current has already been calibrated properly. See Minimum Current on page 26 to calibrate the Tow Plow Auger Minimum Current.

Displacement calibration requires that the Tow Plow Auger Maximum Current has already been calibrated properly. See Maximum Current on page 26 to calibrate the Tow Plow Auger Minimum Current.

Enable Prewet

The Enable Prewet menu item enables or disables the Tow Plow Prewet application from the Operation Screen to Material Unload. The default value is disabled.

Prewet Settings

The Prewet Settings submenu allows you to configure settings for the tow plow's prewet output. These settings are not particular to any prewet material.

Pulses per Revolution

The Pulses per Revolution menu item configures how many pulses from the tow plow prewet sensor are expected in 1 revolution of the tow plow prewet sensor. Pulses per Revolution is used in all closed and open loop operating modes, and should be configured as accurately as possible. The default value is 12 pulses per revolution.

Minimum Current

The Minimum Current menu item configures the amount of current required to run the tow plow's prewet pump at its slowest rate. Minimum Current is used in closed, open, manual, and unload modes, and should be configured as accurately as possible. The default value is 250 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum Current

The Maximum Current menu item configures the amount of current required to turn the tow plow's prewet pump at its fastest rate. Maximum Current is used in closed, open, manual, and unload modes, and should be configured as accurately as possible. The default value is 750 mA.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Maximum RPM

The Maximum RPM menu item configures the maximum number of revolutions per minute the tow plow's prewet sensor can run. Maximum RPM is used in all closed and open loop operating modes, and should be configured as accurately as possible. The default value is 1500 RPM.

Closed Loop Gain

The Closed Loop Gain setting is a multiplier applied to the closed loop mode, meant to speed up or slow down the tow plow's prewet application's response to a change in vehicle speed, granular set rate, or prewet set rate. The default value is 250.

Prewet Materials

The Prewet Materials menu allows you to configure the custom displacement settings for up to 10 individual prewet materials.

Material 1, Material 2, Material 3, etc.

Entering the Material # submenu presents the custom settings available for a particular prewet material.

Material Name

The Material Name menu item displays the material name for the selected material. The name setup is performed under the truck's prewet material settings. See page 22.

Displacement

The "Displacement" menu item sets the amount of material dispensed by the tow plow prewet pump in one revolution of the prewet sensor. Displacement can be calibrated automatically; see *AutoCalibration* on page 45 for more information. The default value is 0.35 oz/rev.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

Displacement calibration requires that the Tow Plow Prewet Feedback Sensor has already been calibrated properly. See *Pulses per Revolution* on page 28 to calibrate the Tow Plow Prewet Feedback Sensor.

Displacement calibration requires that the Tow Plow Prewet Minimum Current has already been calibrated properly. See *Minimum Current* on page 28 to calibrate the Tow Plow Prewet Minimum Current.

Displacement calibration requires that the Tow Plow Prewet Maximum Current has already been calibrated properly. See *Maximum Current* on page 28 to calibrate the Tow Plow Prewet Maximum Current.

Inputs / Outputs

The Inputs / Outputs menu allows you to set which inputs trigger functions on the 6100 system, as well as which outputs are activated under which operating conditions.

The Core Input and Core Output menu items may be disabled and set to "HW Config File". If this is the case, the vehicle's unique Hardware Configuration File controls the Core Input and Output settings. Should you need to change the settings, contact your FORCE America Representative for an updated Hardware Configuration File.

Core Input 1, Core Input 2

The Core Input 1 and Core Input 2 menu items determine if the 6100 system should activate spreader functions when an input is active. The available options are None and Prewet Low Liquid. The default value is None.

None

Selecting None for a Core Input will never change spreader behavior when an input is activated.

Prewet Low Liquid

Selecting Prewet Low Liquid for a Core Input will cause the Prewet Low Liquid Warning to occur when a grounding input signal is detected.

Core Output 1, Core Output 2

The Core Output 1 and Core Output 2 menu items set if a 6100 output wire is to be activated when the selected condition occurs. The available options are None, Auger On, Auger Reverse, Prewet, Prewet On, and Prewet Divert. The default value is None.

None

Selecting None for a Core Output will never activate the 12v core output.

Auger On

Selecting Auger On for a Core Output will activate the 12v core output when the Auger is running.

Auger Reverse

Selecting Auger Reverse for a Core Output will activate the 12v core output when the user has pushed the Auger Reverse soft switch.

Prewet

Selecting Prewet for a Core Output will activate the 12v core output when the Prewet Soft Switch is activated, whether or not the prewet output is running.

Prewet On

Selecting Prewet On for a Core Output will activate the 12v core output when the Prewet Soft Switch is activated and the prewet output is running.

Prewet Divert

Selecting Prewet Divert for a Core Output will activate the 12v core output when the Prewet Soft Switch is activated and the Cross Right Soft Switch or the Auger Reverse Soft Switch is activated.

Version Menu

The Version Menu is the only menu that does not contain any configurable items. Instead, it lists all of the versions of the software and hardware in your 6100 system, as well as the hardware serial numbers where applicable. The Version Menu is also where you can upgrade your 6100 to the latest edition of firmware.

Upgrade Firmware

The Upgrade Firmware menu item allows you to upgrade your 6100 spreader control to a new version of spreader software located on a USB flash drive. Upon activating the menu item, you will be prompted to select a filename from the drive. Press the Nav Stick Pushbutton to begin upgrading your 6100 system.

The Upgrade Firmware menu item will not activate unless a flash drive is inserted and a valid 6100 upgrade file is detected by the system. Detection may take up to 10 seconds after inserting the flash drive. When the system detects the flash drive, the Upgrade Firmware menu item text will turn from gray to blue.

Import HW Config File

The Import HW Config File menu item allows you to import a new Hardware Configuration File from a USB flash drive. A new Hardware Configuration File will change which hardware options the spreader is able to control, and may change which inputs operate which outputs.

This menu item should only be used under the guidance of a FORCE America Representative.

Export Diagnostic Log (USB)

The Export Diagnostic Log (USB) menu item allows you to export the system logs from the 6100 Core Module to a connected USB flash drive. These logs are designed to be interpreted by a Force America Technical Support Representative as part of a troubleshooting process.

Core Firmware

This menu item displays the current version of core firmware on the 6100 system.

HW Config File

This menu item displays the Hardware Configuration File number. The hardware configuration affects what inputs and outputs the spreader control operates.

HW Config Rev

This menu item displays the revision of the Hardware Configuration File.

Core Serial Number

This menu item displays the serial number of the 94096A001 6100 Core Module.

Core Hardware Revision

This menu item displays the hardware revision of the 94096A001 6100 Core Module.

Core OS

This menu item displays the current version of core operating system on the 6100 system.

Core Coprocessor

This menu item displays the current version of coprocessor firmware on the 6100 system.

Operator Interface (SN 000000)

This menu item displays the serial number and current version of firmware on the 94042A001 or 94042A002 Operator Interface.

Display (SN 000000)

This menu item displays the serial number and current version of firmware on the 94119A001 LCD Display.

8 Port Valve 1 (SN 000000), etc.

This menu item displays the serial number and current version of firmware on the listed 94043A001 Valve Module. If your Hardware Configuration File does not require an 8 Port Valve Module, this menu item will be hidden.

20 Port Valve 1 (SN 000000), etc.

This menu item displays the serial number and current version of firmware on the listed 94185A001 Valve Module. If your Hardware Configuration File does not require a 20 Port Valve Module, this menu item will be hidden.

10 Port Valve 1 (SN 000000), etc.

This menu item displays the serial number and current version of firmware on the listed 1101182 Valve Module. If your Hardware Configuration File does not require a 10 Port Valve Module, this menu item will be hidden.

ISOBUS Valve 1 (SN 000000), etc.

This menu item displays the serial number and current version of firmware on the listed 94211A001 ISOBUS Valve Module. If your Hardware Configuration File does not require an ISOBUS Valve Module, this menu item will be hidden.

Direct Module 1 (SN 000000), etc.

This menu item displays the serial number and current version of firmware on the listed 94122A001 Direct Module. If your Hardware Configuration File does not require a Direct Module, this menu item will be hidden.

MPJC 1 (SN 000000), etc.

This menu item displays the serial number and current version of firmware on the listed 94066A001 MPJC board. If your Hardware Configuration File does not require an MPJC board, this menu item will be hidden.

SPJC 1 (SN 0000000), etc.

This menu item displays the serial number and current version of firmware on the listed 94067A001 Spartan SPJC™. If your Hardware Configuration File does not require a Spartan SPJC, this menu item will be hidden.

DGID

This menu item displays the Digital Group Identification number that links your operation with an AVL provider for Event Logging. This number can be used to order additional or replacement ELA Modules.

CAN Devices

The CAN Devices menu allows you to assign the serial numbers for all the CAN-based devices connected to your system, such as valve modules, joysticks, and switches. These values should be set in conjunction with the Hardware Configuration File provided with the system.

8 Port Valve 1, 8 Port Valve 2, etc.

The 8 Port Valve menu item assigns a valve module to a set of outputs as defined by the Hardware Configuration File. For example, setting the 8 Port Valve 1 menu item to serial number 000309 will assign all the outputs defined for 8 Port Valve 1 to the 94043A001 8 Port Valve Module with serial number 000309.

The available options are “Nonconfigured” and a list of all the unassigned 94043A001 8 Port Valve Modules connected to the system. If a serial number has already been assigned in a different Valve Module menu item, it will not be shown. For example, if serial number 000309 has been assigned to 8 Port Valve 1, it will not be an option when viewing 8 Port Valve 2.

The default setting is Nonconfigured. 8 Port Valve Modules set to Nonconfigured cannot run any outputs.

8 Port Valve Module assignments are not reset to Nonconfigured when Restoring Defaults.

20 Port Valve 1, 20 Port Valve 2, etc.

The 20 Port Valve menu item assigns a valve module to a set of outputs as defined by the Hardware Configuration File. For example, setting the 20 Port Valve 1 menu item to serial number 000309 will assign all the outputs defined for 20 Port Valve 1 to the 94185A001 20 Port Valve Module with serial number 000309.

The available options are “Nonconfigured” and a list of all the unassigned 94185A001 20 Port Valve Modules connected to the system. If a serial number has already been assigned in a different Valve Module menu item, it will not be shown. For example, if serial number 000309 has been assigned to 20 Port Valve 1, it will not be an option when viewing 20 Port Valve 2.

The default setting is Nonconfigured. 20 Port Valve Modules set to Nonconfigured cannot run any outputs.

20 Port Valve Module assignments are not reset to Nonconfigured when Restoring Defaults.

10 Port Valve 1, 10 Port Valve 2, etc.

The 10 Port Valve menu item assigns a valve module to a set of outputs as defined by the Hardware Configuration File. For example, setting the 10 Port Valve 1 menu item to serial number 000309 will assign all the outputs defined for 10 Port Valve 1 to the 1101182 10 Port Valve Module with serial number 000309.

The available options are “Nonconfigured” and a list of all the unassigned 1101182 10 Port Valve Modules connected to the system. If a serial number has already been assigned in a different Valve Module menu item, it will not be shown. For example, if serial number 000309 has been assigned to 10 Port Valve 1, it will not be an option when viewing 10 Port Valve 2.

The default setting is Nonconfigured. 10 Port Valve Modules set to Nonconfigured cannot run any outputs.

10 Port Valve Module assignments are not reset to Nonconfigured when Restoring Defaults.

Direct Module 1, Direct Module 2, etc.

The Direct Module menu item assigns a direct module to a set of outputs as defined by the Hardware Configuration File. For example, setting the Direct Module 1 menu item to serial number 000309 will assign all the outputs defined for Direct Module 1 to the 94122A001 Direct Module with serial number 000309.

The available options are “Nonconfigured” and a list of all the unassigned 94122A001 Direct Modules connected to the system. If a serial number has already been assigned in a different Direct Module menu item, it will not be shown. For example, if serial number 000309 has been assigned to Direct Module 1, it will not be an option when viewing Direct Module 2.

The default setting is Nonconfigured. Direct Modules set to Nonconfigured cannot run any outputs.

Direct Module assignments are not reset to Nonconfigured when Restoring Defaults.

MPJC 1, MPJC 2, etc.

The MPJC menu item assigns a 94066A001 MPJC board to a set of inputs as defined by the Hardware Configuration File. For example, setting the MPJC 1 menu item to serial number 000309 will assign all the joysticks defined for MPJC 1 to the 94066A001 MPJC board with serial number 000309.

The available options are “Nonconfigured” and a list of all the unassigned 94066A001 MPJC boards connected to the system. If a serial number has already been assigned in a different MPJC menu item, it will not be shown. For example, if serial number 000309 has been assigned to MPJC 1, it will not be an option when viewing MPJC 2.

When you have a serial number highlighted in the menu, the LEDs for the corresponding joysticks will flash on and off to indicate which board is selected.

The default setting is Nonconfigured. MPJC boards set to Nonconfigured will not operate any inputs.

MPJC assignments are not reset to Nonconfigured when Restoring Defaults.

SPJC 1, SPJC 2, etc.

The SPJC menu item assigns a 94067A001 Spartan SPJC board to a set of inputs as defined by the Hardware Configuration File. For example, setting the Spartan SPJC 1 menu item to serial number 000309 will assign all the joysticks defined for Spartan SPJC 1 to the 94067A001 Spartan SPJC board with serial number 000309.

The available options are “Nonconfigured” and a list of all the unassigned 94067A001 Spartan SPJC boards connected to the system. If a serial number has already been assigned in a different Spartan SPJC menu item, it will not be shown. For example, if serial number 000309 has been assigned to Spartan SPJC 1, it will not be an option when viewing Spartan SPJC 2.

When you have a serial number highlighted in the menu, the LEDs for the corresponding joysticks will flash on and off to indicate which board is selected.

The default setting is Nonconfigured. Spartan SPJC boards set to Nonconfigured will not operate any inputs.

Spartan SPJC assignments are not reset to Nonconfigured when Restoring Defaults.

Date/Time

The Date/Time menu allows you to set the current date, time, and time zone for your spreader control. The date, time, and time zone are used in the system clock on the header bar and the clear & print times on data reports.

Date

The Date menu item allows you to set the current date of the system in MM/DD/YYYY format.

Date is not reset when Restoring Defaults.

Time

The Time menu item allows you to set the current time of the system in HH:MM:SS AM/PM format. Increasing the hour digits from 12 will roll the clock over to 1 and switch to AM or PM. Similarly, decreasing the hour digits from 1 will roll the clock over to 12 and switch to AM or PM.

You do not need to adjust your clock manually for Daylight Savings Time. The time will automatically update to reflect Daylight Savings Time based on the Time Zone setting.

Time is not reset when Restoring Defaults.

Time Zone

The Time Zone menu item allows you to select the time zone for your system. The available options are CAN Atlantic, CAN Central, CAN Eastern, CAN Mountain, CAN Newfoundland, CAN Pacific, CAN Saskatchewan, USA Alaska, USA Arizona, USA Central, USA Eastern, USA Mountain, and USA Pacific. The default value is USA Central.

Selecting a Time Zone may automatically adjust the system clock forward or backward from its previous setting. You may need to reset the system time after changing the Time Zone.

Selecting a Time Zone automatically selects whether or not your system supports Daylight Savings Time.

Time Zone is not reset when Restoring Defaults.

Event Logging

The Event Logging submenu contains a series of settings that determine which event fields and triggers are being used for Event Logging. These settings will affect the information and generation of the Standard Truck Event String as well as the optional Tow Plow Event String.

None of the settings in this submenu have any effect when the Configuration → Enabled Options → Event Logging menu item is set to Disabled.

Fields

The Fields submenu contains a series of settings that determine which event fields are being used for Event Logging. These settings will only affect customers who use PreCise™ MRM devices for Event Logging; customers with other AVL providers should contact their providers to configure event fields.

If you do not use PreCise MRM Event Logging, you will not be able to adjust these settings. For more information about Event Logging, see Event Logging on page 3.

The various field menu items can be set to three different settings:

- **Disabled:** A menu item set to “Disabled” will never be recorded in an event string.
- **Log:** A menu item set to “Log” will be recorded whenever an event trigger creates an event string.
- **Log & Trigger:** A menu item set to “Log & Trigger” will create a new event string when its value changes. The values of all menu items set to “Log” or “Log & Trigger” will be recorded in that event string. For example, setting “Spreader Status” to Log & Trigger will create a new event string whenever the spreader enters or leaves Standby.

Not all items can be set to Disabled or to Log & Trigger.

None of the settings in this submenu have any effect when the Configuration → Enabled Options → Event Logging menu item is set to Disabled or AVL.

Event Number

The Event Number menu item determines if the event’s unique ID number is recorded. The available options are Disabled and Log. The default value is Disabled.

Time

The Time menu item determines if the time the event occurred is recorded. The available options are Disabled and Log. The default value is Log.

Date

The Date menu item determines if the date the event occurred is recorded. This value cannot be changed from Log & Trigger.

Spreader Status

The Spreader Status menu item determines if the spreader’s operating status is recorded (Operation, Standby, Unload, Clear Jam, Blast). The available options are Disabled, Log, or Log & Trigger. The default value is Log & Trigger.

Granular Mode

The Granular Mode menu item determines if the granular output mode is recorded (Manual, Open Loop, Closed Loop). The available options are Disabled, Log, or Log & Trigger. The default value is Log & Trigger.

Measurement Units

The Measurement Units menu item determines if the measurement units are recorded (English, Metric). The available options are Disabled, Log, or Log & Trigger. The default value is Log.

Vehicle Speed

The Vehicle Speed menu item determines if the vehicle's speed is recorded (MPH, KPH). The available options are Disabled or Log. The default value is Log.

Distance Total

The Distance Total menu item determines if the vehicle's total distance is recorded (MI, KM). The available options are Disabled or Log. The default value is Log.

Gran. Mat. Name

The Gran. Mat. Name menu item determines if the selected Granular Material's name is recorded (MAT 1, MAT 2, etc.). The available options are Disabled, Log, or Log & Trigger. The default value is Log & Trigger.

Gran. Mat. Setting

The Gran. Mat. Setting menu item determines if the Granular Material's Set Rate is recorded (LBS/MI, KG/KM). The available options are Disabled, Log, or Log & Trigger. The default value is Log & Trigger.

Gran. Mat. Total

The Gran Mat. Total menu item determines if the amount of Granular Material output is recorded (LBS, KG). The available options are Disabled and Log. The default value is Log.

Spinner Dial Position

The Spinner Dial Position menu item determines if the position of the Blue Blast Knob is recorded (1-10). The available options are Disabled, Log, or Log & Trigger. The default value is Log.

Prewet Liquid Setting

The Prewet Liquid Setting menu item determines if the Prewet Material's Set Rate is recorded (GAL/T, L/T). The available options are Disabled, Log, or Log & Trigger. The default value is Disabled.

Prewet Volume Total

The Prewet Volume Total menu item determines if the amount of Prewet Material output is recorded (GAL, L). The available options are Disabled and Log. The default value is Disabled.

Direct Liquid Setting

The Direct Liquid Setting menu item determines if the Direct Material's Set Rate is recorded (GAL/MI, L/KM). The available options are Disabled, Log, or Log & Trigger. The default value is Disabled.

Direct Liquid Total

The Direct Liquid Total menu item determines if the amount of Direct Material output is recorded (GAL, L). The available options are Disabled and Log. The default value is Disabled.

Direct Liquid Lanes

The Direct Liquid Lanes menu item determines if the active Direct Liquid lanes are recorded (Left, Center, Right). The available options are Disabled, Log, or Log & Trigger. The default value is Disabled.

Road Temperature

The Road Temperature menu item determines if the temperature of the road is recorded (°F, °C). The available options are Disabled and Log. The default value is Disabled.

Air Temperature

The Air Temperature menu item determines if the ambient air temperature is recorded (°F, °C). The available options are Disabled and Log. The default value is Disabled.

Spreader Information

The Spreader Information menu item determines if detailed spreader information is recorded (Auger Forward/Auger Reverse operation). The available options are Disabled, Log, or Log & Trigger. The default value is Disabled.

Driver ID

The Driver ID menu item determines if the logged in driver ID is recorded. The available options are Disabled, Log, or Log & Trigger. The default value is Disabled.

Vehicle ID

The Vehicle ID menu item determines if the name of the vehicle set in Calibration → Configuration → Vehicle Name is recorded. The available options are Disabled, Log, or Log & Trigger. The default value is Log.

Prewet Liquid Mode

The Prewet Liquid Mode menu item determines if the Prewet Liquid output mode is recorded (Manual, Open Loop, Closed Loop). The available options are Disabled, Log, or Log & Trigger. The default value is Disabled.

Prewet Liquid Name

The Prewet Liquid Name menu item determines if the selected Prewet Material's name is recorded (PWT 1, PWT 2, etc.). The available options are Disabled, Log, or Log & Trigger. The default value is Disabled.

Direct Liquid Mode

The Direct Liquid Mode menu item determines if the Direct Liquid output mode is recorded (Manual, Open Loop, Closed Loop). The available options are Disabled, Log, or Log & Trigger. The default value is Disabled.

Unload Function

The Unload Function menu item determines if the function unloading material is recorded (Granular, Prewet, or Direct Unload). The available options are Disabled, Log, or Log & Trigger. The default value is Log & Trigger.

Gran. Rate Index

The Gran. Rate Index menu item determines if the Granular Set Rate's index is recorded (Off, 1-10, Blast). The available options are Disabled, Log, or Log & Trigger. The default value is Log & Trigger.

Prewet Rate Index

The Prewet Rate Index menu item determines if the Prewet Set Rate's index is recorded (Off, 1-10, Blast). The available options are Disabled, Log, or Log & Trigger. The default value is Disabled.

Direct Rate Index

The Direct Rate Index menu item determines if the Direct Set Rate's index is recorded (Off, 1-10, Blast). The available options are Disabled, Log, or Log & Trigger. The default value is Disabled.

Relative Humidity

The Relative Humidity menu item determines if the relative humidity percentage is recorded. The available options are Disabled and Log. The default value is Disabled.

Intervals

The spreader can also be set to trigger events based on intervals in addition to menu items set to Log & Trigger. Each type of interval has two menu items, one to enable or disable the trigger, and one to set the interval amount.

Time

The Time menu item allows you to enable or disable logging events based on a time interval. The default value is Disabled.

Time

The Time menu item sets an amount of time for a Time interval. If no new events have been created since this amount of time has passed, a new event will be created. The time can be set from 60 to 5999 seconds. The default value is 300 seconds.

Distance

The Distance menu item allows you to enable or disable logging events based on a distance interval. The default value is Disabled.

Distance

The Distance menu item sets an amount of distance for a Distance interval. If no new events have been created since this amount of distance has been driven, a new event will be created. The distance can be set from 528 to 65000 feet or 100 to 19999 meters. The default value is 2000 feet or 610 meters.

Gran. Displacement

The Gran. Displacement menu item allows you to enable or disable logging events based on a granular displacement interval. The default value is Disabled.

Gran. Displacement

The Gran. Displacement menu item sets an amount of granular material for a Granular Displacement interval. If no new events have been created since this amount of material has been output, a new event will be created. The amount of material can be set from 500 to 9999 pounds or 220 to 4999 kilograms. The default value is 2000 pounds or 907 kilograms.

Prewet Displacement

The Prewet Displacement menu item allows you to enable or disable logging events based on a prewet displacement interval. The default value is Disabled.

Prewet Displacement

The Prewet Displacement menu item sets an amount of prewet material for a Prewet Displacement interval. If no new events have been created since this amount of material has been output, a new event will be created. The amount of material can be set from 192 to 9999 ounces or 20 to 299 liters. The default value is 768 ounces or 23 liters.

Direct Displacement

The Direct Displacement menu item allows you to enable or disable logging events based on a direct displacement interval. The default value is Disabled.

Direct Displacement

The Direct Displacement menu item sets an amount of direct material for a Direct Displacement interval. If no new events have been created since this amount of material has been output, a new event will be created. The amount of material can be set from 20 to 9999 gallons or 75 to 37999 liters. The default value is 250 gallons or 946 liters.

Generate in Standby

The Generate in Standby menu item determines whether or not events are created from intervals when the system is in Standby. The default value is Disabled.

Errors

The Error menu contains settings unique to each error. Each error that can be configured will have an entry in the Error menu.

Body Up Warning

The Body Up Warning menu contains settings unique to the Body Up Warning.

Alarm

The Body Up Warning can be configured to sound an alarm buzzer when it occurs. The available options are Off, Single Chirp, Single Beep, Soft, and Loud. The Single Chirp and Single Beep options will only sound the alarm buzzer once. The Soft option will sound the alarm buzzer in a short, repeating tone. The Loud option will sound the alarm buzzer continuously until the error is resolved. The default value is Off.

High Filter Bypass

The High Filter Bypass menu contains settings unique to the High Filter Bypass warning.

Alarm

The High Filter Bypass warning can be configured to sound an alarm buzzer when it occurs. The available options are Off, Single Chirp, Single Beep, Soft, and Loud. The Single Chirp and Single Beep options will only sound the alarm buzzer once. The Soft option will sound the alarm buzzer in a short, repeating tone. The Loud option will sound the alarm buzzer continuously until the error is resolved. The default value is Off.

Low Filter Bypass

The Low Filter Bypass menu contains settings unique to the Low Filter Bypass warning.

Alarm

The Low Filter Bypass warning can be configured to sound an alarm buzzer when it occurs. The available options are Off, Single Chirp, Single Beep, Soft, and Loud. The Single Chirp and Single Beep options will only sound the alarm buzzer once. The Soft option will sound the alarm buzzer in a short, repeating tone. The Loud option will sound the alarm buzzer continuously until the error is resolved. The default value is Off.

Oil Level Warning

The Oil Level Warning menu contains settings unique to the Oil Level Warning.

Alarm

The Oil Level can be configured to sound an alarm buzzer when it occurs. The available options are Off, Single Chirp, Single Beep, Soft, and Loud. The Single Chirp and Single Beep options will only sound the alarm buzzer once. The Soft option will sound the alarm buzzer in a short, repeating tone. The Loud option will sound the alarm buzzer continuously until the error is resolved. The default value is Off.

Oil Temp Warning

The Oil Temp Warning menu contains settings unique to the Oil Temp Warning.

Alarm

The Oil Temp Warning can be configured to sound an alarm buzzer when it occurs. The available options are Off, Single Chirp, Single Beep, Soft, and Loud. The Single Chirp and Single Beep options will only sound the alarm buzzer once. The Soft option will sound the alarm buzzer in a short, repeating tone. The Loud option will sound the alarm buzzer continuously until the error is resolved. The default value is Off.

Overspeed Warning

The Overspeed Warning menu contains settings unique to the Overspeed Warning.

Alarm

The Overspeed Warning can be configured to sound an alarm buzzer when it occurs. The available options are Off, Single Chirp, Single Beep, Soft, and Loud. The Single Chirp and Single Beep options will only sound the alarm buzzer once. The Soft option will sound the alarm buzzer in a short, repeating tone. The Loud option will sound the alarm buzzer continuously until the error is resolved. The default value is Off.

Granular Low Material

The Granular Low Material menu contains settings unique to the Granular Low Material error.

Action

The Action menu item lets you set which spreader actions are triggered when the input associated with the Granular Low Material error is in the active state. The available options are Off, Warn or Warn w/o Totals. When set to Off, the Granular Low Material error will not occur regardless of the state of the input associated with it. When set to Warn the Granular Low Material error will appear on the operation screen. When set to Warn w/o Totals, the Granular Low Material error will appear on the operation screen and the granular material total reporting will be disabled for the current and season totals as well as the total reported in the event string. The default value is Warn.

Alarm

The Granular Low Material error can be configured to sound an alarm buzzer when it occurs. The available options are Off, Single Chirp, Single Beep, Soft, and Loud. The Single Chirp and Single Beep options will only sound the alarm buzzer once when the error becomes active. The Soft option will sound the alarm buzzer in a short, repeating tone. The Loud option will sound the alarm buzzer continuously until the error is resolved. The default value is Off.

Prewet Low Liquid

The Prewet Low Liquid menu contains settings unique to the Prewet Low Liquid error.

Action

The Action menu item lets you set which spreader actions are triggered when the Prewet Low Liquid error occurs. The available options are Warn or Warn & Disable. When set to Warn, the Prewet Low Liquid error will appear on the operation screen. When set to Warn & Disable, the Prewet Low Liquid error will appear on the operation screen and the Prewet output will be disabled. The default value is Warn & Disable.

Direct Low Liquid

The Direct Low Liquid menu contains settings unique to the Direct Low Liquid error.

Action

The Action menu item lets you set which spreader actions are triggered when the Direct Low Liquid error occurs. The available options are Warn or Warn & Disable. When set to Warn, the Direct Low Liquid error will appear on the operation screen. When set to Warn & Disable, the Direct Low Liquid error will appear on the operation screen and the Direct output will be disabled. The default value is Warn & Disable.

HW Config Warnings

The Hardware Config Warnings menu contains settings that relate to the warning inputs that are defined in the hardware config file.

Warning Name

Each warning input that is defined in the hardware config file has an alarm level associated with it that will sound when the input is active. The warning name displayed in this menu will match the warning that is displayed in the header bar when the input is active. The available alarm options are Off, Single Chirp, Single Beep, Soft, and Loud. The Single Chirp and Single Beep options will only sound the alarm buzzer once. The Soft option will sound the alarm buzzer in a short, repeating tone. The Loud option will sound the alarm buzzer continuously until the error is resolved. The default value is Off.

Joysticks

The Joysticks menu contains all of the settings that can be changed for 6100 systems with joystick inputs. Each joystick function (e.g. Plow Up, Plow Down, Wing Left, Wing Right) listed in the Hardware Configuration File provided with the system will have an entry in the Joystick menu.

When in the Joysticks Menu, the Filled Circle Soft Switch will say "NORMALIZE JOYSTICKS". Pressing this soft switch will begin the process for renormalizing joysticks. See Joystick Normalization on page 57 for more information.

The Joystick Menu cannot be entered and will be colored gray if your system is not configured for joysticks.

Interlocks

The Interlocks menu lists each MPJC joystick with a pushbutton interlock and allows you to set its interlock time. As you highlight a joystick name (JS1-MPJC1, JS2-MPJC1, etc.), its corresponding LED will blink to help you determine which interlock you are changing.

All interlocks are set to 0 seconds (momentary) by default. Each interlock can be set from 0 to 90 seconds.

MPJC joysticks without pushbutton interlocks will not be shown. Spartan SPJC joysticks will not be shown.

Auto Recall Times

The Auto Recall Times menu items lists each auto recall setup in the hardware configuration file and allows you to set its recall time.

All auto recall times are set to 0 seconds (momentary) by default. Each recall time can be set from 0 to 10 seconds.

This feature is not supported by all Hardware Configuration Files. If the Hardware Configuration File does not support an auto recall time, it will not be shown. Auto recall times that are not listed are 0 seconds (momentary) and are not adjustable.

Float Increment

The Float Increment menu items changes how much the adjustable power float changes when the FLOAT soft switches are pressed on the UTIL2 pane. The options are 5%, 10%, 25%, and 50%. The default value is 5%. This menu item is only available if an adjustable power float is set up in the hardware configuration file.

Function Name

The name of the joystick function will be listed in the Joystick menu as it is listed in the Hardware Configuration File.

Min

The Min menu item adjusts the minimum duty cycle that a joystick function can be run at while the joystick is off-center. The available values are between 0% and the configured Max percentage. The default value is 20%.

The Min cannot be set above the Max for any joystick function.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

If an adjustable power float is running while in a Min menu, it will run at the minimum duty cycle.

Max

The Max menu item adjusts the maximum duty cycle that a joystick function can be run at while the joystick is off-center. The available values are between the set Min percentage and 100%. The default value is 75%.

The Max cannot be set below the Min for any joystick function.

If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.

If an adjustable power float is running while in a Max menu, it will run at the maximum duty cycle.

Shutdown

The Shutdown menu contains settings related to the system shutdown and the hibernate state of the system. The hibernate state allows the system to enter a low power mode without fully shutting down. This state allows the spreader control to be ready to operate 10 seconds after dash key power is applied.

Hibernate

The Hibernate menu items sets if the hibernate option is enabled and the length of time that the system can remain in the hibernate state. When that time expires, the system will then shutdown in order to prevent battery drain. The available options are Disabled, 15 Min, 30 Min, 1 Hour, 2 Hours, 4 Hours, 6 Hours, and 8 Hours. The default value is Disabled.

Hibernate Shutdown

The Hibernate Shutdown menu items sets the voltage level which will cause the system to shutdown if battery voltage goes below that level for longer than 1 minute when in the hibernate state. The battery voltage level monitor has a tolerance level of 0.5 V. The available range is from 10 V to 12.5 V. The default value is 12.3 V.

Restart Now

The Restart Now menu items allows for the restarting of the system without having to cycle the dashkey power on the truck.

Settings Management

The Settings Management menu allows you to export or import calibration settings to and from a USB flash drive. It also allows you to restore the 6100 system to its default settings.

Export All Settings (USB)

The Export All Settings (USB) menu item allows you to export all your configuration settings to a USB flash drive. Upon activating it, you will be prompted for a filename, which can be made of up to 13 alphanumeric characters. Press the Nav Stick Pushbutton to export the settings to your USB drive.

The system will create two files on the USB drive, one with a .config extension and one with a .txt extension using the filename provided during the export. The .config extension file is used for importing the settings into a 6100 system. The .txt extension file can be opened using a text editor and allows for the viewing of the calibration settings. For a sample view of the calibration text file, see Appendix B – Sample Exported Calibration Text File on page 66.

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



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

Import All Settings (USB)

The Import All Settings (USB) menu item allows you to import all your configuration settings from a USB flash drive. Upon activating it, you will be prompted to select a filename from the drive. Press the Nav Stick Pushbutton to import the settings to your 6100 system.

The Import All Settings (USB) menu item will not activate unless a flash drive is inserted and a valid 6100 configuration file is detected by the system. Detection may take up to 10 seconds after inserting the flash drive. When the system detects the flash drive, the Import All Settings (USB) menu item text will turn from gray to blue.

The Import All Settings (USB) menu item will import all calibration settings from the export file. For a complete list of calibration settings, see Appendix A – Default Settings and Import/Export Types on page 58.



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

Import Fleet Settings (USB)

The Import Fleet Settings (USB) menu item allows you to import your fleet configuration settings from a USB flash drive. Upon activating it, you will be prompted to select a filename from the drive. Press the Nav Stick Pushbutton to import the settings to your 6100 system.

The Import Fleet Settings (USB) menu item will not activate unless a flash drive is inserted and a valid 6100 configuration file is detected by the system. Detection may take up to 10 seconds after inserting the flash drive. When the system detects the flash drive, the Import Fleet Settings (USB) menu item text will turn from gray to blue.

The Import Fleet Settings (USB) menu item will only import fleet-wide settings from the export file. For a complete list of calibration settings, see Appendix A – Default Settings and Import/Export Types on page 58.



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

Restore Defaults

The Restore Defaults setting will restore the 6100 system to all of its default settings.



For a complete list of Fleet-Wide, Vehicle Specific, and Default settings, see Appendix A – Default Settings and Import/Export Types on page 58.

AutoCalibration

Certain values in the 6100 Configuration Menu need to be calibrated before the system will perform optimally. AutoCalibration will guide you through the process of calibrating your vehicle and perform output calculations for you.

The following values can be calibrated using AutoCal:

- Axle Pulses
- Granular Material Displacement
- Prewet Material Displacement
- Direct Liquid Material Displacement
- Tow Plow Granular Material Displacement

AutoCalibration of Axle Pulses

The AutoCalibration Wizard can measure the axle pulses by distance.

Requirements to AutoCalibrate Axle Pulses:

1. The Speedometer Type must have been set.
2. The Pickup Sensitivity must have been set.
3. If the Pickup Sensitivity is set to custom the Low Trip Point and High Trip Point must have been set.

To AutoCalibrate the Axle Pulses value:

- STEP 1: Enter the Calibration Menu. See Entering Calibration on page 4.
- STEP 2: Navigate into the Ground Speed menu. See page 11.
- STEP 3: Navigate into the Axle Pulses calibration item.
- STEP 4: Press the Filled Circle Soft Switch on the Operator Interface labeled "AutoCal".
- STEP 5: The AutoCal Distance wizard will appear, as shown in Figure 4.

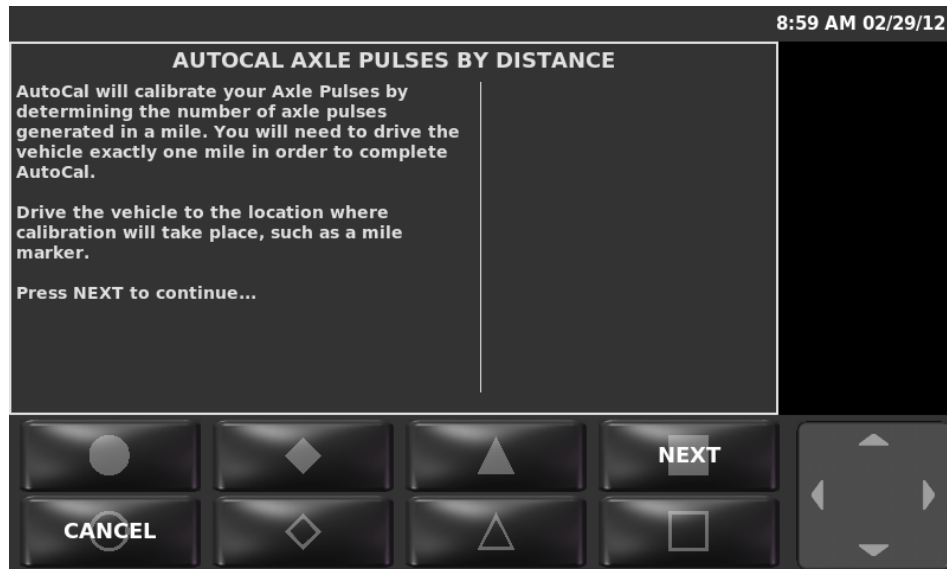


Figure 4: AutoCalibration Axle Pulses By Distance Wizard

- STEP 6: Follow the steps on the screen to measure the axle pulses value.
- STEP 7: Once you have finished the calibration of the axle pulses value, you will be returned to the calibration menu. The measured axle pulses value will be displayed.
- STEP 8: Press the joystick's pushbutton to lock in the displacement value and return to the Calibration menu.

Troubleshooting AutoCalibration of Axle Pulses

Three error conditions can occur when measuring axle pulses. These will appear at the top of the description box in the AutoCal Wizard when they occur.

Error	Cause	Possible Resolutions
"AutoCal did not receive any axle pulses."	<ol style="list-style-type: none"> 1. The wrong Speedometer Type is selected. 2. The wrong Pickup Sensitivity is selected. 3. The speedometer is disconnected. 	<ol style="list-style-type: none"> 1. Verify the proper Speedometer Type is selected. 2. Verify the proper Pickup Sensitivity is selected (this includes low and high trip points if Custom is selected). 3. Verify the integrity of the speedometer sensor.
<p>"AutoCal received fewer pulses than the allowed minimum of 4000."</p> <p>"AutoCal received fewer pulses than the allowed minimum of 2450."</p>	<ol style="list-style-type: none"> 1. The wrong Pickup Sensitivity is selected. 2. An inaccurate number of pulses were detected. 3. An inaccurate distance was measured. 	<ol style="list-style-type: none"> 1. Verify the proper Pickup Sensitivity is selected (this includes low and high trip points if Custom is selected). 2. Verify the integrity of the speedometer sensor. 3. Return to the AutoCalibration screen for measuring axle pulses and re-measure the axle pulses.
"AutoCal received more pulses than the allowed maximum of 200000."	<ol style="list-style-type: none"> 1. The wrong Pickup Sensitivity is selected. 2. An inaccurate number of pulses were detected. 3. An inaccurate distance was measured. 	<ol style="list-style-type: none"> 1. Verify the proper Pickup Sensitivity is selected (this includes low and high trip points if Custom is selected). 2. Verify the integrity of the speedometer sensor. 3. Return to the AutoCalibration screen for measuring axle pulses and re-measure the axle pulses.

AutoCalibration of Granular Material Displacement

Granular material displacement can be calculated using a portable scale or using a vehicle scale. The AutoCalibration Wizard can calculate displacement using either method.

Requirements to AutoCalibrate Granular Material Displacement:

1. If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.
2. The Auger Feedback Sensor must have been previously calibrated. See Pulses Per Revolution on page 13 to calibrate the auger feedback sensor.
3. The Auger Forward Minimum Current must have been previously calibrated. See Minimum Current on page 13 to calibrate the Auger Forward Minimum Current.
4. The Auger Forward Maximum Current must have been previously calibrated. See Maximum Current on page 13 to calibrate the Auger Forward Maximum Current.

To AutoCalibrate a Granular Material's Displacement value:

- STEP 9: Enter the Calibration Menu. See Entering Calibration on page 4.
- STEP 10: Navigate into the Granular Materials menu. See page 16.
- STEP 11: Select the Granular Material you wish to calibrate.
- STEP 12: Navigate into the Displacement calibration item.
- STEP 13: Press the Filled Circle Soft Switch on the Operator Interface labeled "AutoCal".
- STEP 14: The AutoCal Displacement wizard will appear, as shown in Figure 5.

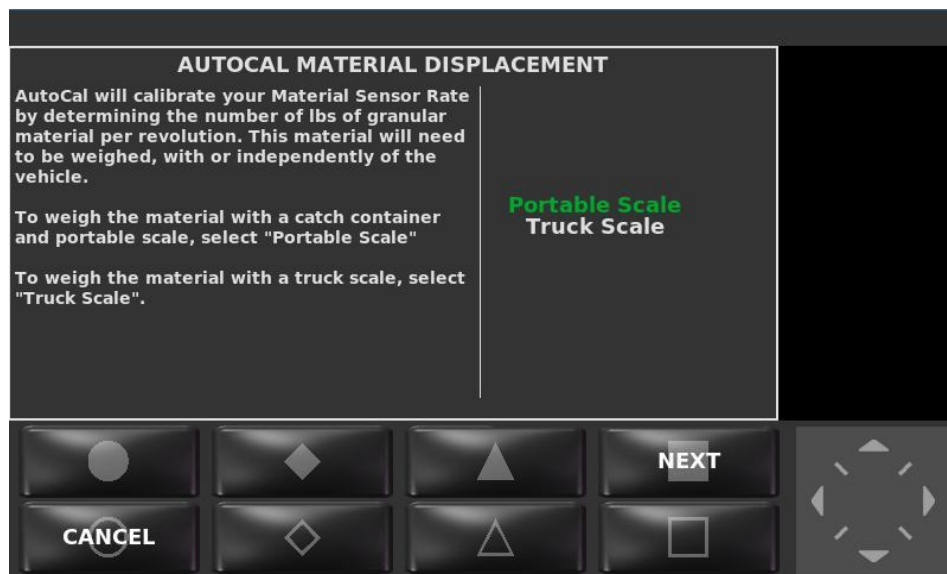


Figure 5: AutoCalibration Granular Material Displacement Wizard

- STEP 15: Follow the steps on the screen to calibrate the displacement value.
- STEP 16: Once you have finished the calibration of the displacement value, you will be returned to the calibration menu. The calculated displacement value will be displayed.

STEP 17: Press the joystick's pushbutton to lock in the displacement value and return to the Calibration menu.

Troubleshooting AutoCalibration of Granular Material Displacement

Three error conditions can occur when calibrating granular material displacement. These will appear at the top of the description box in the AutoCal Wizard when they occur.

Error	Cause	Possible Resolutions
"AutoCal has calculated a value lower than the allowed minimum of 0.1 lbs/rev (kg/rev)."	<ol style="list-style-type: none"> 1. The vehicle's gate setting is too low. 2. An inaccurate number of turns were detected. 3. An inaccurate weight was entered. 	<ol style="list-style-type: none"> 1. Increase the vehicle's gate setting. 2. Verify the integrity of the auger feedback sensor. 3. Return to the AutoCalibration screen for entering material weight and re-enter the value.
"AutoCal has calculated a value higher than the allowed maximum of 200 lbs/rev (kg/rev)."	<ol style="list-style-type: none"> 1. The vehicle's gate setting is too high. 2. An inaccurate number of turns were detected. 3. An inaccurate weight was entered. 	<ol style="list-style-type: none"> 1. Decrease the vehicle's gate setting. 2. Verify the integrity of the auger feedback sensor. 3. Return to the AutoCalibration screen for entering material weight and re-enter the value.
"You have entered an ending weight that is higher than your starting weight."	<ol style="list-style-type: none"> 1. An inaccurate starting weight was entered. 2. An inaccurate ending weight was entered. 	<ol style="list-style-type: none"> 1. Return to the AutoCalibration screen for entering starting weight and re-enter the value. 2. Return to the AutoCalibration screen for entering ending weight and re-enter the value.

AutoCalibration of Prewet Material Displacement

The AutoCalibration Wizard can calculate displacement for the prewet liquid sensor.

Requirements to AutoCalibrate Prewet Material Displacement:

1. If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.
2. The Prewet Feedback Sensor must have been previously calibrated. See Pulses Per Revolution on page 21 to calibrate the prewet feedback sensor.
3. The Prewet Minimum Current must have been previously calibrated. See Minimum Current on page 21 to calibrate the Prewet Minimum Current.
4. The Prewet Maximum Current must have been previously calibrated. See Maximum Current on page 21 to calibrate the Prewet Maximum Current.

To AutoCalibrate a Prewet Material's Displacement value:

- STEP 1: Enter the Calibration Menu. See Entering the Calibration Menu on page 4.
- STEP 2: Navigate into the Prewet Materials menu.
- STEP 3: Select the Prewet Material you wish to calibrate.
- STEP 4: Navigate into the Displacement calibration item.
- STEP 5: Press the Filled Circle Soft Switch on the Operator Interface labeled "AutoCal".
- STEP 6: The AutoCal Displacement wizard will appear, as shown in Figure 6.

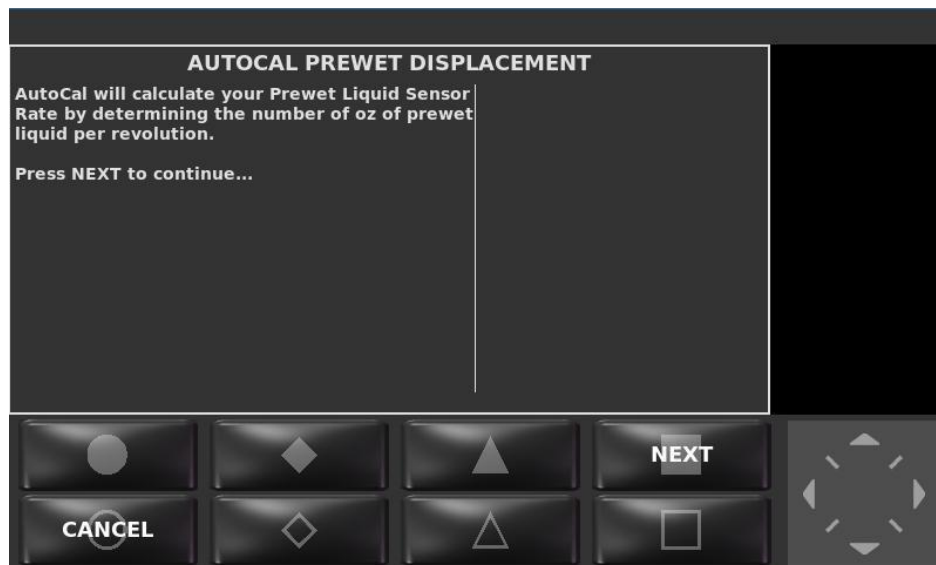


Figure 6: AutoCalibration Prewet Material Displacement Wizard

- STEP 7: Follow the steps on the screen to calibrate the displacement value.
- STEP 8: Once you have finished the calibration of the displacement value, you will be returned to the calibration menu. The calculated displacement value will be displayed.

STEP 9: Press the joystick's pushbutton to lock in the displacement value and return to the Calibration menu.

Troubleshooting AutoCalibration of Prewet Material Displacement

Two error conditions can occur when calibrating prewet material displacement. These will appear at the top of the description box in the AutoCal Wizard when they occur.

Error	Cause	Possible Resolutions
"AutoCal has calculated a value lower than the allowed minimum of 0.05 oz/rev." "AutoCal has calculated a value lower than the allowed minimum of 1 mL/rev."	1. An inaccurate number of turns were detected. 2. An inaccurate volume was entered.	1. Verify the integrity of the prewet feedback sensor. 2. Return to the AutoCalibration screen for entering material volume and re-enter the value.
"AutoCal has calculated a value higher than the allowed maximum of 50 oz/rev." "AutoCal has calculated a value higher than the allowed maximum of 999.99 mL/rev."	1. An inaccurate number of turns were detected. 2. An inaccurate volume was entered.	1. Verify the integrity of the prewet feedback sensor. 2. Return to the AutoCalibration screen for entering material volume and re-enter the value.

AutoCalibration of Direct Liquid Material Displacement

The AutoCalibration Wizard can calculate displacement for the direct liquid sensor.

Requirements to AutoCalibrate Direct Liquid Material Displacement:

1. If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.
2. The Direct Feedback Sensor must have been previously calibrated. See *Pulses Per Revolution* on page 23 to calibrate the Direct feedback sensor.
3. The Direct Minimum Current must have been previously calibrated. See *Minimum Current* on page 23 to calibrate the Direct Minimum Current.
4. The Direct Maximum Current must have been previously calibrated. See *Maximum Current* on page 24 to calibrate the Direct Maximum Current.

To AutoCalibrate a Direct Liquid Material's Displacement value:

- STEP 1: Enter the Calibration Menu. See Entering the Calibration Menu on page 4.
- STEP 2: Navigate into the Direct Materials menu.
- STEP 3: Select the Direct Material you wish to calibrate.
- STEP 4: Navigate into the Displacement calibration item.
- STEP 5: Press the Filled Circle Soft Switch on the Operator Interface labeled "AutoCal".
- STEP 6: The AutoCal Displacement wizard will appear, as shown in Figure 7.

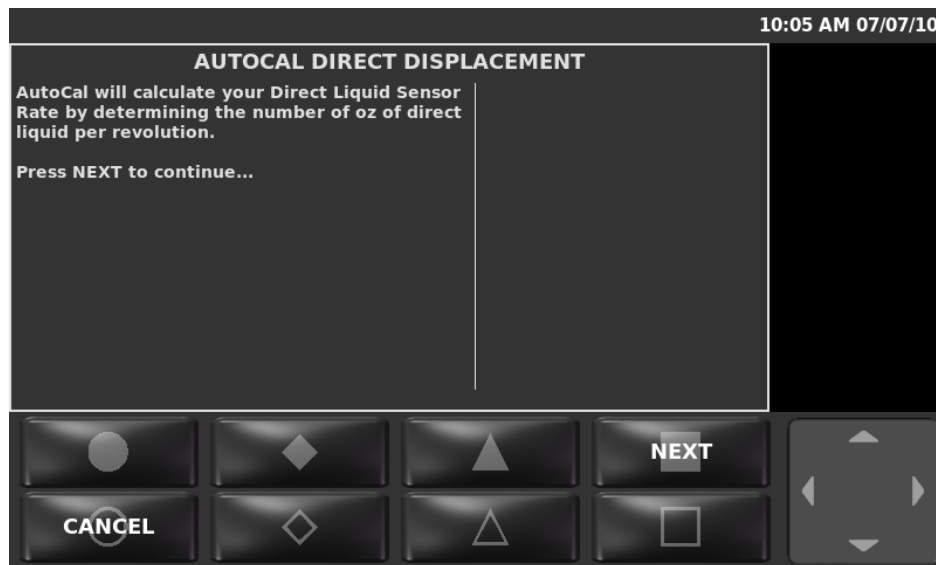


Figure 7: AutoCalibration Direct Liquid Material Displacement Wizard

- STEP 7: Follow the steps on the screen to calibrate the displacement value.
- STEP 8: Once you have finished the calibration of the displacement value, you will be returned to the calibration menu. The calculated displacement value will be displayed.

STEP 9: Press the joystick's pushbutton to lock in the displacement value and return to the Calibration menu.

Troubleshooting AutoCalibration of Direct Liquid Material Displacement

Two error conditions can occur when calibrating direct liquid material displacement. These will appear at the top of the description box in the AutoCal Wizard when they occur.

Error	Cause	Possible Resolutions
"AutoCal has calculated a value lower than the allowed minimum of 0.05 oz/rev." "AutoCal has calculated a value lower than the allowed minimum of 1 mL/rev."	1. An inaccurate number of turns were detected. 2. An inaccurate volume was entered.	1. Verify the integrity of the direct feedback sensor. 2. Return to the AutoCalibration screen for entering material volume and re-enter the value.
"AutoCal has calculated a value higher than the allowed maximum of 100 oz/rev." "AutoCal has calculated a value higher than the allowed maximum of 3000 mL/rev."	1. An inaccurate number of turns were detected. 2. An inaccurate volume was entered.	1. Verify the integrity of the direct feedback sensor. 2. Return to the AutoCalibration screen for entering material volume and re-enter the value.

AutoCalibration of Tow Plow Granular Material Displacement

Tow plow granular material displacement can be calculated using a portable scale or using a vehicle scale. The AutoCalibration Wizard can calculate displacement using either method.

Requirements to AutoCalibrate Tow Plow Granular Material Displacement:

1. If your system uses Implements, make sure the associated Implement is selected in the Implements menu before attempting to run outputs.
2. The Tow Plow Auger Feedback Sensor must have been previously calibrated. See Pulses Per Revolution on page 26 to calibrate the tow plow auger feedback sensor.
3. The Tow Plow Auger Minimum Current must have been previously calibrated. See Minimum Current on page 26 to calibrate the Tow Plow Auger Minimum Current.
4. The Tow Plow Auger Maximum Current must have been previously calibrated. See Maximum Current on page 26 to calibrate the Tow Plow Auger Maximum Current.

To AutoCalibrate a Tow Plow Granular Material's Displacement value:

- STEP 1: Enter the Calibration Menu. See Entering Calibration on page 4.
- STEP 2: Navigate into the Tow Plow menu. See page 26.
- STEP 3: Navigate into the Granular Materials menu. See page 27.
- STEP 4: Select the Granular Material you wish to calibrate.
- STEP 5: Navigate into the Displacement calibration item.
- STEP 6: Press the Filled Circle Soft Switch on the Operator Interface labeled "AutoCal".
- STEP 7: The AutoCal Displacement wizard will appear, as shown in Figure 8.

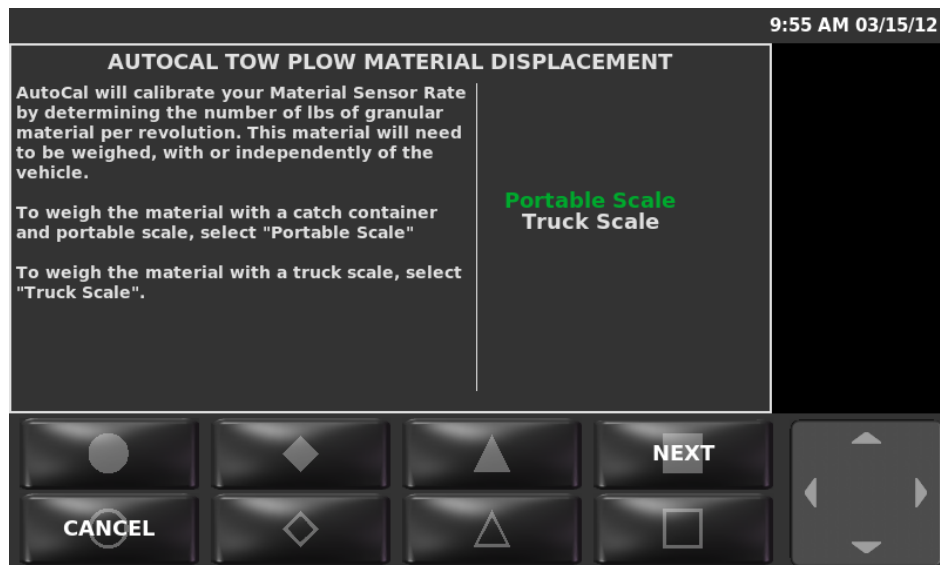


Figure 8: AutoCalibration Tow Plow Granular Material Displacement Wizard

- STEP 8: Follow the steps on the screen to calibrate the displacement value.
- STEP 9: Once you have finished the calibration of the displacement value, you will be returned to the calibration menu. The calculated displacement value will be displayed.

STEP 10: Press the joystick's pushbutton to lock in the displacement value and return to the Calibration menu.

Troubleshooting AutoCalibration of Tow Plow Granular Material Displacement

Three error conditions can occur when calibrating granular material displacement. These will appear at the top of the description box in the AutoCal Wizard when they occur.

Error	Cause	Possible Resolutions
"AutoCal has calculated a value lower than the allowed minimum of 0.1 lbs/rev (kg/rev)."	<ol style="list-style-type: none"> 1. An inaccurate number of turns were detected. 2. An inaccurate weight was entered. 	<ol style="list-style-type: none"> 1. Verify the integrity of the tow plow's auger feedback sensor. 2. Return to the AutoCalibration screen for entering material weight and re-enter the value.
"AutoCal has calculated a value higher than the allowed maximum of 200 lbs/rev (kg/rev)."	<ol style="list-style-type: none"> 1. An inaccurate number of turns were detected. 2. An inaccurate weight was entered. 	<ol style="list-style-type: none"> 1. Verify the integrity of the tow plow's auger feedback sensor. 2. Return to the AutoCalibration screen for entering material weight and re-enter the value.
"You have entered an ending weight that is higher than your starting weight."	<ol style="list-style-type: none"> 1. An inaccurate starting weight was entered. 2. An inaccurate ending weight was entered. 	<ol style="list-style-type: none"> 1. Return to the AutoCalibration screen for entering starting weight and re-enter the value. 2. Return to the AutoCalibration screen for entering ending weight and re-enter the value.

Driver Key Creation

If Driver ID is enabled, drivers are required to log in with a Driver ID Key. In the event that you need to make a new key for a driver, you may use the SSC6100 to set the Driver ID on a Driver Key.

To Create a Driver Key

- STEP 1: Enter the Calibration Menu. See Entering the Calibration Menu on page 4.
- STEP 2: Navigate into the Configuration menu.
- STEP 3: Select Create Driver ID.
- STEP 4: The Driver Key wizard will appear, as shown in Figure 9.

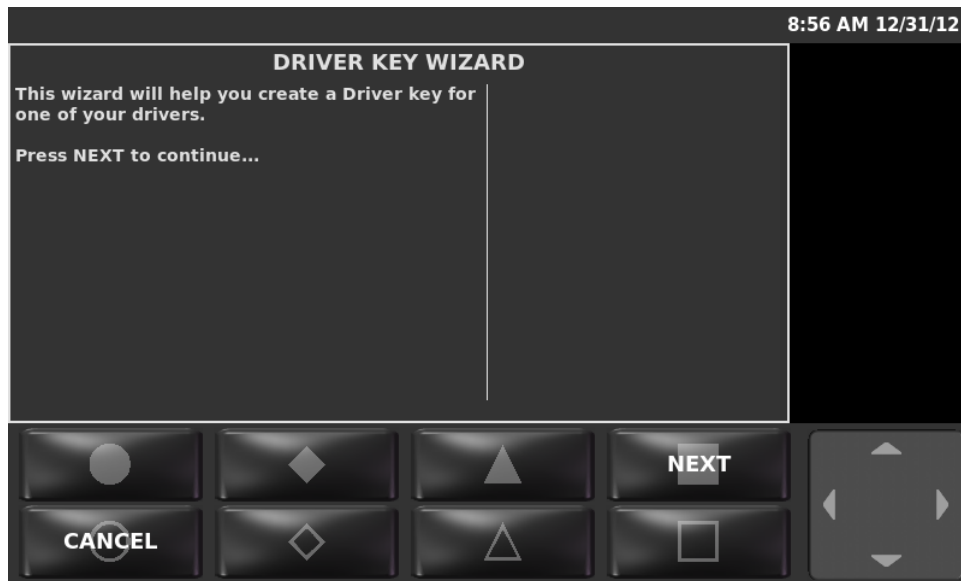


Figure 9: Driver Key Wizard

- STEP 5: Follow the steps on screen to create a Driver ID Key.
- STEP 6: Once you have finished creating a Driver ID Key, you will be returned to the Configuration menu in Calibration.

Joystick Normalization

Joysticks must be normalized before they can operate hydraulic equipment. Joysticks shipped with an MPJC Ultra and Spartan SPJC™ arm will already be normalized. However, in the case that you must replace a joystick or have received a joystick normalization error, you may use the SSC6100 to normalize the joystick.

To Normalize a Joystick:

- STEP 1: Enter the Calibration Menu. See Entering the Calibration Menu on page 4.
- STEP 2: Navigate into the Joysticks menu.
- STEP 3: Press the NORMALIZE JOYSTICKS soft switch.
- STEP 4: The Joystick Normalization wizard will appear, as shown in Figure 10.

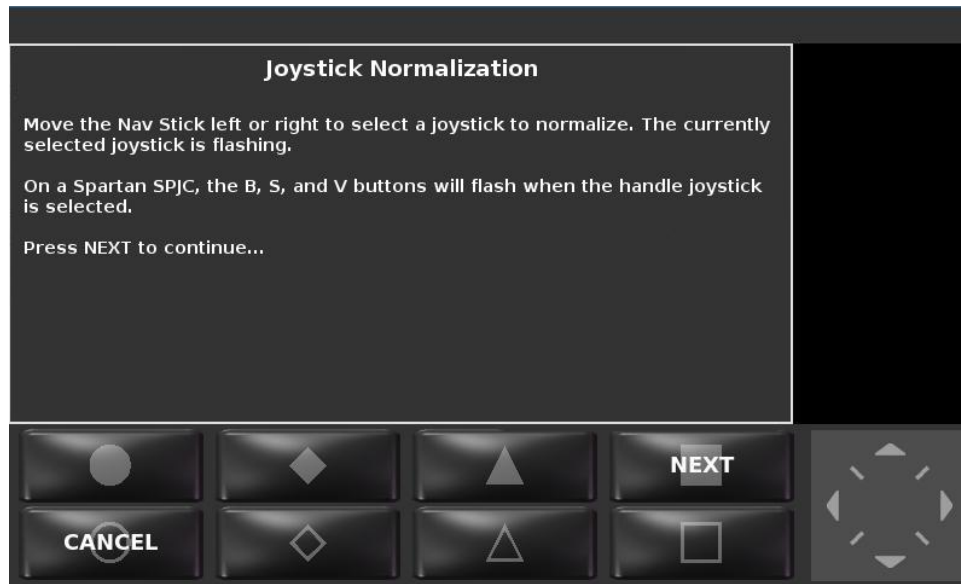


Figure 10: Joystick Normalization Wizard

- STEP 5: Follow the steps on the screen to select and normalize a joystick.
- STEP 6: Once you have finished normalization, you will be returned to the Joysticks menu in Calibration.

Appendix A – Default Settings and Import/Export Types

This section lists each calibration item, its default value, and whether it's 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	TRUCK1	Vehicle Specific
Measurement Units	English	Fleet-Wide
Valve Frequency	50	Fleet-Wide
PWM Mode	Normal	Fleet-Wide
Granular	Enabled	Fleet-Wide
Direct	Disabled	Fleet-Wide
Simultaneous Gran/Dir	Disabled	Fleet-Wide
Prewet	Disabled	Fleet-Wide
Tow Plow	Disabled	Fleet-Wide
Mixed Material	Disabled	Fleet-Wide
Temperature Sensor	Disabled	Fleet-Wide
SimSpeed	Disabled	Fleet-Wide
Distance Measure	Disabled	Fleet-Wide
Aux Power	Disabled	Fleet-Wide
Event Logging	Disabled	Fleet-Wide
Driver ID	Disabled	Fleet-Wide
Aux Power Ramp Time	10	Fleet-Wide
Temp Sensor Type	RoadWatch	Fleet-Wide
Protect Current Data	Enabled	Fleet-Wide
Current Clear Code	314159	Fleet-Wide
GROUND SPEED		
Speedometer Type	Electronic	Vehicle Specific
Pickup Sensitivity	High	Vehicle Specific
Low Trip Point	0.5	Vehicle Specific
High Trip Point	2.0	Vehicle Specific
Axle Pulses	40000	Vehicle Specific

Calibration Item	Default Value	Type
Jump Start Speed	15	Fleet-Wide
Overspeed Alarm	Disabled	Fleet-Wide
Overspeed Speed	45	Fleet-Wide
AUGER / CONVEYOR		
Loop Mode	Closed	Fleet-Wide
Pulses per Revolution	512	Fleet-Wide
Minimum Current (FWD)	250	Vehicle Specific
Maximum Current (FWD)	750	Vehicle Specific
Maximum RPM (FWD)	100	Vehicle Specific
Minimum Current (REV)	250	Vehicle Specific
Maximum Current (REV)	750	Vehicle Specific
Maximum RPM (REV)	100	Vehicle Specific
Minimum Current (Cross 1)	250	Vehicle Specific
Maximum Current (Cross 1)	750	Vehicle Specific
Minimum Current (Cross 2)	250	Vehicle Specific
Maximum Current (Cross 2)	750	Vehicle Specific
Closed Loop Gain	250	Vehicle Specific
Auger Reverse	Disabled	Fleet-Wide
Manual Mode	Enabled	Fleet-Wide
Unload	Disabled	Fleet-Wide
Clear Jam	Disabled	Fleet-Wide
Cross Auger	Disabled	Fleet-Wide
Dual Direction Cross	Disabled	Fleet-Wide
Calib/Unload Auger	Forward	Fleet-Wide
Calib/Unload Cross	Disabled	Fleet-Wide
Skip Mode	Disabled	Fleet-Wide
Gate Mode	None	Fleet-Wide
Blast Mode	Time	Fleet-Wide
Blast Time	10	Fleet-Wide
Blast Distance	250	Fleet-Wide
Skip On Distance	250	Fleet-Wide
Skip Off Distance	250	Fleet-Wide

Calibration Item	Default Value	Type
GRANULAR MATERIALS		
Materials Enabled	1	Fleet-Wide
Material Name	MAT1	Fleet-Wide
Calib Gate Height	4.0	Fleet-Wide
Displacement	10.0	Vehicle Specific
# of Set Rates	10	Fleet-Wide
Set Rate 1 Value	100	Fleet-Wide
Set Rate 2 Value	200	Fleet-Wide
Set Rate 3 Value	300	Fleet-Wide
Set Rate 4 Value	400	Fleet-Wide
Set Rate 5 Value	500	Fleet-Wide
Set Rate 6 Value	600	Fleet-Wide
Set Rate 7 Value	700	Fleet-Wide
Set Rate 8 Value	800	Fleet-Wide
Set Rate 9 Value	900	Fleet-Wide
Set Rate 10 Value	1000	Fleet-Wide
Blast Rate	1000	Fleet-Wide
Two Position Gate	Low	Fleet-Wide
SPINNER		
Type	Normal	Fleet-Wide
Pulses Per Revolution	60	Vehicle Specific
Minimum Current (Spinner 1)	250	Vehicle Specific
Maximum Current (Spinner 1)	750	Vehicle Specific
Maximum RPM (Spinner 1)	12	Vehicle Specific
Minimum Current (Spinner 2)	250	Vehicle Specific
Maximum Current (Spinner 2)	750	Vehicle Specific
Closed Loop Gain	250	Vehicle Specific
Spinner Height	12	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

Calibration Item	Default Value	Type
PREWET		
Loop Mode	Closed	Fleet-Wide
Drive Type	Hydraulic	Fleet-Wide
Manual Mode	Disabled	Fleet-Wide
Unload	Disabled	Fleet-Wide
Pulses per Revolution	12	Fleet-Wide
Minimum Current	250	Vehicle Specific
Maximum Current	750	Vehicle Specific
Maximum RPM	1500	Vehicle Specific
Closed Loop Gain	250	Vehicle Specific
PREWET MATERIALS		
Materials Enabled	1	Fleet-Wide
Material Name	PWT1	Fleet-Wide
Displacement	0.35	Vehicle Specific
# of Set Rates	6	Fleet-Wide
Set Rate 1 Value	3	Fleet-Wide
Set Rate 2 Value	4	Fleet-Wide
Set Rate 3 Value	5	Fleet-Wide
Set Rate 4 Value	6	Fleet-Wide
Set Rate 5 Value	7	Fleet-Wide
Set Rate 6 Value	8	Fleet-Wide
Set Rate 7 Value	9	Fleet-Wide
Set Rate 8 Value	10	Fleet-Wide
Set Rate 9 Value	11	Fleet-Wide
Set Rate 10 Value	12	Fleet-Wide
DIRECT LIQUID		
Manual Mode	Disabled	Fleet-Wide
Unload Mode	Disabled	Fleet-Wide
Multi-Lane	Disabled	Fleet-Wide
Dual Boom	Disabled	Vehicle Specific
Loop Mode	Closed	Fleet-Wide
Pulses Per Revolution	10	Fleet-Wide

Calibration Item	Default Value	Type
Minimum Current	250	Vehicle Specific
Maximum Current	750	Vehicle Specific
Maximum RPM	1500	Vehicle Specific
Blast Mode	Time	Fleet-Wide
Blast Time	10	Fleet-Wide
Blast Distance	250	Fleet-Wide
High Boom	30	Vehicle Specific
High/Low Boom	60	Vehicle Specific
DIRECT MATERIALS		
Materials Enabled	1	Fleet-Wide
Material Name	DIR1	Fleet-Wide
Displacement	13.20	Vehicle Specific
# of Set Rates	10	Fleet-Wide
Set Rate 1 Value	20	Fleet-Wide
Set Rate 2 Value	25	Fleet-Wide
Set Rate 3 Value	30	Fleet-Wide
Set Rate 4 Value	35	Fleet-Wide
Set Rate 5 Value	40	Fleet-Wide
Set Rate 6 Value	45	Fleet-Wide
Set Rate 7 Value	50	Fleet-Wide
Set Rate 8 Value	55	Fleet-Wide
Set Rate 9 Value	60	Fleet-Wide
Set Rate 10 Value	65	Fleet-Wide
Blast Rate	65	Fleet-Wide
TOW PLOW – AUGER / CONVEYOR		
Loop Mode	Closed	Fleet-Wide
Pulses per Revolution	20	Fleet-Wide
Minimum Current	250	Vehicle Specific
Maximum Current	750	Vehicle Specific
Maximum RPM	100	Vehicle Specific
Closed Loop Gain	250	Vehicle Specific
Enabled Spinners	Tow Plow Only	Vehicle Specific

Calibration Item	Default Value	Type
TOW PLOW – GRANULAR MATERIALS		
Material Name	MAT1	Fleet-Wide
Displacement	10.0	Vehicle Specific
TOW PLOW – SPINNER		
Separate Spread Width	Disabled	Vehicle Specific
Minimum Current	250	Vehicle Specific
Maximum Current	750	Vehicle Specific
INPUTS / OUTPUTS		
Core Input 1	None	Fleet-Wide
Core Input 2	None	Fleet-Wide
Core Output 1	None	Fleet-Wide
Core Output 2	None	Fleet-Wide
CAN DEVICES		
8 Port Valve <i>N</i>	Nonconfigured	Vehicle Specific
20 Port Valve <i>N</i>	Nonconfigured	Vehicle Specific
10 Port Valve <i>N</i>	Nonconfigured	Vehicle Specific
MPJC <i>N</i>	Nonconfigured	Vehicle Specific
SPJC <i>N</i>	Nonconfigured	Vehicle Specific
Direct Module <i>N</i>	Nonconfigured	Vehicle Specific
DATE / TIME		
Date	January 1, 2000	Vehicle Specific
Time	12:00:00 AM	Vehicle Specific
Time Zone	USA Central	Vehicle Specific
EVENT LOGGING		
Event Number	Disabled	Fleet-Wide
Time	Log	Fleet-Wide
Date	Log & Trigger	Fleet-Wide
Spreader Status	Log & Trigger	Fleet-Wide
Granular Mode	Log & Trigger	Fleet-Wide
Measurement Units	Log	Fleet-Wide
Vehicle Speed	Log	Fleet-Wide
Distance Total	Log	Fleet-Wide

Calibration Item	Default Value	Type
Gran. Mat. Name	Log & Trigger	Fleet-Wide
Gran. Mat. Setting	Log & Trigger	Fleet-Wide
Gran. Mat. Total	Log	Fleet-Wide
Spinner Dial Position	Log	Fleet-Wide
Prewet Liquid Setting	Disabled	Fleet-Wide
Prewet Volume Total	Disabled	Fleet-Wide
Direct Liquid Setting	Disabled	Fleet-Wide
Direct Liquid Total	Disabled	Fleet-Wide
Direct Liquid Lanes	Disabled	Fleet-Wide
Road Temperature	Disabled	Fleet-Wide
Air Temperature	Disabled	Fleet-Wide
Spreader Information	Disabled	Fleet-Wide
Driver ID	Disabled	Fleet-Wide
Vehicle ID	Log	Fleet-Wide
Prewet Liquid Mode	Disabled	Fleet-Wide
Prewet Liquid Name	Disabled	Fleet-Wide
Direct Liquid Mode	Disabled	Fleet-Wide
Unload Function	Log & Trigger	Fleet-Wide
Gran. Rate Index	Log & Trigger	Fleet-Wide
Prewet Rate Index	Disabled	Fleet-Wide
Direct Rate Index	Disabled	Fleet-Wide
Relative Humidity	Disabled	Fleet-Wide
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

Calibration Item	Default Value	Type
Direct Displacement	250 gal	Fleet-Wide
Generate in Standby	Disabled	Fleet-Wide
ERRORS		
Body Up Warning Alarm	Off	Fleet-Wide
High Filter Bypass Alarm	Off	Fleet-Wide
Low Filter Bypass Alarm	Off	Fleet-Wide
Oil Level Warning Alarm	Off	Fleet-Wide
Oil Temp Warning Alarm	Off	Fleet-Wide
Overspeed Alarm	Off	Fleet-Wide
Granular Low Material Action	Warn	Fleet-Wide
Granular Low Material Alarm	Off	Fleet-Wide
Prewet Low Liquid Action	Warn & Disable	Fleet-Wide
Direct Low Liquid Action	Warn & Disable	Fleet-Wide
JOYSTICKS		
Min	20%	Vehicle Specific
Max	75%	Vehicle Specific
SHUTDOWN		
Hibernate	Disabled	Fleet-Wide
Hibernate Shutdown	12.3 V	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 Calibration Settings
Firmware Rev                      0.66.8110
HW Config File                    K9000
Date Exported                    2013-Jan-17 07:30:15

Calibration Menu

Configuration
Access Code                      000000
Vehicle Name                     TRUCK 1
Measurement Units                English
Valve Frequency                  50 Hz
PWM Mode                         Normal

Enabled Options
Granular                        Enabled
Direct                         Disabled
Prewet                         Disabled
Tow Flow                       Disabled
Mixed Material                 Disabled
Temperature Sensor             Disabled
Directional Spinner           Disabled
Sim Speed                     Disabled
Distance Measure              Disabled
Aux Power                     Disabled
Event Logging                 Disabled
Protect Current Data           Enabled
Current Clear Code             314159

Ground Speed
Speedometer Type                Mechanical
Pickup Sensitivity              High
Axle Pulses                     40000 pulses/mi
Jump Start Speed                15 MPH
Overspeed Alarm                Off

Auger / Conveyor
Loop Mode                       Closed
Pulses per Revolution           512

Auger Forward
Minimum Current                 250 mA
Maximum Current                 750 mA
Maximum RPM                    100 RPM

Auger Reverse
Minimum Current                 250 mA
Maximum Current                 750 mA
Maximum RPM                    100 RPM
```




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