FORCE America ONE™
Quick Start Manual

FORCE® America INC.

Welcome

Congratulations on your purchase of a FORCE America ONE™ joystick and spreader control. This manual is designed to provide you with the basic information necessary to get your new system up and running. For advanced operation and calibration features related to the SSC5100ex Spreader Control please consult M0118 SSC5100ex Operation Manual or M0119 SSC5100ex Calibration Manual.

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Hardware

The SSC5100ex is a self-contained spreader system. It has two rotary adjustment knobs, five pairs of “switches” that act as pushbuttons for SSC5100ex functions, and an interlock “switch” on the back of the controller. The functions that they control change depending on what options are enabled. See Switch Labels on page 4. The left side of the SSC5100ex has a single USB port, which can be used to import and export calibration files or upgrade the firmware.

Figure 1: The SSC5100ex

The remote controls provides the operator with three rotary adjustment knobs, inputs for remote activation of blast and standby and control of hoist and plow operations using the attached joystick.

Figure 2: Remote Controls

FORCE America ONE™ System Operation

The following information describes the basic features of the FORCE America ONE™ system. For details on more advanced operation of the spreader control please consult M0018 SSC5100ex Operation Manual.

Powering up the SSC5100ex

Upon applying 12V DC dashkey power to the SSC5100ex, it will display the Screen Power Switch.

The Screen Power Switch

The Screen Power Switch is a safety feature of the SSC5100ex, it will prevent the system from running spreader related outputs until the Continue button is pressed. When the Continue button is pressed, it will display the Operation Screen.

Figure 3: Screen Power Switch

The Operation Screen

The Operation Screen is the main screen of the SSC5100ex, and provides controls for all of the system functions as well as access to the menus.

The operation screen is divided into three distinct parts:

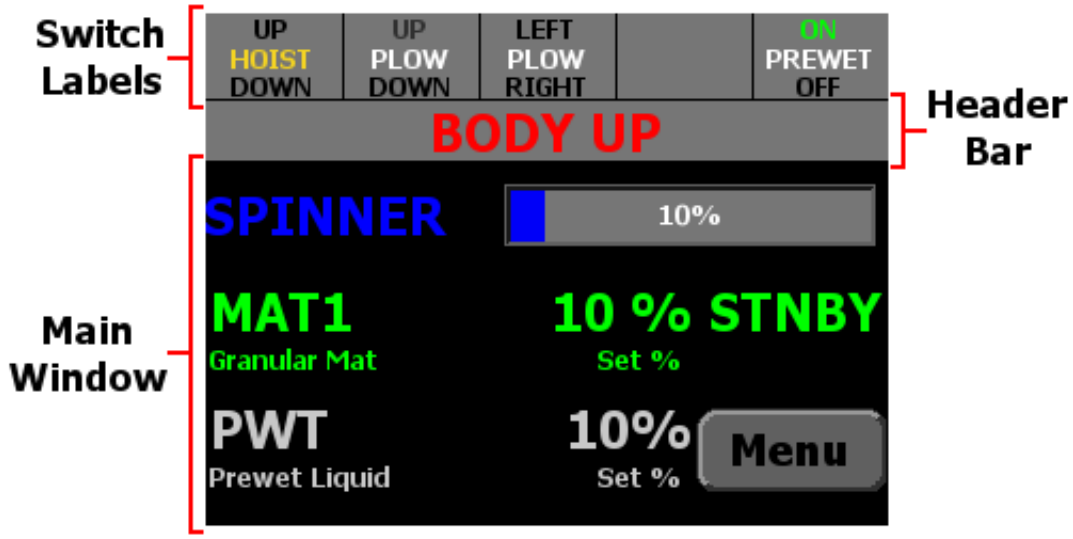


Figure 4: SSC5100ex Operation Screen

Switch Labels

The 5 Switch Labels always run across the very top of the screen. Each label corresponds to the switch directly above it. Active switch functions are indicated with a green color. If a switch is currently not used the label is left blank. The switch label will appear red if the operator selected the Disable option on the stuck switch error condition at startup. When in this state the affected function will not be able to be activated.

Figure 5: Switch Labels

Switch	Function	Availability Requires
	Momentarily activates the Hoist, running it at max duty cycle until the switch or interlock is released. Pressing both the top switch and the interlock (integrated into the back of the controller) at the same time will move the hoist up. Pressing both the bottom switch and the interlock will move it down.	The Hoist & Plow option in calibration must be set to Hoist or Hoist & Plow.
	Momentarily activates the Plow, running it at max duty cycle until the switch is released. The interlock switch is not required to run these functions. Pressing the top switch will move the plow up and the bottom switch will move it down.	The Hoist & Plow option in calibration must be set to Plow or Hoist & Plow.
	Momentarily activates the Plow, running it at max duty cycle until the switch is released. The interlock switch is not required to run these functions. Pressing the top switch will move the plow left and the bottom switch will move it right.	The Hoist & Plow option in calibration must be set to Plow or Hoist & Plow.
	Activates or deactivates the prewet output. Pressing the top switch will turn on Prewet and the bottom switch will turn it off. See page 7.	Prewet must be enabled in Calibration.

Header Bar

Figure 6: Header Bar

The Header Bar always runs across the top of the screen just below the switch labels. It contains a series of system status messages and the PreCise™ MRM status icon (if Event Logging is set to PreCise).

System Status Messages will be displayed in the center of the Header Bar. If two or more system status messages are active, the messages will alternate between each other at a rate of one message every two seconds. In Figure 6 above, a Body Up condition has occurred, showing the Body Up system status message in the header bar.

For more information on error conditions, see M0018 SSC5100ex Operation Manual.

Main Window

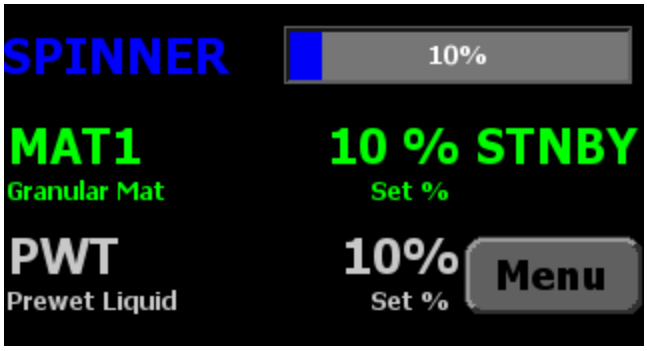


Figure 7: Main Window

The Main Window displays important information about the materials the system is spreading.

The blue spinner row contains information about your spinners set rate. The spinner row will only appear when applying granular materials and adjusted using the blue knob.

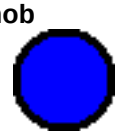
The green row contains information about your primary material, and its set rate. This row is always visible and adjusted using the green knob.

The white prewet row contains information about your prewet material and its set rate. The prewet row will only appear when applying granular materials and Prewet is enabled in Calibration. It is white when Prewet is activated and gray when Prewet is not activated.

Applying Material

When your FORCE America ONE™ system arrives from the factory it will be ready to apply granular material in manual mode. When the system starts up, it will be in Standby, as shown in Figure 7. Standby deactivates all outputs.

Each rotary adjustment knob on the Spreader Control / Operator Interface performs a different function when applying material. See the table below.

Input	Input	Function
Green On / Standby Knob 	Twist Left	Decrease the auger set rate.
	Twist Right	Increase the auger set rate.
	Pushbutton	Place the system in standby. Remove the system from standby.
Blue Blast Knob 	Twist Left	Decrease the spinner set rate.
	Twist Right	Increase the spinner set rate.
	Pushbutton	Blast granular material. Cancel Blast.

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

To spread granular material in manual mode:

STEP 1: Twist the On / Standby knob to adjust your granular output percentage.

STEP 2: Twist the Blast knob to adjust your spinner set rate.

STEP 3: Press the On / Standby knob to remove the spreader control from standby. Granular material will spread regardless of whether the vehicle is moving or not.

STEP 4: Press the On / Standby knob to place the spreader control back in standby and stop the outputs.

To spread granular and prewet material in manual mode:

STEP 1: Press the top half of the switch labeled “Prewet” above the screen to enable prewet liquid application. The switch’s ON text will turn green when activated.

STEP 2: Twist the On / Standby knob to adjust your granular output percentage.

STEP 3: Twist the Blast knob to adjust your spinner set rate.

STEP 4: Press the button labeled Menu in the lower right-hand corner of the screen to enter the Main menu.

STEP 5: Press the button labeled Material to enter the Material menu.

STEP 6: Press the button labeled Prewet Rate to access the prewet set rate.

STEP 7: Press the left and right arrow buttons to adjust your prewet output percentage. When used with the optional remotes the gray knob can be twisted left and right to decrease and increase the prewet output percentage.

STEP 8: Press the Ok button to save the setting and return to the Material menu.

STEP 9: Press the Back button to return to the Main menu.

STEP 10: Press the Back button to return to the operation screen.

STEP 11: Press the On / Standby knob to remove the spreader control from standby. Granular and prewet material will spread regardless of whether the vehicle is moving or not.

STEP 12: Press the On / Standby knob to place the spreader control back in standby and stop the outputs.

Blast

Blast is a spreader feature that runs the granular at 100% for 10 seconds.

When Blast is activated, the granular row will display the word “BLAST” instead of the material name. See Figure 8.

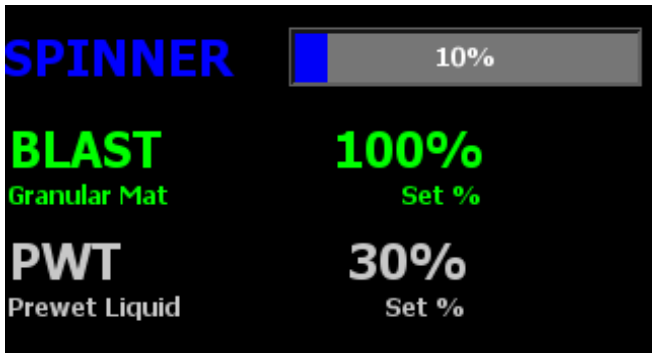


Figure 8: Granular / Prewet Application Mode in Blast

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

To activate Blast:

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

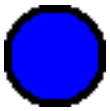
To deactivate Blast before it automatically shuts off:

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

Remote Controls Operation

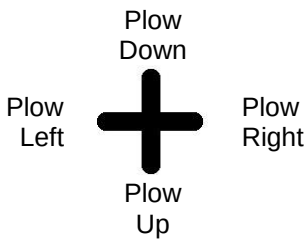
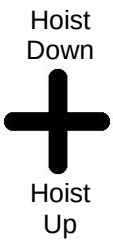
The Remote Controls when connected to the system provide an alternative method for activation of the plow, hoist and spreader functions.

The green and blue knobs on the remote controls perform the same functions as the green and blue knobs on the spreader control. In addition to those knobs the gray knob on the remote controls provides the ability to adjust the prewet set rate. The table below describes the operation of the knobs located on the remote control.

Input	Input	Function
Green On / Standby Knob 	Twist Left	Decrease the auger set rate.
	Twist Right	Increase the auger set rate.
	Pushbutton	Place the system in standby. Remove the system from standby.
Blue Blast Knob 	Twist Left	Decrease the spinner set rate.
	Twist Right	Increase the spinner set rate.
	Pushbutton	Blast granular material. Cancel Blast.
Gray Prewet Knob 	Twist Left	Decrease the prewet set rate.
	Twist Right	Increase the prewet set rate.

The prewet system can be turned on and off using the rocker switch located below the gray knob, this rocker switch performs the same operation as the far right switch on the spreader control.

The joystick on the remote controls performs the same functions as the first three switches on the spreader control. The pushbutton on the joystick is used to switch the joystick output from plow to hoist. When pressed the pushbutton will latch on the hoist operation until the joystick returns to the center position where the state of the button will be evaluated to determine which function should be operated. The table below describes the operation of the joystick located on the remote controls.

Pushbutton Inactive	**Pushbutton Active**
	

FORCE America ONE™ System Calibration

The following information describes the calibration for the specific features related to the FORCE America ONE™ system. For details on the features that are not specific to the FORCE America ONE System please consult the M0019 SSC5100ex Calibration Manual.

Entering the Calibration Menu

The Calibration menu is entered by pressing the Calib button in the Main Menu. Unlike the Material Select, Unload, Data, and Version Menus, the Calibration Menu requires the entry of an Access Code before it will appear. You can insert a USB supervisor key instead of entering the access code to access the Calibration Menu.

To enter Calibration using Access Code:

1. While the system is in Standby, press the Menu button on the Operation Screen.
2. Press the Calibration menu button. The Access Code window will appear, as shown in Figure 9.

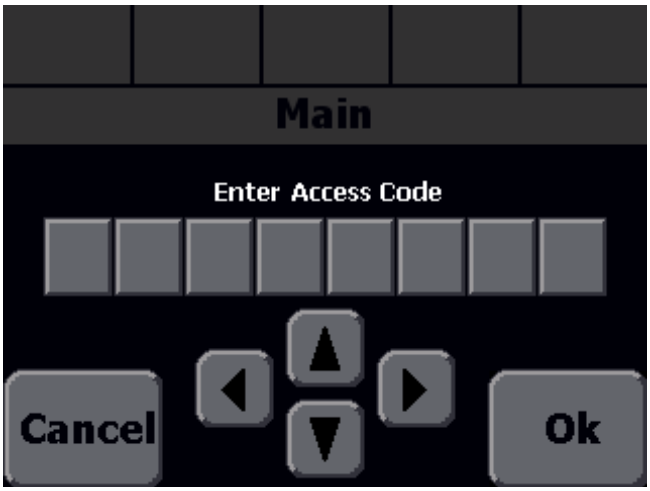


Figure 9: The Access Code Window

3. Enter the access code using the up and down arrow buttons on screen. Use the left and right arrows to move to a different digit. You may also tap a number cell to highlight it. The factory default access code is 00000000.

When entering the Access Code, the buttons have the following functions:

Input	Function
	Increase the highlighted digit by 1.
	Decrease the highlighted digit by 1.
	Highlight the previous digit.
	Highlight the next digit.

	Enter Access Code.
	Return to the Main menu.

Hoist/Plow

The Hoist/Plow menu allows you to configure settings related to the operation of the hoist and plow.

Options

The Options item allows you to configure which of the hydraulic functions can be activated using the unit. The default value is Hoist & Plow.

Option	Description
Hoist & Plow	The system will contain switch functions and outputs for the hoist up, hoist down, plow up, plow down, plow left and plow right hydraulic functions.
Hoist	The system will contain switch functions and outputs for the hoist up, and hoist down hydraulic functions.
Plow	The system will contain switch functions and outputs for the plow up, plow down, plow left and plow right hydraulic functions.

Plow Float

The Plow Float menu item sets the operation of the Plow Down Float function. When active the plow down float function will keep 12 V on the plow down output. The plow down float function is deactivated by pressing the plow up switch. The default value is Disabled.

Option	Description
Disabled	Plow float is not active.
Delayed	Plow float will activate when the plow down function is held for 3 seconds.
Enabled	Plow float will activate when the plow down function is pressed.

Max DC

The Max DC submenu allows you to set the duty cycle that the switch related hydraulic functions will operate at during standard operation.

Plow Up

The Plow Up menu item adjusts the duty cycle that the plow up output will operate at during standard operation. The default value is 80%.

Plow Left

The Plow Left menu item adjusts the duty cycle that the plow left output will operate at during standard operation. The default value is 50%.

Plow Right
The Plow Right menu item adjusts the duty cycle that the plow right output will operate at during standard operation. The default value is 50%.

Hoist Up
The Hoist Up menu item adjusts the duty cycle that the hoist up output will operate at during standard operation. The default value is 65%.

Limit Scheme
The Limit Scheme menu item selects the limit scheme profile that is used to limit the output duty cycle when multiple hydraulic functions are requested to run at the same time. The default limit scheme is low.

Option	Description
High	High limit operation is designed to be used with a 14 GPM pump
Low	Low limit operation is designed to be used with a 9 GPM pump.
Custom	Custom limit operation will allow for setting of the various limit percentages to obtain the desired operation if the High and Low limit scheme do not provide the desired operation.

Limit Percentages
The Limit Percentages submenu allows you to set the percentage of maximum range that the switch related hydraulic function will operate at when in limit mode. Limit mode is active whenever more than one of the following functions is active: Plow up, plow left, plow right, hoist up, hoist down or auger. The values in this menu are only editable when the Limit Scheme is set to Custom.

Plow Up
The Plow Up menu item adjusts the limit percentage for the plow up output. The custom default value is 50%.

Plow Left
The Plow Left menu item adjusts the limit percentage for the plow left output. The custom default value is 70%

Plow Right
The Plow Right menu item adjusts the limit percentage for the plow right output. The custom default value is 70%

Hoist Up
The Hoist Up menu item adjusts the limit percentage for the hoist up output. The custom default value is 50%

Hoist Down
The Hoist Down menu item adjusts the limit percentage for the hoist down output. The custom default value is 50%

Auger
The Auger menu item adjusts the limit percentage for the auger output. When the auger output is being limited the prewet output will be adjusted as well. The custom default value is 62%

FORCE America Contact Information

Should you encounter problems with your FORCE America ONE™ system that are not documented in this manual, M0118 SSC5100ex Operation Manual or the M0119 SSC5100ex Calibration Manual, please contact your local FORCE America Sales Representative for assistance.

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

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