

Gresen GRS32 Calibration

(also see the *MnDOT Salt and Sander Calibration Guide* for
general calibration reference)

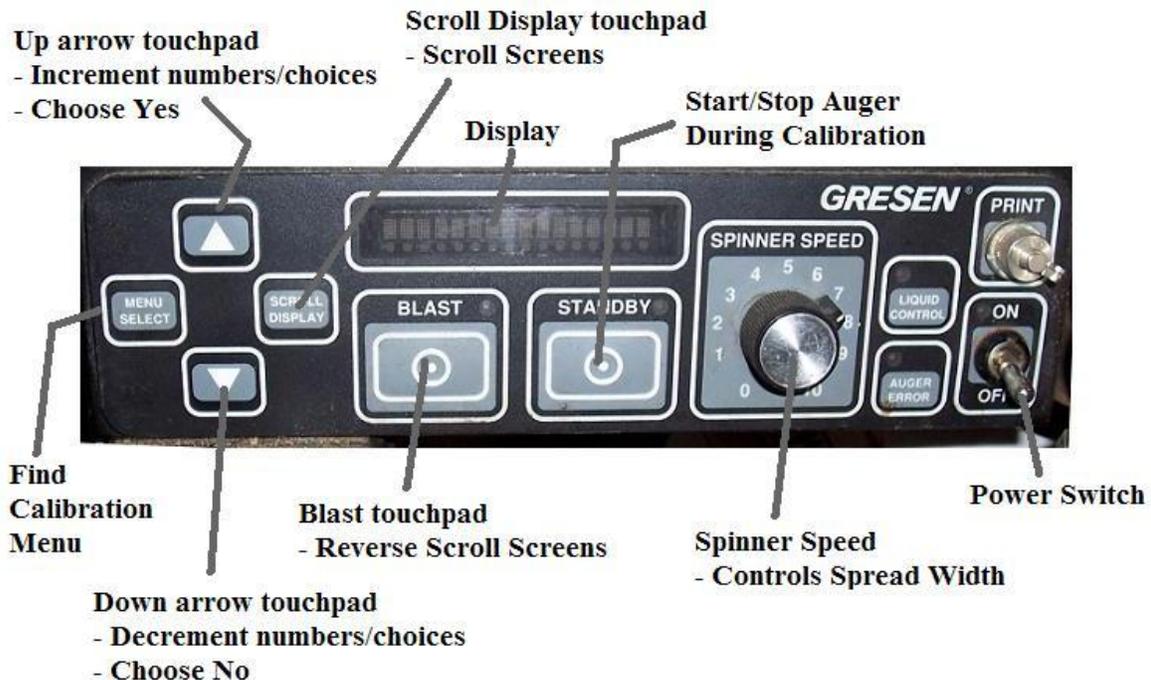
Gresen GRS32 Calibration

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Controller Components

Gresen GRS32 Controller Components



Tricks and Traps

		Description
		Scroll numbers/options - Use the up and down arrows
		Scroll calibration screens - Use 'Scroll Display' touchpad button
		Reverse-Scroll calibration screens - Use Blast touchpad button
		Change 'N' (no) to 'Y' (yes) - Use up arrow. Also hold down for fast scroll.
		Change 'Y' (yes) to 'N' (no) - Use down arrow. Also hold down for fast scroll.

Preliminary Setup

Step

Description

1. Load the truck with salt or desired material

2. Tie the spinner up (you may find with experience that some weighing methods do not require spinner up)

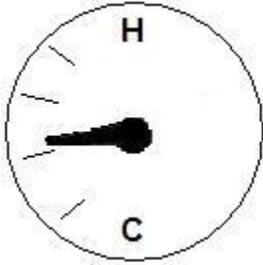


3. Keep a notebook or folder of calibration results. It should include the results of the new calibration and at least one previous calibration for each truck.
The calibration records will help mechanics with troubleshooting when required

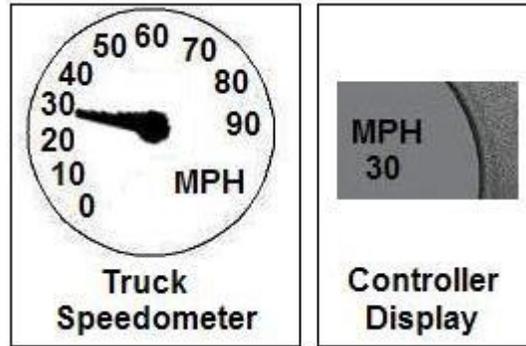


4. Verify that you have the calibration results from the previous calibration. If not, then contact the controller programmer (often one of the mechanics on your team). Programming will need to be performed to determine the current constants in the controller (before the new calibration).
5. Start a new calibration results page for the new calibration

Getting Started

Step	Description	
1.	Turn spinner width adjust knob down to zero for safety	 A close-up photograph of a circular control knob labeled "SPINNER SPEED". The knob has a scale from 0 to 10. A white arrow points to the 0 mark, and the text "Set to Zero" is printed below the knob.
2.	Start truck and turn PTO on. Note that PTO controls will vary by truck (see examples in figure).	 Two photographs showing different PTO control setups. The left photo shows a panel with a "PTO" button and a green "ON/OFF" switch. The right photo shows a red knob with a label that includes "PTO" and "ON/OFF".
3.	Fully warm up the truck hydraulics (see next step). Drive the truck for at least 10 minutes	 A circular gauge with a needle pointing to the left. The gauge has markings and is labeled with "H" at the top and "C" at the bottom.

4. While warming up the truck, verify that the ground speed sensor is calibrated by comparing the speed on the controller console to the truck speedometer reading (while driving at least 25 mph). These will usually match. In the case they do not, see 'Ground Speed Calibration' appendix.



5. Park the truck (but do not shut off) at the location where you want to dispense material.

6. Turn on the parking brake

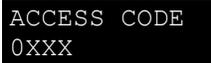
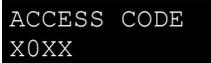


7. Turn on controller power switch



Entering Calibrate Mode

Step	Description	screen
1.	Press and release the Menu Select touchpad until the calibration menu is displayed	 CALIBRATION MENU
2.	Press and release the Scroll Display touchpad until the access code screen is displayed	 ACCESS CODE 0XXX

3.	Press the arrow touchpads to change first digit			
4.	Press the Scroll Display touchpad to move to the next digit of the code			
5.	Press the arrow touchpads to change digit			
6.	Repeat steps 4 and 5 until all four digits have been entered			

Granular Materials Calibration (Catch Test)

Step	Description		screen
Catch Test - Calibrating for materials			
1.	Press and release the Scroll Display touchpad until the 'MATL RATES A' screen is displayed		
2.	Press the up arrow to change the 'N' to 'Y'		
Note: this procedure assumes an auger system			

5. Press and release the Scroll Display touchpad until the 'TRUCK SCALE' screen is displayed



TRUCK
SCALE? N

Note: this procedure assumes a portable scale. The truck scale procedure is similar.

6. If the screen displays 'Y' (yes), then press the down arrow to change the 'Y' to 'N'



TRUCK
SCALE? N

7. Position container to catch material (also see 'Weighing Material' section of guide)



8. Ensure all persons are clear of truck and sander

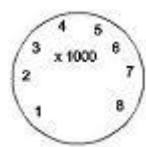


9. Prime the auger by tilting the truck box up and/or running the auger long enough so that it is filled



10. You may run the auger for a few seconds to fill it further if needed

11. Increase truck engine speed to about 1500 RPM



12. Press and release the Scroll Display touchpad until the 'AUGER TURNS' screen is displayed



13. Verify that the sander lever is on (if the truck has one)



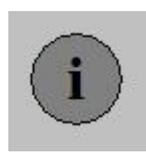
14. Press the Standby button to start the AUGER



15. Use the up and down arrows to set the auger speed. Set the speed to about 50.



A few seconds, after releasing the up/down arrows, the auger rotation count will show on the screen



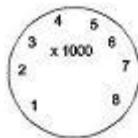
16. Fill container until sufficiently full (200 pounds minimum)



17. Press the Standby button to stop the AUGER



18. Decrease truck engine speed to idle



19. Sander lever can be turned off (if the truck has one)



20. Weigh the material
21. Write down the weight

Repeat steps 7 through 18 one or two more times and compute the average of the weights

22. Press and release the Scroll Display touchpad until the 'MAT WEIGHT' screen is displayed



MAT
WEIGHT? 0

23.	Use the up and down arrows to enter the average weight	 	MAT WEIGHT? 0
24.	Press and release the Scroll Display touchpad until the 'CALCULATE' screen is displayed		CALCULATE? N
25.	Press the up arrow to change the 'N' to 'Y'		CALCULATE? Y
26.	The screen will display that the calibration is done		CALCULATE? DONE
27.	Press Scroll Display to view LBS/REV. Record value.		LBS/REV
28.	If more material types are used, repeat these procedure for materials using i.e. menu 'MATL RATES B', etc.		MATL RATES B? Y

Appendix - Ground Speed Calibration

Step	Description	screen
	Also see 'Getting Started' section to determine if ground speed calibration is required. This calibration is only required if truck speedometer does not match speed shown on controller screen.	
1.	Press and release the Scroll Display touchpad until the 'CAL GND SPEED' screen is displayed	 CAL GND SPEED? N

2. Press the up arrow to change the 'N' to 'Y'



CAL GND
SPEED? Y

3. Press and release the Scroll Display touchpad until the feedback screen opens



GSPED
FEEDBAK?
A

4. Using the arrow touchpads, select the speedometer signal type. (D for Digital; A for analog; typically 'D' -- verify with mechanics)



GSPED
FEEDBAK?
D

5. Press and release the Scroll Display touchpad until 'LO - GSPED' screen is displayed



LO - GSPED
40.0 0

The leftmost number (40.0 in example shown) is the K-pulse number we will adjust in the next step

LO - GSPED
40.0 0

The rightmost number (0 in example shown) is the vehicle speed as sensed in the controller

LO - GSPED
40.0 **0**

6. Begin driving at a steady speed near normal operating speed (assume 30 MPH for this example)



7. Using the arrow touchpads to increase or decrease the leftmost k-pulse number until the rightmost speed number matches the vehicle speedometer



LO - GSPED
40.0 30

8. If the vehicle has a 2-speed axle, locate the 'HI - GSPED' menu, energize the rear axle, and repeat the speed calibration steps above

We will now enter the 'start up MPH'. This is a value that allows more material to be discharged from idle (i.e. intersections). When driving slower than this MPH value, the discharge rate will be automatically increased as if the speed is at the 'Startup MPH' value

1. Press and release the Scroll Display touchpad until the 'START UP MPH' screen is displayed  START UP MPH? 5
2. Using the arrow touchpads to increase or decrease the value (typically 5 MPH -- verify with mechanics or supervisor)   START UP MPH? 5

Appendix - Calibrating the Auger Valve

Step	Description	screen
	The auger valve calibration should be done after valve repair or replacement. Some shops choose to do this calibration annually.	
1.	Press and release the Scroll Display touchpad until the 'CAL AUGER' screen is displayed	 CAL AUGER? N
2.	Press the up arrow to change the 'N' to 'Y'	 CAL AUGER? Y
3.	Press and release the Scroll Display touchpad until the 'AG PULSE/REV' screen is displayed	 AG PULSE/REV 360

4.	Using the arrow touchpads, enter the number of pulses for each auger sensor revolution (often 360 -- verify with mechanics)		AG PULSE/REV 360
5.	Ensure all persons are clear of truck and sander		
6.	Increase vehicle engine RPM to 1500 RPM		
	Fine tuning the auger valve		
7.	Press and release the Scroll Display touchpad until 'AUG MN' is displayed		AUG MN 25.0 0
	(25.0) to left is auger valve pwm (0) to right is auger RPM		
8.	Press the Standby button to start the auger		
9.	Press up arrow until auger begins to turn (auger rpm will show in display)		AUG MN 25.0 25.0
10.	Press down arrow until auger just stops turning		AUG MN 25.0 25.0
11.	Ensure all persons are clear of truck and sander		

12.	Press and release the Scroll Display touchpad until the 'AUG MAX' screen is displayed		AUG MAX 60.0 0	
(60.0) to left is auger valve pwm, (0) to right is auger RPM				
13.	Press the Standby button to start the auger			
The auger should be rotating at high speed				
14.	Using the up and down buttons adjust the auger speed just to the point where it no longer increases the displayed RPM			AUG MAX 60.0 ?
15.	Write down this number			
16.	Press and release the Scroll Display touchpad until the 'MAX AG RPM' screen is displayed		MAX AG RPM 0	
17.	Using the up and down buttons, enter the 'AUG MAX' just recorded			MAX AG RPM 0

Appendix - Calibrating the Spinner Valve

Step	Description	screen
	The spinner valve calibration does [not] need to be done annually. It should be done when there is a problem.	

1.	Press and release the Scroll Display touchpad until the 'CAL SPINNER' screen is displayed		
2.	Press the up arrow to change the 'N' to 'Y'		CAL SPINNER? Y
3.	Increase vehicle engine RPM to 1500 RPM and hold for the following steps		
4.	Press and release the Scroll Display touchpad until the 'SPIN MIN' screen is displayed		SPIN MIN 25.0
5.	Ensure all persons are clear of truck and sander		
6.	Press the Standby button to start the spinner		
7.	Press up arrow until spinner begins to turn		
8.	Press down arrow until spinner just stops turning		
9.	Press and release the Scroll Display touchpad until the 'SPIN MAX' screen is displayed		SPIN MAX 60.0

10. Ensure all persons are clear of truck and sander



11. Press the Standby button to start the spinner



12. Using the up and down buttons to adjust the spinner speed to the point where it distributes material to the desired maximum lane width



13. Press the Standby button to stop the spinner



14. Decrease truck engine speed to idle

