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

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<thead>
<tr>
<th>Description</th>
<th></th>
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<tbody>
<tr>
<td>Scroll numbers/options - Use the up and down arrows</td>
<td></td>
</tr>
<tr>
<td>Scroll calibration screens - Use 'Scroll Display' touchpad button</td>
<td></td>
</tr>
<tr>
<td>Reverse-Scroll calibration screens - Use Blast touchpad button</td>
<td></td>
</tr>
<tr>
<td>Change 'N' (no) to 'Y' (yes) - Use up arrow. Also hold down for fast scroll.</td>
<td></td>
</tr>
<tr>
<td>Change 'Y' (yes) to 'N' (no) - Use down arrow. Also hold down for fast scroll.</td>
<td></td>
</tr>
</tbody>
</table>
## Preliminary Setup

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Load the truck with salt or desired material</td>
</tr>
<tr>
<td></td>
<td>Tie the spinner up (you may find with experience that some weighing methods do not require spinner up)</td>
</tr>
<tr>
<td>2.</td>
<td>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. <em>The calibration records will help mechanics with troubleshooting when required</em></td>
</tr>
<tr>
<td>3.</td>
<td>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).</td>
</tr>
<tr>
<td>4.</td>
<td>Start a new calibration results page for the new calibration</td>
</tr>
</tbody>
</table>
## Getting Started

<table>
<thead>
<tr>
<th>Step</th>
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</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Turn spinner width adjust knob down to zero for safety</td>
</tr>
<tr>
<td>2.</td>
<td>Start truck and turn PTO on. Note that PTO controls will vary by truck (see examples in figure).</td>
</tr>
<tr>
<td>3.</td>
<td>Fully warm up the truck hydraulics (see next step). Drive the truck for at least 10 minutes</td>
</tr>
</tbody>
</table>
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

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<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Press and release the Menu Select touchpad until the calibration menu is displayed</td>
<td>CALIBRATION MENU</td>
</tr>
<tr>
<td>2.</td>
<td>Press and release the Scroll Display touchpad until the access code screen is displayed</td>
<td>ACCESS CODE 0XXX</td>
</tr>
</tbody>
</table>
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

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**Granular Materials Calibration (Catch Test)**

<table>
<thead>
<tr>
<th>Step</th>
<th>Description</th>
<th>Screen</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Press and release the Scroll Display touchpad until the 'MATL RATES A' screen is displayed</td>
<td>MATL RATES A? N</td>
</tr>
<tr>
<td>2.</td>
<td>Press the up arrow to change the 'N' to 'Y'</td>
<td>MATL RATES A? Y</td>
</tr>
</tbody>
</table>

Note: this procedure assumes an auger system
5. Press and release the Scroll Display touchpad until the 'TRUCK SCALE' screen is displayed

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'

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

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

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

13. Press the Standby button to start the AUGER

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

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

Press and release the Scroll Display touchpad until the 'MAT WEIGHT' screen is displayed
23. Use the up and down arrows to enter the average weight.

24. Press and release the Scroll Display touchpad until the 'CALCULATE' screen is displayed.

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

26. The screen will display that the calibration is done.

27. Press Scroll Display to view LBS/REV. Record value.

28. If more material types are used, repeat these procedure for materials using i.e. menu 'MATL RATES B', etc.

Appendix - Ground Speed Calibration

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>1.</td>
<td>Press and release the Scroll Display touchpad until the 'CAL GND SPEED' screen is displayed</td>
<td>CAL GND SPEED? N</td>
</tr>
</tbody>
</table>

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

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

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

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

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

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

2. Using the arrow touchpads to increase or decrease the value (typically 5 MPH -- verify with mechanics or supervisor)

Appendix - Calibrating the Auger Valve

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<tbody>
<tr>
<td>1.</td>
<td>Press and release the Scroll Display touchpad until the 'CAL AUGER' screen is displayed</td>
<td>CAL AUGER? N</td>
</tr>
<tr>
<td>2.</td>
<td>Press the up arrow to change the 'N' to 'Y'</td>
<td>CAL AUGER? Y</td>
</tr>
<tr>
<td>3.</td>
<td>Press and release the Scroll Display touchpad until the 'AG PULSE/REV' screen is displayed</td>
<td>AG PULSE/REV 360</td>
</tr>
</tbody>
</table>
4. Using the arrow touchpads, enter the number of pulses for each auger sensor revolution (often 360 -- verify with mechanics)

5. Ensure all persons are clear of truck and sander

6. Increase vehicle engine RPM to 1500 RPM

7. Fine tuning the auger valve

   Press and release the Scroll Display touchpad until 'AUG MN' is displayed

   (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)

10. Press down arrow until auger just stops turning

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

   (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

   Using the up and down buttons adjust the auger speed just to the point where it no longer increases the displayed RPM

14. Press and release the Scroll Display touchpad until the 'MAX AG RPM' screen is displayed

15. Write down this number

16. Using the up and down buttons, enter the 'AUG MAX' just recorded

17. Write down this number

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**Appendix - Calibrating the Spinner Valve**

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</table>

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'

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

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

CAL SPINNER? N

CAL SPINNER? Y

SPIN MIN 25.0

SPIN MAX 60.0
10. Ensure all persons are clear of truck and sander

11. Press the Standby button to start the spinner

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

12. Press the Standby button to stop the spinner

13. Decrease truck engine speed to idle