1910 Air Cart Maintenance & Optimization
### Tow-Behind Capacity

#### Two Tanks

<table>
<thead>
<tr>
<th>Bushels</th>
<th>Litres</th>
<th>Tonnes</th>
</tr>
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<tbody>
<tr>
<td>195</td>
<td>6884</td>
<td>6.7</td>
</tr>
<tr>
<td>75</td>
<td>2648</td>
<td>2.0</td>
</tr>
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<td>4.7</td>
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<td>8.1</td>
</tr>
<tr>
<td>75</td>
<td>2648</td>
<td>2.0</td>
</tr>
<tr>
<td>55</td>
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Assumptions: cubic metre (1000 litres) of: wheat (front tank) = 0.76 tonnes, urea (middle tank) = 0.73 tonnes, fertilizer (rear tank) = 1.10 tonnes, bushel = 35.3 litres.
Tractor

- Safely control and stop the seeding equipment
  - Ballast
  - Sufficient Horsepower
  - Proper Tractor Setup
  - Capable Hydraulics
Tractor

- Hydraulics
  - Commodity Cart Fan:
    - 1 SCV
      - 20-25 GPM
      - case drain line
Lubrication - 1910

- Hitch jack (annually)
- Meter lock lever (annually)
- Tank lid pivot (annually)
- Cleanout panel lever (annually)
Lubrication - 1910

Pivot arm (10)  Front casters (50)
Lubrication - 1910

Oil roller chains (50)

Agitator shaft (50)
Repack bearing and tighten rear bolts accordingly
(Annually)

Inspect caster wear pads (E)

Ground speed sensor (A)
Electrical Hookup

7 pin electrical connector

Warning lights
Clean fan screen and debris from fan

Fan speed sensor
Remove and clean every 15 hours

Clean tank pressurization hoses (50 hrs)

Tank indicator gauge

Pressurization hoses in ladder
Clean tank lid seal

Adjust tank lid jam nut

Tank lid in locked position

Lid latch set screw
Clean out product inside tank

Remove hard seals

Clean meter cover plate

Cycle half-width disconnect handles
Grease meter and agitator shaft bearings (50 hrs)

Drive arm and agitator shaft crank

Agitators and shaft
Cotter pins used for clutch shear protection

Tank meter clutch and wrap spring
Clean meter cartridge assembly

Properly adjust seed meter sensor spacing
Low meter roller insert

Standard meter roller insert

Meter roller segments and fine tuning rings
• Rule of Thumb
  – select a Cartridge Color with a range that centers over your desired application rate
Meter Components

- Meter segments
- Fine tuning rings
- Meter tune up kit
- Brushes
- Meter Covers
- Meter End Cap
- Meter roller inserts
Check air hoses for leaks

Inspect hoses for wear or thin areas, rotate ¼ or ½ turn
Standard transmission

Variable rate motor w/ transmission
Hydraulic Calibration option
<table>
<thead>
<tr>
<th>Spacing Inch</th>
<th>Sprocket Teeth</th>
</tr>
</thead>
<tbody>
<tr>
<td>12</td>
<td>23</td>
</tr>
<tr>
<td>10</td>
<td>28</td>
</tr>
<tr>
<td>7½</td>
<td>37</td>
</tr>
<tr>
<td>6</td>
<td>45</td>
</tr>
</tbody>
</table>

Row Spacing Sprocket

Driven Sprocket
Remove slack from belt

Check belt for proper tracking

Auger/conveyor swing arm positions

Latch conveyance tube and lock for transport
Set Fan Speed

Fan rpm is dependent upon:
- Number of primary air runs.
- Density and size of material.
- Meter rate.
- Ground speed.
- Tractor performance.
- Air temperature.
- Altitude.

NOTE: Excessive fan speed (rpm) damages product, increases wear on system, and blows seed out of the seed bed. Insufficient fan speed results in plugged hoses.

Fan speed is correctly set when:
- Equal amounts of product are delivered to all openers.
- Tubes and hoses do not plug.
- Hoses empty quickly and evenly when meters stop.

<table>
<thead>
<tr>
<th>Initial Fan RPM</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
<tr>
<td><strong>Single Shoot</strong></td>
</tr>
<tr>
<td>Add rates of all products in air stream</td>
</tr>
<tr>
<td>If combined rate is</td>
</tr>
<tr>
<td>If heaviest product is</td>
</tr>
<tr>
<td>Light 5-50 Lb./acre</td>
</tr>
<tr>
<td>Fine grain like Granular canola</td>
</tr>
<tr>
<td>Medium 50-100 Lb./acre</td>
</tr>
<tr>
<td>Coarse grain</td>
</tr>
<tr>
<td>Heavy 100-200 Lb./acre</td>
</tr>
<tr>
<td>Light fertilizer 50-100 lb/acre</td>
</tr>
<tr>
<td>Extra Heavy 200-350 Lb./acre</td>
</tr>
<tr>
<td>Medium fertilizer 100-200 lb/acre</td>
</tr>
<tr>
<td>Heavy fertilizer 200-350 lb/acre</td>
</tr>
</tbody>
</table>
Color Code | Damper Position
--- | ---
Blue | Full Down
Green | Between Down and Center
Yellow | Centered
Orange | Between Up and Center
Red | Full Up
MONITORING & SETUP
ISO Blockage on 1910
<table>
<thead>
<tr>
<th></th>
<th>New Tool SeedStar 2 Blockage MY09 and above (Serial Number 730001 - and above)</th>
<th>Old Tool with SeedStar Blockage MY01 - MY 08 (Serial Number 690001 - 725999)</th>
<th>Old Tool with SeedStar Blockage MY98-MY00 4/5 Can Bus (Serial 675101 - 685999)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1910 MY09 and newer (Serial Number 730001 - and above)</td>
<td>Standard Equipment GS2 Display</td>
<td>SeedStar Blockage will work in emulation mode on GS2 Display</td>
<td>Not Available</td>
</tr>
<tr>
<td>1910 MY01 - MY08 (Serial Number 690001 - 725999)</td>
<td>SeedStar 2 Blockage will not display on GS2*</td>
<td>Standard Equipment GSD4</td>
<td>Not Available</td>
</tr>
<tr>
<td>1900 MY98 to MY00 4/5 Can Bus (Serial Number 765101 - 685999)</td>
<td>Not Available</td>
<td>Not Available</td>
<td>Standard Equipment GSD4 4/5 Can Bus</td>
</tr>
</tbody>
</table>

NOTE: * 1910 Cart can be converted over to SeedStar 2 with new 1910 backbone wiring harness, controller, height sensor wiring harness, hardware, and GS2 Display.
### 1910 Blockage Setup

<table>
<thead>
<tr>
<th>Row Fail Rate</th>
<th>2 seeds per second</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>1890 with Dual Row Spacing?</strong></td>
<td>Yes</td>
</tr>
<tr>
<td><strong>2510S Strip Till Applicator?</strong></td>
<td>Yes</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th># Towers?</th>
<th>Blockage Type</th>
</tr>
</thead>
<tbody>
<tr>
<td>Top Shoot</td>
<td>Active: 1 Primary Only</td>
</tr>
<tr>
<td>Bottom Shoot</td>
<td>Active: 1 All Run</td>
</tr>
</tbody>
</table>

Date and Time: 12:27pm
Seedstar 2 AirCarts

Rate: 130.0 90 130.0

Acres: 1
Acres/hr: 0.0/0.0

Controller ID: 123
Cart Configuration

- **Tire Sprocket**: 62
- **Row Sprocket**: 37
- **Size**: 430L
- **Remote Switch**: Height Sensor
- **Variable Rate**: Yes

Date and Time: 1:50 pm
Tool Configuration

Model: 1870

Width: 12.2m (40ft)

Row Spacing: 305mm (12in)

Adj. Width: 40.00 ft.
Meter Setup

Air Cart Meters

- Setup
- Cal
- Variable Rate

Product: Wheat
Type: Hard Red Spring
Rate: 100.0 lbs/ac
VR Step: 10.0 lb
MDV: 4.1299
Trans: 73
Meter Calibrations
# Variable Rate

## Air Cart Meters

<table>
<thead>
<tr>
<th></th>
<th>Cart 1</th>
<th>Cart 2</th>
<th>Cart 3</th>
<th>I/O</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>130.0</td>
<td>90</td>
<td>130.0</td>
<td>✓</td>
</tr>
<tr>
<td>2</td>
<td>75.0</td>
<td>45.0</td>
<td>90</td>
<td>✓</td>
</tr>
<tr>
<td>3</td>
<td>40.0</td>
<td>20.0</td>
<td>35.0</td>
<td>✓</td>
</tr>
<tr>
<td>4</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
<td></td>
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</table>
GreenStar 3 2630
Enhanced Features

• 50% Smaller Bezel
• 30% Brighter Screen
• 100% new internal components
• Faster more powerful processor to prevent lockups
• Uses USB flash drive for transferring data
• Access Manager
• Standby Mode
• Video Compatibility
  • Compatible Wired CABCAM, AGCAM and any other NTSC Cameras
  • Compatible with 1 camera this year up to 3 in the future
CALIBRATIONS

• Calibrating Tank Meters
• Tank Meter Verification
1. Zero scale

2. Remove cover plate from bottom of meter and install collection bag.
3. Fill tank with enough product to cover meter inlets completely throughout calibration procedure
4. Set transmission to 50
5. Set chute slide to the double shoot position
6. Press menu and aircart soft key.
7. Press meter soft key
8. Press calibration soft key
9. Select Meter Calibration (A) check box for the tank being calibrated at this time
10. Switch diverter valve to auger by pulling out.
Activate calibration switch or manually rotate meter handle 12 rotations counterclockwise
Empty product from calibration bag. Meter is now full of product and ready for calibration
Reinstall calibration bag under meter and select Enter (Continue) button.
Activate calibration switch, manually rotate meter handle counterclockwise, or drive forward until handles stop turning.

Select Enter button.
Hang collection bag (A) on scale (B) and weigh product.

Select Weight input box next to the tank calibrated and enter bag weight. Select Enter. The Meter Displacement Value (MDV) appears next to input box. The MDV is transferred automatically to the meter setup screen.

Select Setup tab.
Select the tank that was calibrated from the drop-down.
Set transmission to the Trans: value on lower area of screen.
Repeat procedure for other tanks calibrated.
Set double shoot slides, half width handles, and hydraulic diverter valve back to original positions.
• Select a target application rate.
• Properly configure meter segments.
• Fill tank with enough product to collect a sample and maintain coverage over meter inlets. Do not pile product on one side of tank.
• Place half-width disconnect handles fully down.
• (Stationary Double-Shoot System Only) Move slide to bottom shoot position.
• Set transmission to the value determined during meter calibration (value shown on bottom of meter setup screen).
• Manually set fixed rate transmission or seed a short distance to allow variable rate transmission to adjust.
• Start fan and seed a short distance to fill meter with product.
• Shut off hydraulics and place tractor transmission in park.
Hang empty collection bag (A) from scale (B). Turn knob on top of scale until gauge indicates zero. If more than one bag and scale are used, label bags and scales as matched sets.
• Remove cover plate from bottom of manifold.
• IMPORTANT: Do not operate fan with collection bags installed.
• Install collection bag.
• NOTE: The target sample weight is the expected collection amount. This amount is a customer preference.
• Choose a target sample weight and write it down. Choose a weight close to 4.5 kg (10 lb.) if tank contains light weight product. Choose a weight close to 15.8 kg (35 lb.) if tank contains a heavy product.
• The target application rate is the rate entered on meter setup screen.
Calculate a course length to drive for meter verification.

**IMPERIAL (U.S.) FORMULA:**
Target Sample Weight (lb.) x 43,560 ÷ Machine Width (ft.) x Target Application Rate (lb./acre) = Course Length

1. Mark a section of field that equals the course length. If tractor radar has been calibrated, it is acceptable to use it to measure the course. The following conditions are needed for accurate verification:
   - Correct cart tire pressure.
   - Sufficient product in tanks.
   - Field conditions like actual seeding conditions.
   - Normal seeding speed.

Select primary Menu button >> Air Cart button >> Main softkey.

Turn on individual clutches for meters with collection bags installed.

Turn off main clutch
Drive at seeding speed towards course. When front tractor tires meet start of course turn on main clutch. When front tractor tires meet end of course turn off main clutch.
Remove the collection bag (A), hang it from scale (B), and record weight

Calculate the actual delivered rate

**IMPERIAL (U.S.) FORMULA:**

Collected Sample Size (lb.) x 43 560 ÷ Machine Width (ft.) x Course Length (ft.) = Actual Rate

Return half-width disconnect handles and double shoot slide to original positions.

Activate all clutches
• If actual rate does not equal target application rate, perform the following
  • Verify that transmission is properly set.
  • Verify that correct sprockets are installed.
  • Verify that tanks did not run out of product over any meter inlet.
  • Verify meter components and meter setup on monitor are properly configured.
  • Calibrate cart tire sensor. (See CONFIGURE TIRE SPEED SENSOR in Monitor Setup section.)
  • Calibrate meter. (See METER CALIBRATION in this section.)
  • Verify proper monitor setup.
  • Verify proper tire pressure.
  • Verify that the scale for collection bag is zeroed.
  • Empty the collection bag and perform rate verification again.
SFP On 1835 & 1895 Drills
Opener Types

7 degree opener standard equipment

- Opens a wider trench vs. the 5-degree opener
- Is ideal for dry fertilizer application
- Has an optional closing wheel
• The 7-degree openers have several features:
  • 7 degree opener cuts a wider trench.
  • Three optional depth gauging wheel choices.
  • Fertilizer boot offers excellent placement of dry fertilizer.
Opener Types

5 degree boot NH3 or dry opener
Model year 2009 and older
Opener Types

2010 and Newer Scraper Dual Tube Opener
NH3 With 5 degree boots

• 5 degree operating angle creates narrow trench and minimizes soil disturbance.
• Is more effective for sealing liquid and anhydrous fertilizers vs. the 7 degree
• Has an optional closing wheel for dry and liquid
• Will also apply dry fertilizer.
• Close-coupled closing wheel assembly for quick trench closure and maximum fertilizer retention.
GS2 RATE CONTROLLER
GS2 RATE CONTROLLER

- Integration
- Enables Swath Control Pro
- Reduces cab clutter
- Saves producers time
- Accurately applies NH3 to help manage input costs
- Maximizes yield potential
Components of NH3 and Rate Controller

- Accuflow Cooler
- Flow meter
- Control Valve
- On/off valve
- Rate Controller
- Height sensor switch
- GS2 2600 or GS3 2630
Components to Run Multi-Section NH3

- On/Off Valve on each manifold
- High pressure hose with MPT ends
- 3 section or 6 section harness
- Swath Control Pro Activation
- Check valve Assembly