

1910 Air Cart Maintenance & Optimization



Tow-Behind Capacity

Two Tanks				Three Tanks				
Bushels	195	75	120	Bushels	250	75	55	120
Litres	6884	2648	4236	Litres	8826	2648	1942	4236
Tonnes	6.7	2.0	4.7	Tonnes	8.1	2.0	1.4	4.7
								
Bushels	270	120	150	Bushels	340	120	70	150
Litres	9531	4236	5295	Litres	12,002	4236	2471	5295
Tonnes	9.0	3.2	5.8	Tonnes	9.7	3.2	1.8	4.7
								
Bushels	350	150	200	Bushels	430	150	80	200
Litres	12,355	5295	7060	Litres	15,179	5295	2824	7060
Tonnes	11.8	4.0	7.8	Tonnes	13.9	4.0	2.1	7.8
								

Tow-Between Capacity

Two Tanks				Three Tanks				
Bushels	195	75	120	Bushels	250	75	55	120
Litres	6884	2648	4236	Litres	8826	2648	1942	4236
Tonnes	6.7	2.0	4.7	Tonnes	8.1	2.0	1.4	4.7
								
Bushels	270	120	150	Bushels	430	150	80	200
Litres	9531	4236	5295	Litres	15,179	5295	2824	7060
Tonnes	9.0	3.2	5.8	Tonnes	13.9	4.0	2.1	7.8
								
Bushels	350	150	200					
Litres	12,355	5295	7060					
Tonnes	11.8	4.0	7.8					
								

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

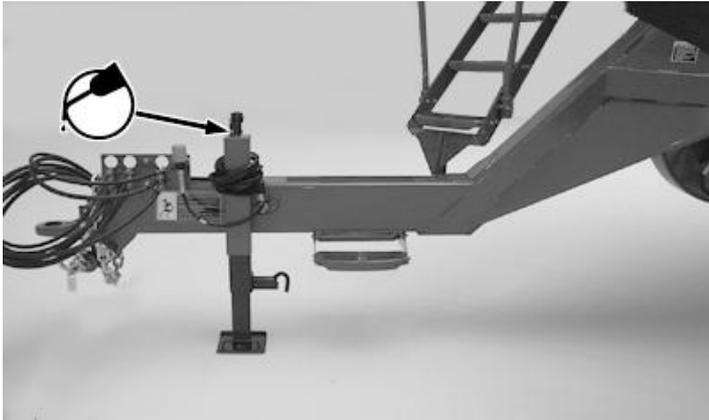


Tractor

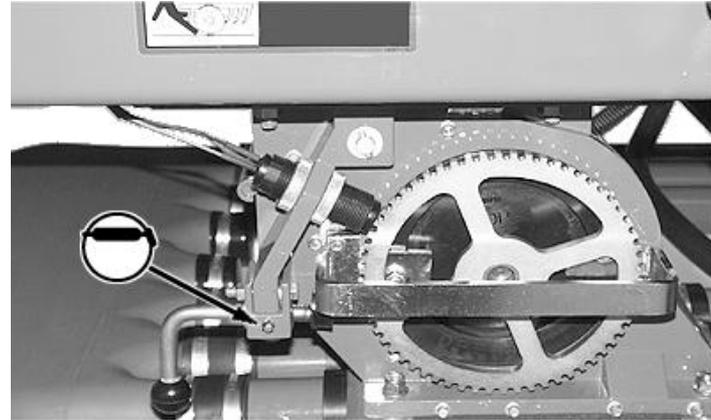
- Hydraulics
 - Commodity Cart Fan:
 - 1 SCV
 - 20-25 GPM
 - case drain line



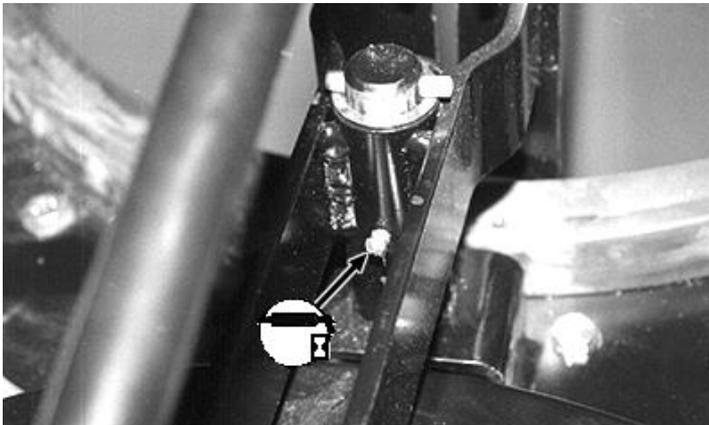
Lubrication - 1910



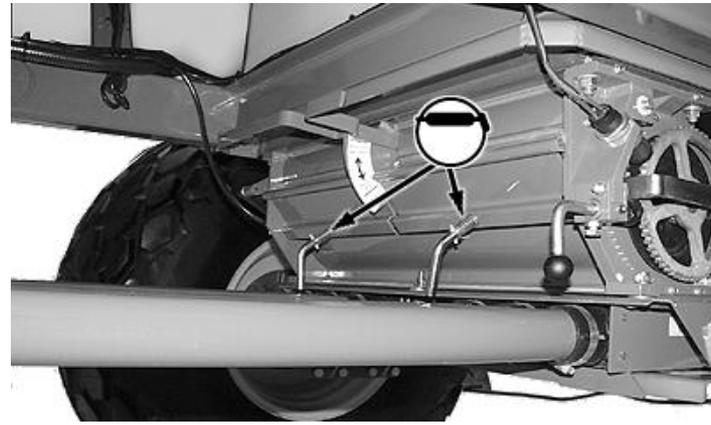
Hitch jack (annually)



Meter lock lever (annually)

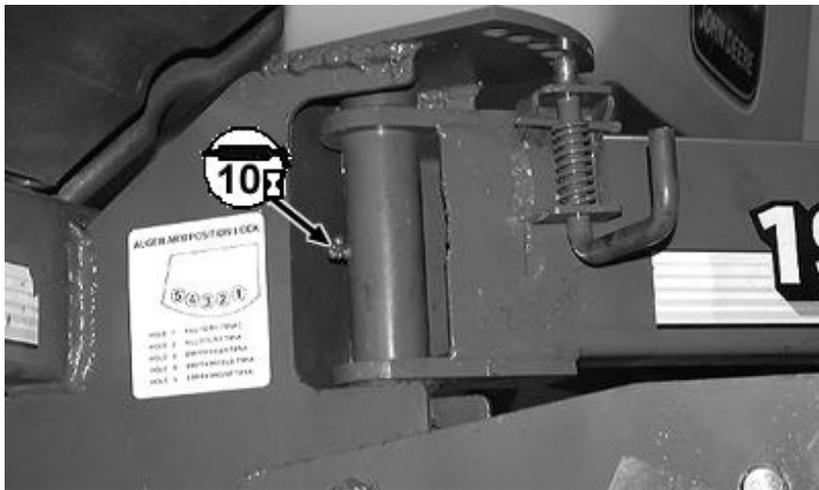


Tank lid pivot (annually)

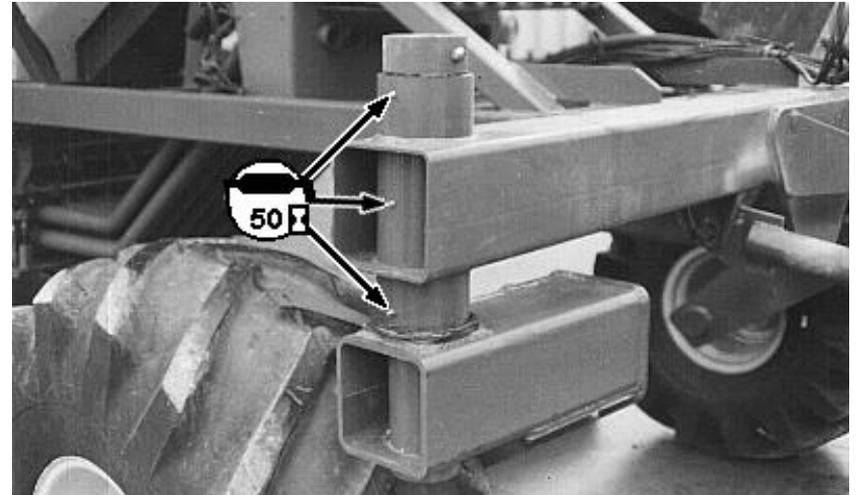


Cleanout panel lever (annually)

Lubrication - 1910

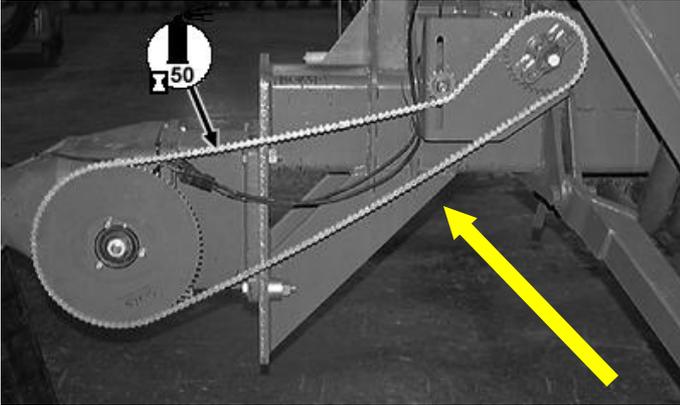


Pivot arm (10)

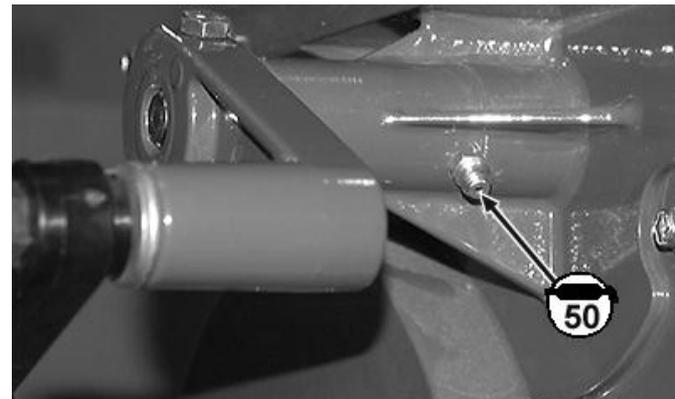
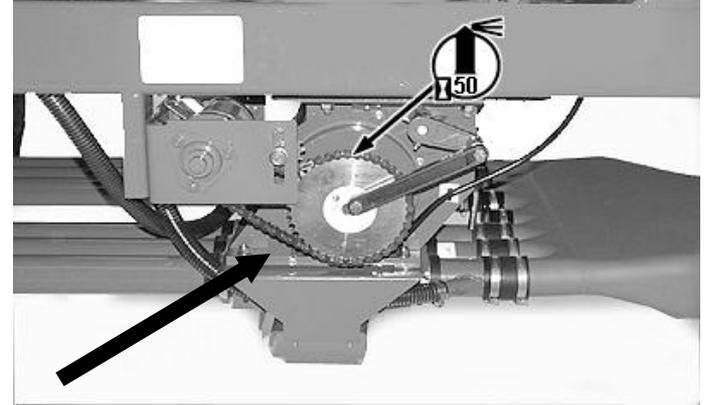


Front casters (50)

Lubrication - 1910



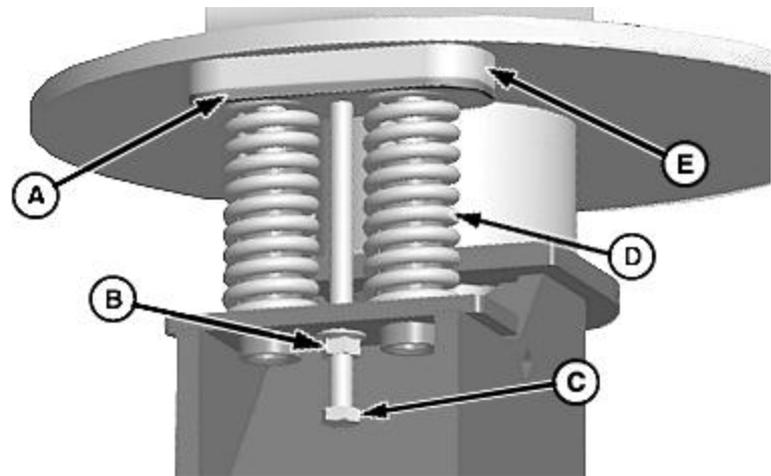
Oil roller chains (50)



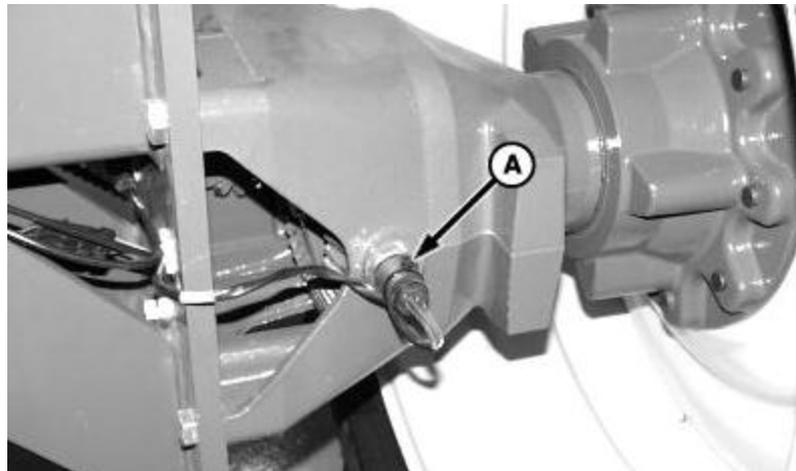
Agitator shaft (50)



**Repack bearing and tighten rear bolts accordingly
(Annually)**



Inspect caster wear pads (E)



Ground speed sensor (A)

Electrical Hookup



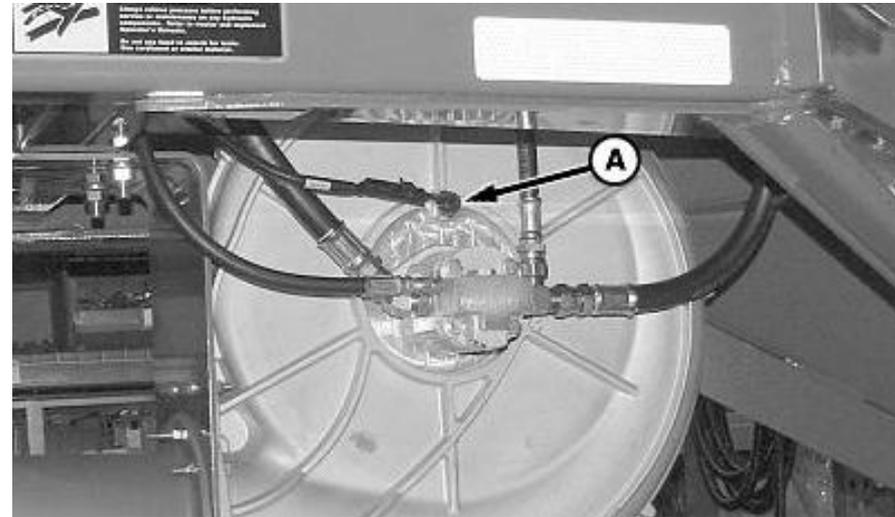
7 pin electrical connector



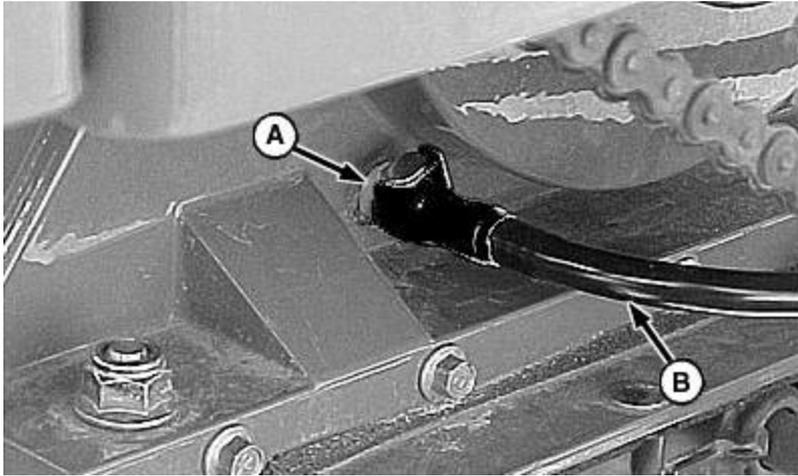
Warning lights



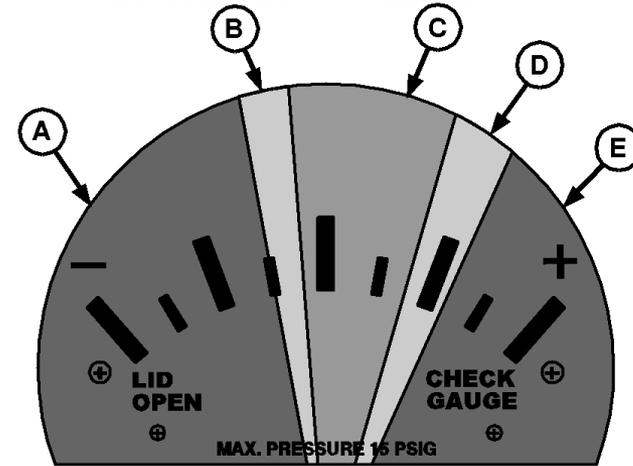
Clean fan screen and debris from fan



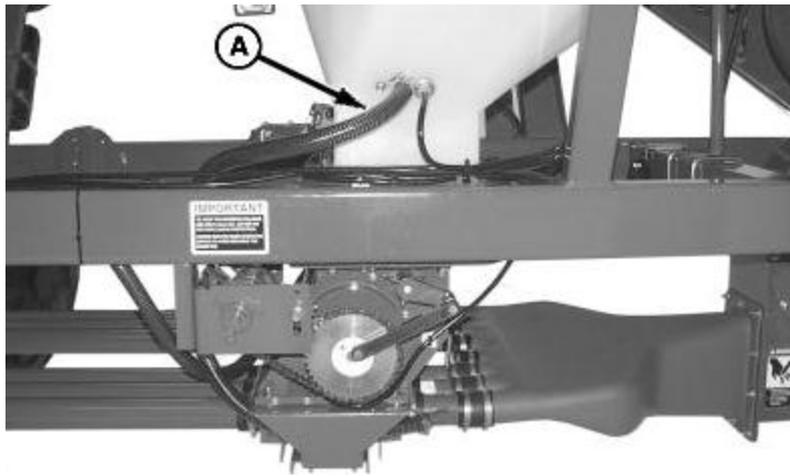
Fan speed sensor



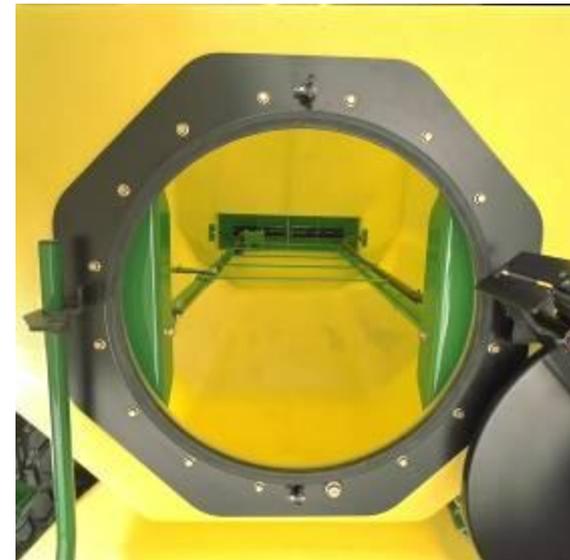
Remove and clean every 15 hours



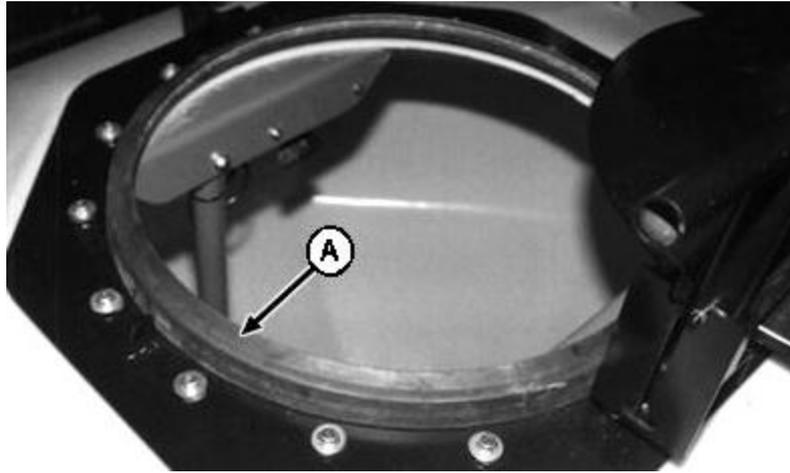
Tank indicator gauge



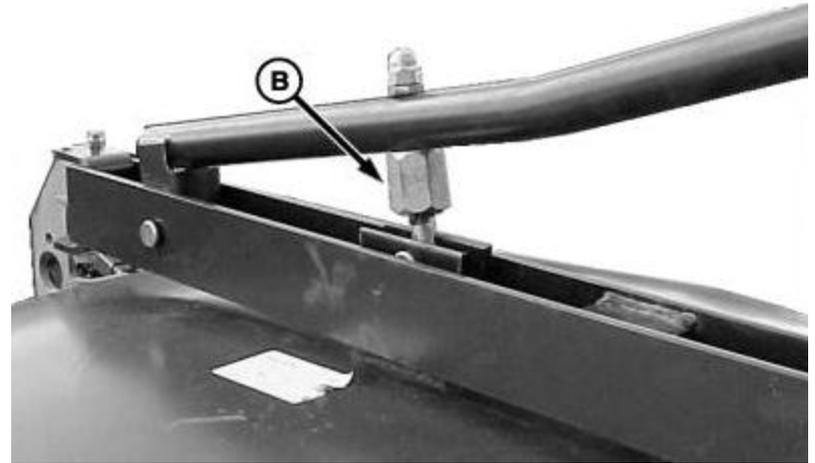
Clean tank pressurization hoses (50 hrs)



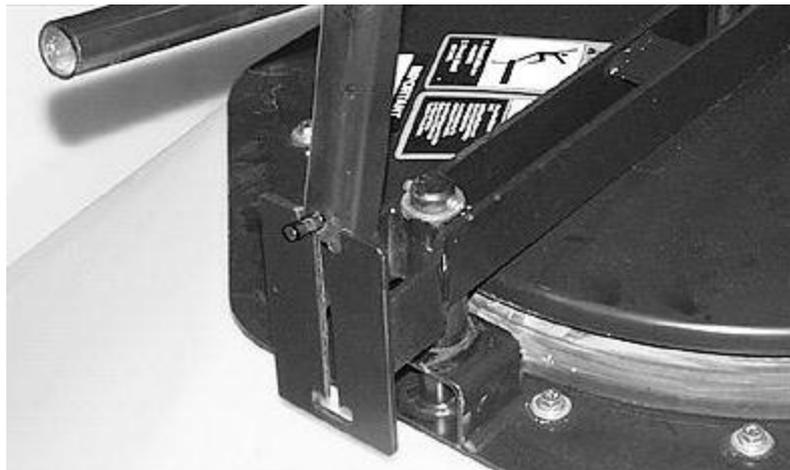
Pressurization hoses in ladder



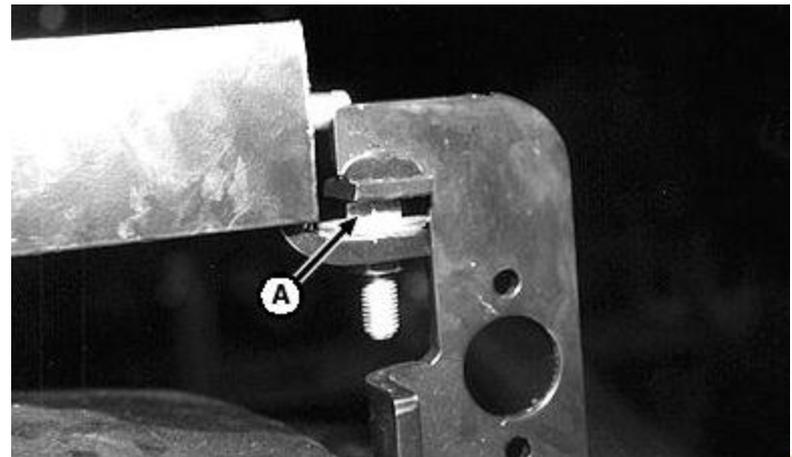
Clean tank lid seal



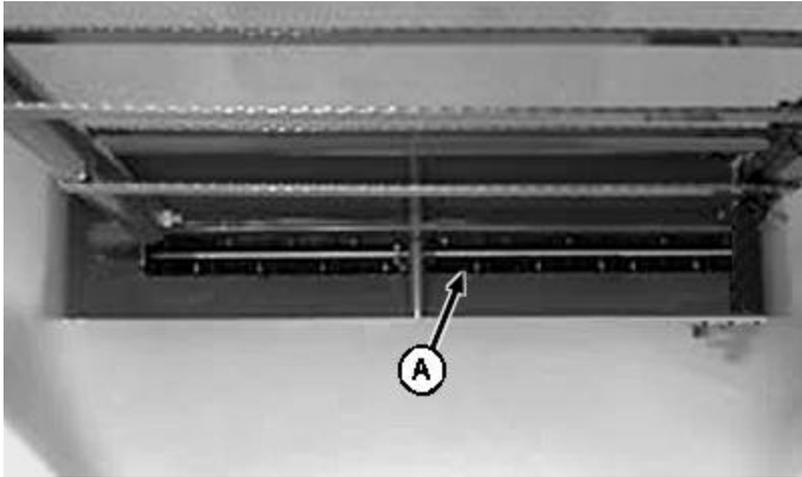
Adjust tank lid jam nut



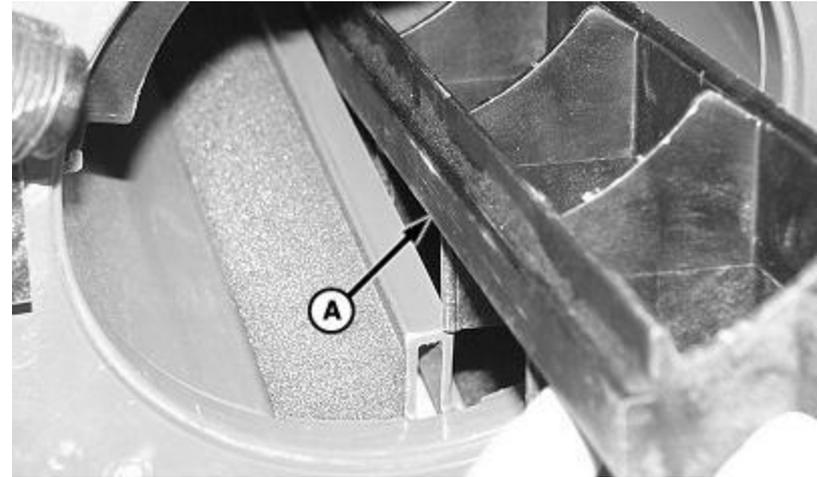
Tank lid in locked position



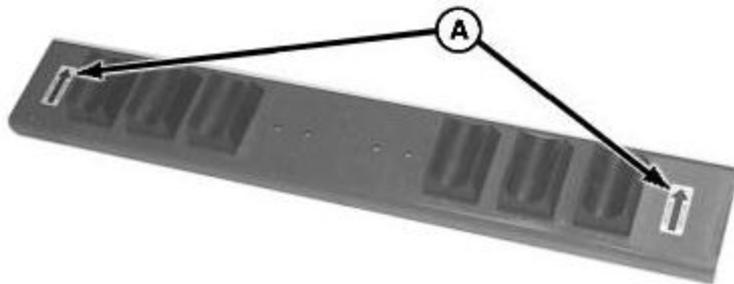
Lid latch set screw



Clean out product inside tank



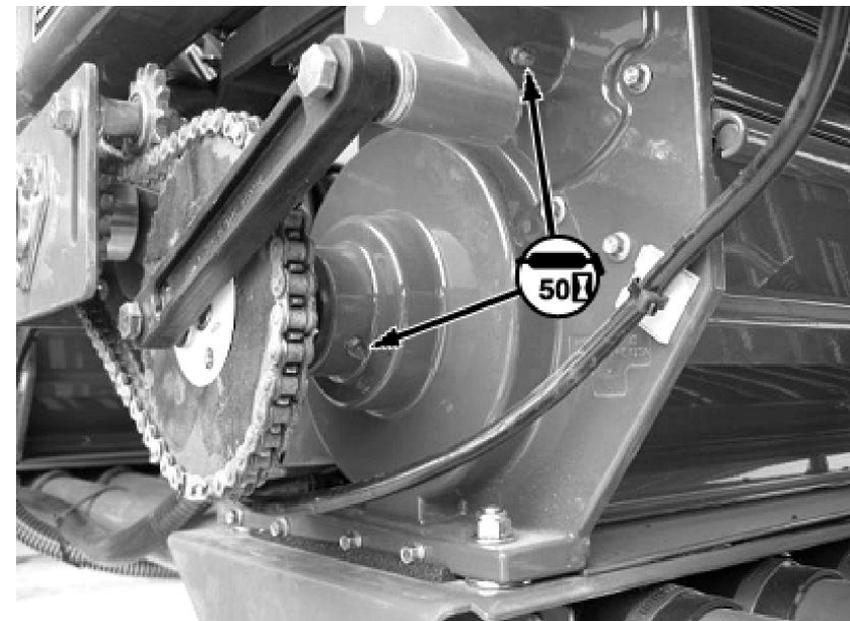
Remove hard seals



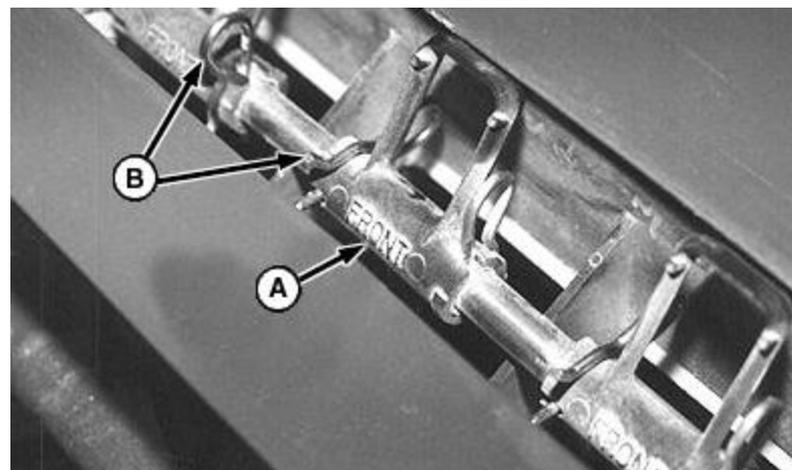
Clean meter cover plate



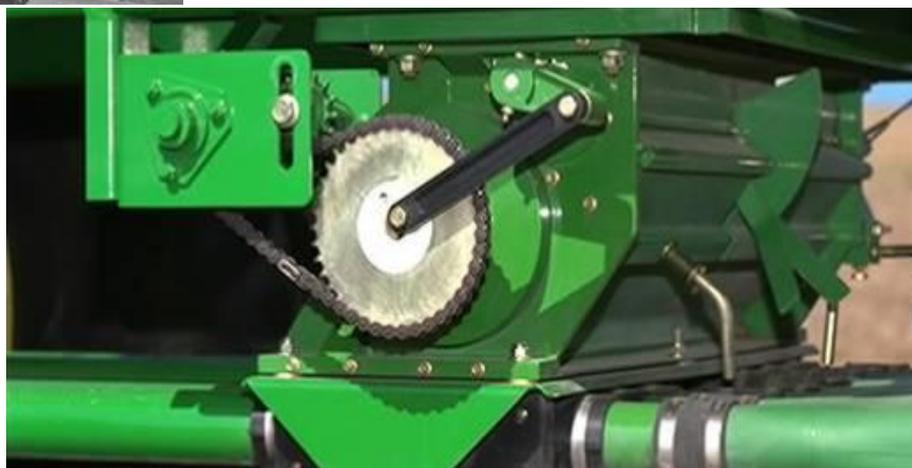
Cycle half-width disconnect handles



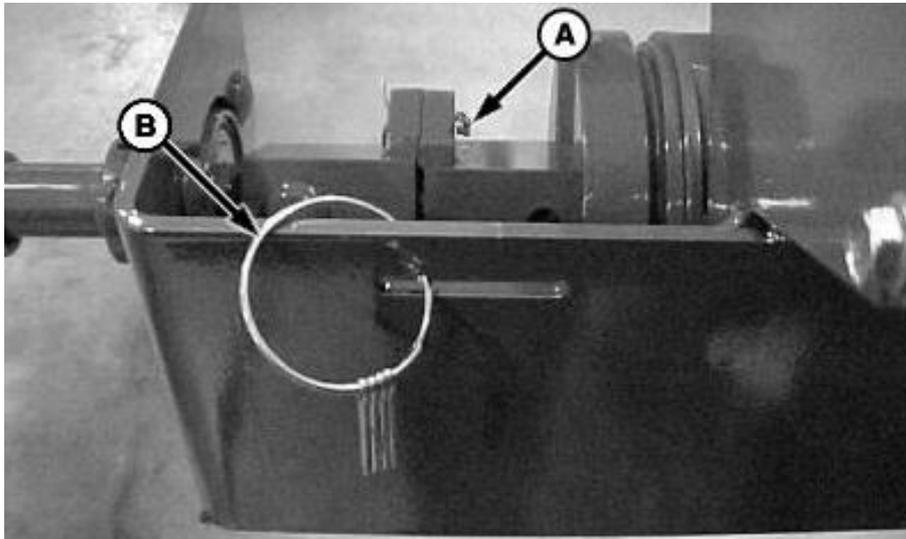
Grease meter and agitator shaft bearings (50 hrs)



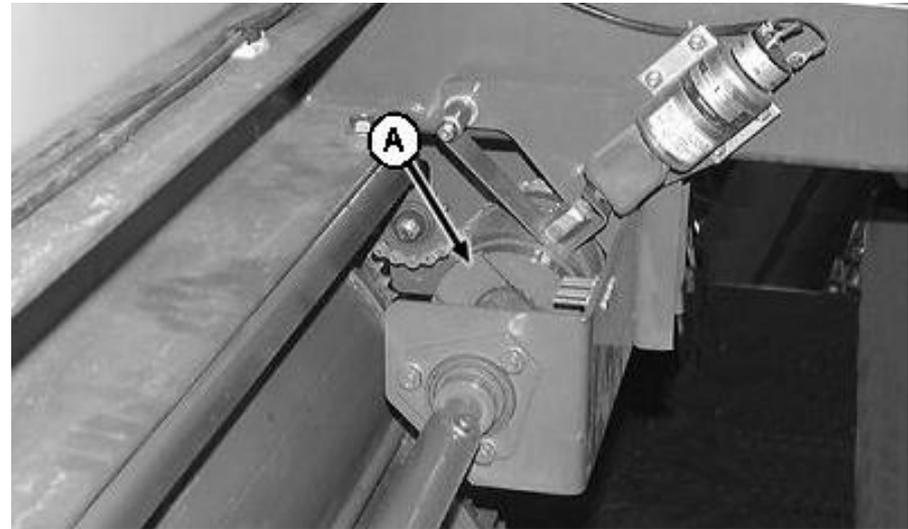
Agitators and shaft



Drive arm and agitator shaft crank



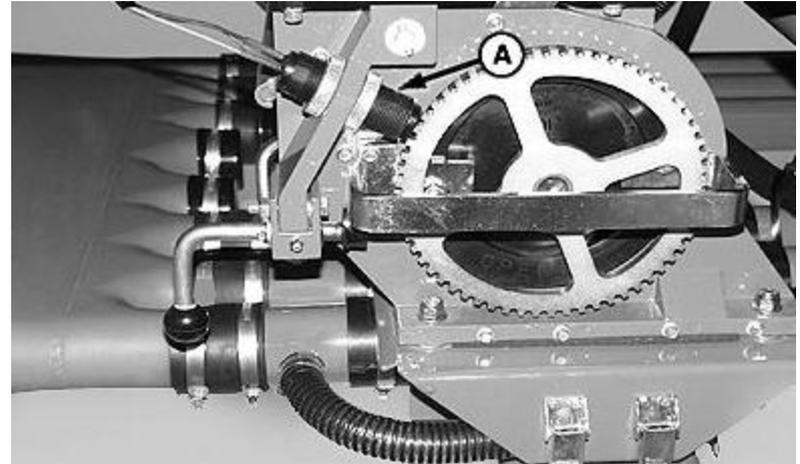
Cotter pins used for clutch shear protection



Tank meter clutch and wrap spring



Clean meter cartridge assembly



Properly adjust seed meter sensor spacing

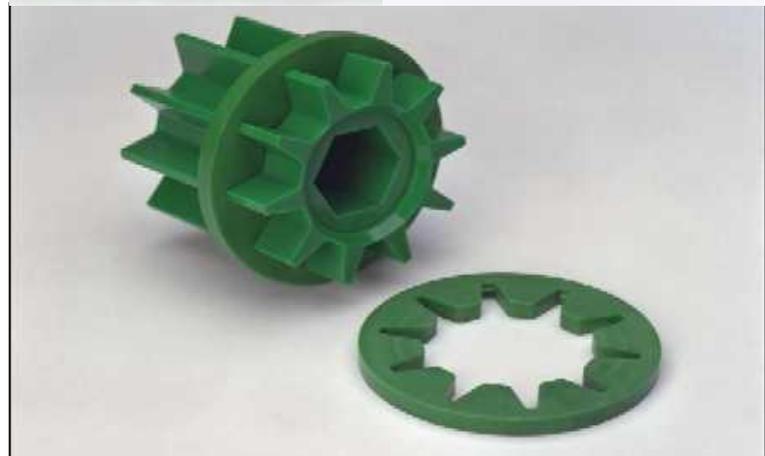
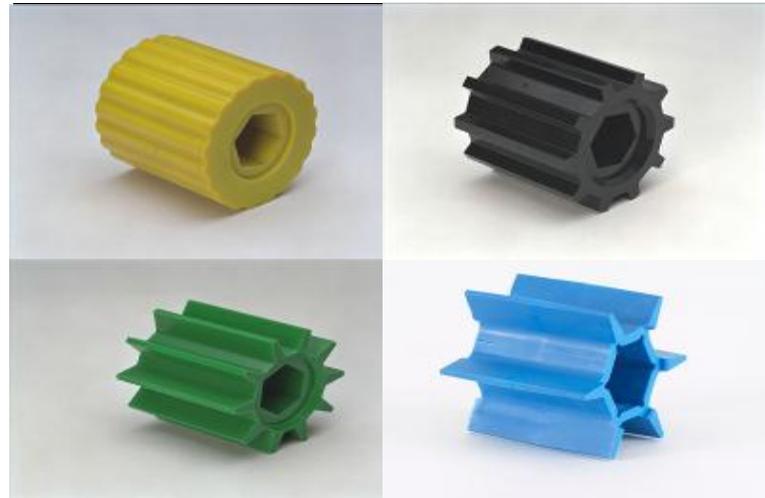




Low meter roller insert

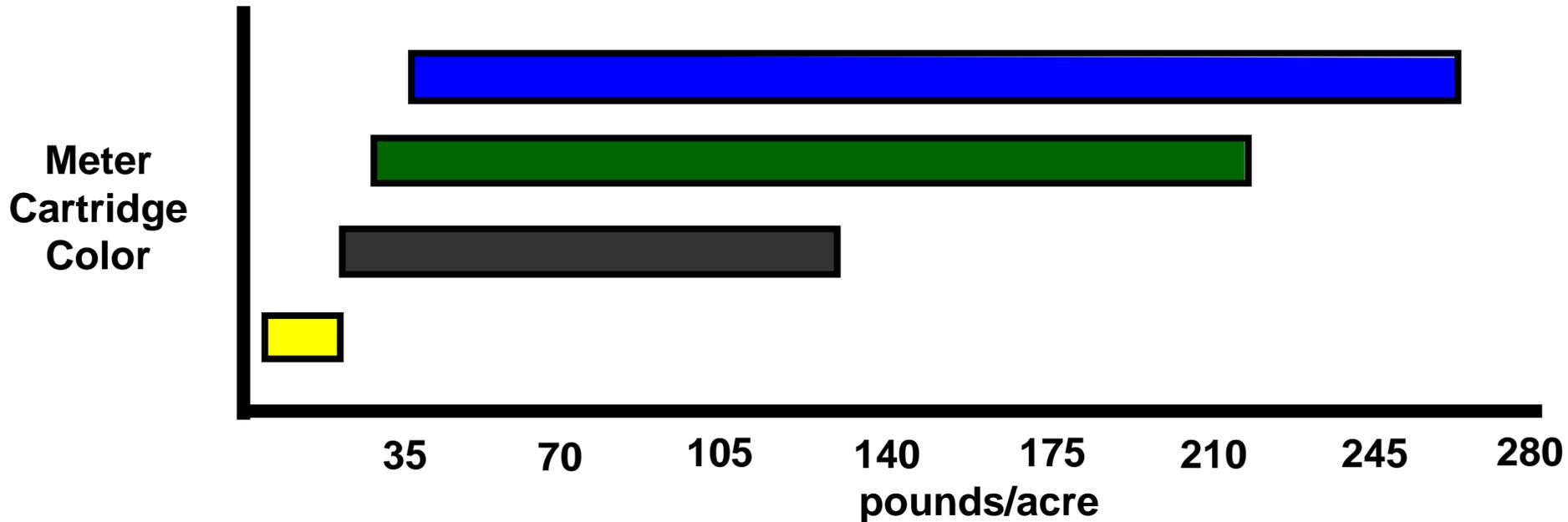


Standard meter roller insert



Meter roller segments and fine tuning rings

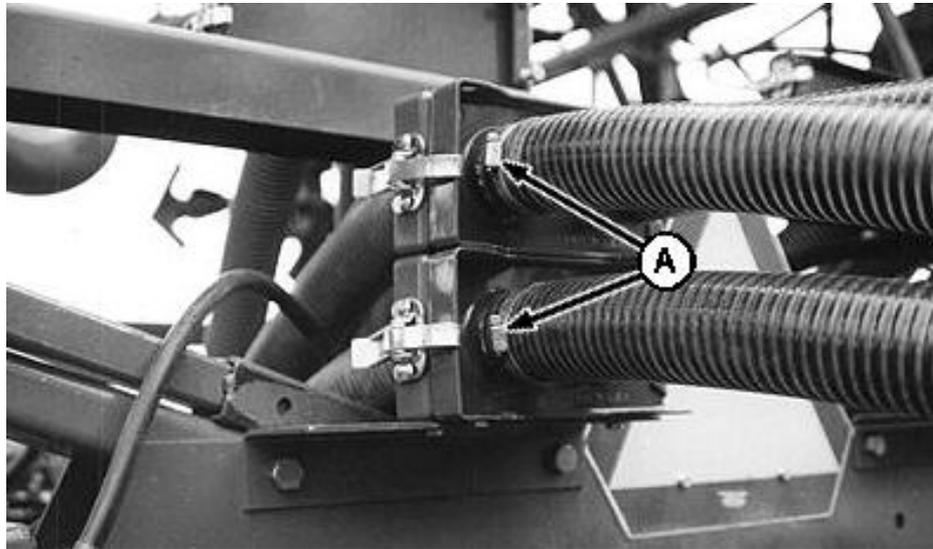
Commodity Cart



- 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 $\frac{1}{4}$ or $\frac{1}{2}$ turn



Standard transmission



Variable rate motor w/ transmission



Hydraulic Calibration option

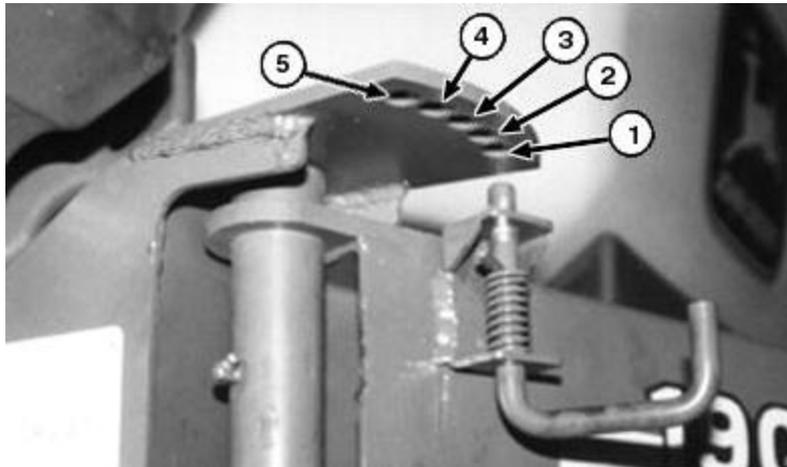


Spacing Inch	Sprocket Teeth
12	23
10	28
7½	37
6	45

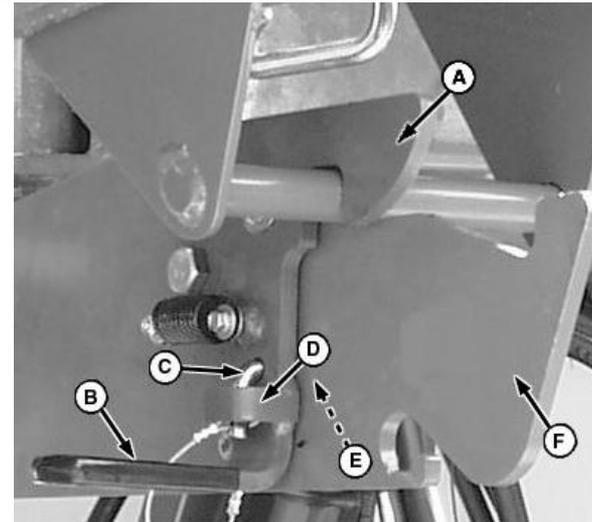
Row Spacing Sprocket

Driven Sprocket

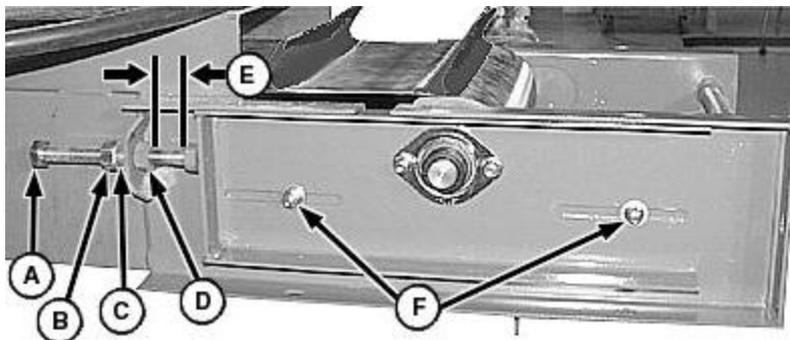




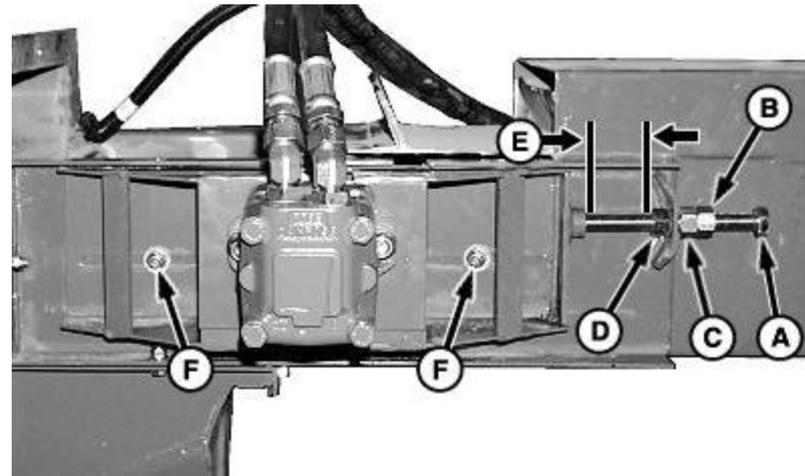
Auger/conveyor swing arm positions



Latch conveyance tube and lock for transport



Remove slack from belt



Check belt for proper tracking

Set Fan Speed

Fan rpm is dependent upon:

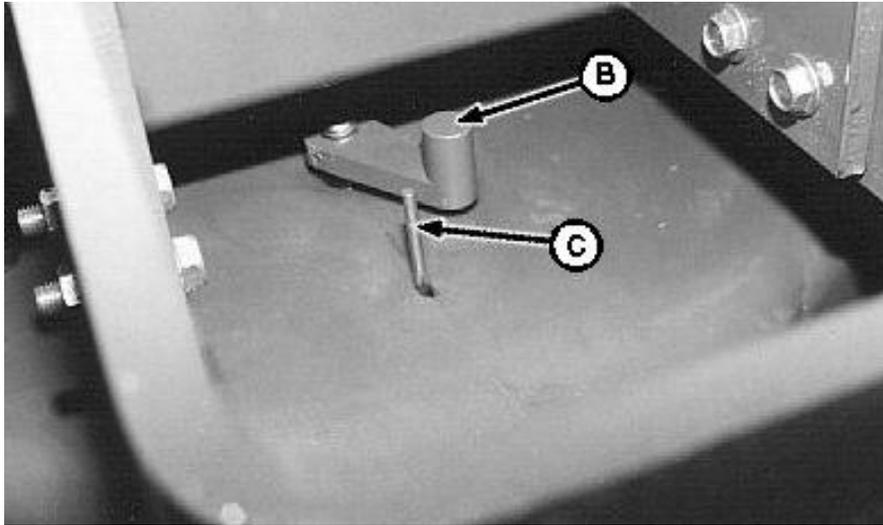
- Number of primary air runs.
- Density and size of material.
- Meter rate.
- Ground speed.
- Tractor performance.
- Air temperature.
- Altitude.

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.

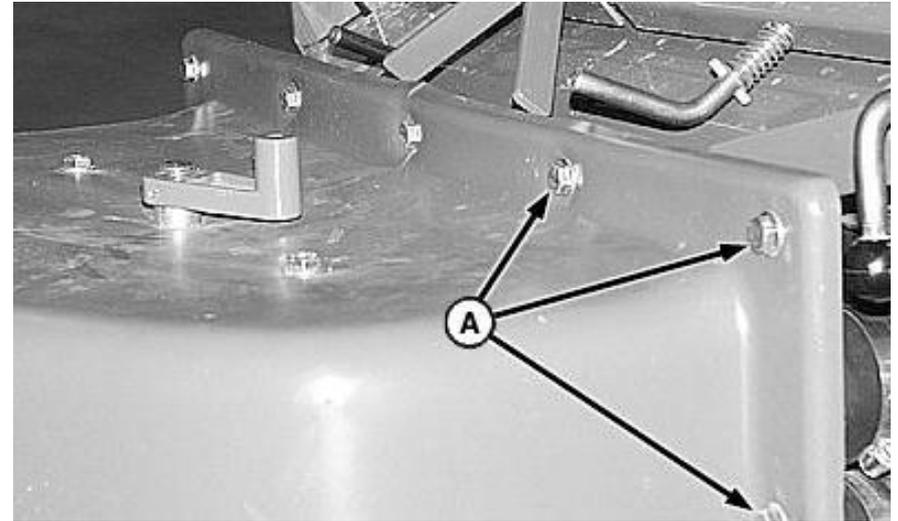
Fan speed is correctly set when:

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

Initial Fan RPM			
Single Shoot		Double Shoot	
Add rates of all products in air stream		Set fan according to heaviest product in air stream	
If combined rate is	Set fan rpm between	If heaviest product is	Set fan rpm between
Light 5-50 Lb./acre	2200-2800 rpm	Fine grain like Granular canola	2500-3500 rpm
Medium 50-100 Lb./acre	2800-3500 rpm	Coarse grain	3500-4000 rpm
Heavy 100-200 Lb./acre	3500-4200 rpm	Light fertilizer 50-100 lb/acre	3300-4000 rpm
Extra Heavy 200-350 Lb./acre	4200-4700 rpm	Medium fertilizer 100-200 lb/acre	4000-4500 rpm
		Heavy fertilizer 200-350 lb/acre	4500-4700 rpm



Damper crank handle and indicator rod



Air plenum for double-shoot configurations



Color Code	Damper Position
Blue	Full Down
Green	Between Down and Center
Yellow	Centered
Orange	Between Up and Center
Red	Full Up

MONITORING & SETUP

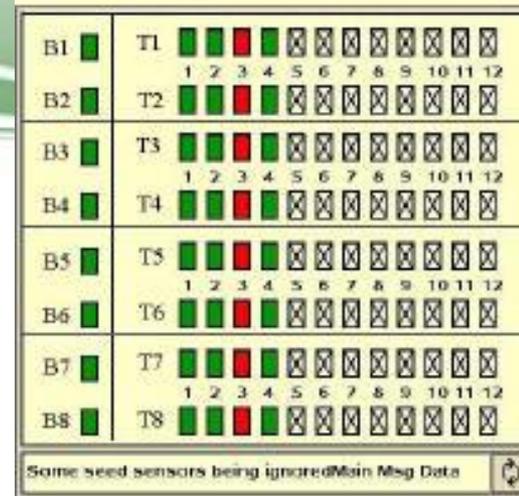


ISO Blockage on 1910



Optical blockage sensor

GS2 blockage screen



	New Tool SeedStar 2 Blockage MY09 and above (Serial Number 730001 - and above)	Old Tool with SeedStar Blockage MY01 - MY 08 (Serial Number 690001 - 725999)	Old Tool with SeedStar Blockage MY98-MY00 4/5 Can Bus (Serial 675101 - 685999)
1910 MY09 and newer (Serial Number 730001 - and above)	Standard Equipment GS2 Display	SeedStar Blockage will work in emulation mode on GS2 Display	Not Available
1910 MY01 - MY08 (Serial Number 690001 - 725999)	SeedStar 2 Blockage will not display on GS2*	Standard Equipment GSD4	Not Available
1900 MY98 to MY00 4/5 Can Bus (Serial Number 765101 - 685999)	Not Available	Not Available	Standard Equipment GSD4 4/5 Can Bus



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.

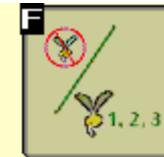
1910 Blockage Setup

Row Fail Rate 

	Yes	No
1890 with Dual Row Spacing?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
2510S Strip Till Applicator?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

	Active	# Towers?	Blockage Type
Top Shoot	<input checked="" type="checkbox"/>	1	Primary Only
Bottom Shoot	<input checked="" type="checkbox"/>	1	All Run



12:27pm

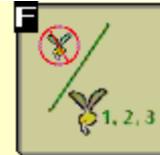


Blockage - Diagnostics

Readings

Tests

Test All
Sensors



12:31pm



Seedstar 2 AirCarts

The interface displays three air cart control panels, each with a tank level indicator, a tractor icon, and a rate of 0.0 lbs/ac. Below these are three sets of control buttons: a minus sign, a plus sign, and a gear icon.

Rate: 130.0 90 130.0

0.0 ac [diagonal lines] 1

0.0 ac/hr [diagonal lines] / [hourglass]

[split icon]

0 r/min [four-leaf clover icon]

CONTROLLER ID: 123

1:57 pm

[refresh icon]

[home icon] [up arrow icon]

F [air cart icon]

G [gear icon]

H [air cart icon]

I [1 2 3 icon]

J [wrench icon]

Cart Configuration

Configuration

Cart

Tool

Sensor

Tire Sprocket

62

Variable Rate



Row Sprocket

37

Size

430L

Remote Switch

Height Sensor



1:50 pm



Tool Configuration

Configuration

Cart **Tool** Sensor

Model 1870 DS

Width 12.2m (40ft)

Row Spacing 305mm (12in)

Adj. Width 40.00 ft. 

F 

G  

H  

I 1 2 3

J 

1:51 pm

Sensor Calibration

Configuration

Cart

Tool

Sensor

Tire Speed

Tire: 0.0 mph

Enter Cal Value or Select

204.0

in /rev



1:53 pm



Meter Setup

Air Cart Meters

Setup Cal Variable Rate

 Front

Product Wheat

Type Hard Red Spring

Rate lbs/ac VR Step lb



MDV 4.1299 

Trans: 73

F 

G 


H 


I

J 

1:54 pm

Meter Calibrations

Air Cart Meters

Setup **Cal** Variable Rate

				MDV
<input type="checkbox"/>		0.0	<input type="text" value="0.00"/>	0.0000
<input type="checkbox"/>		0.0	<input type="text" value="0.00"/>	0.0000
<input type="checkbox"/>		0.0	<input type="text" value="0.00"/>	0.0000

F 

G 


H 


I

J 

1:55 pm

Variable Rate

Air Cart Meters

Setup Cal **Variable Rate**

				I/O
1	130.0	90	130.0	<input checked="" type="checkbox"/>
2	75.0	45.0	90	<input checked="" type="checkbox"/>
3	40.0	20.0	35.0	<input checked="" type="checkbox"/>
4	0.0	0.0	0.0	<input type="checkbox"/>
5	0.0	0.0	0.0	<input type="checkbox"/>
6	0.0	0.0	0.0	<input type="checkbox"/>



F 

G 

H 

I 

J 

1:56 pm

GreenStar 3 2630

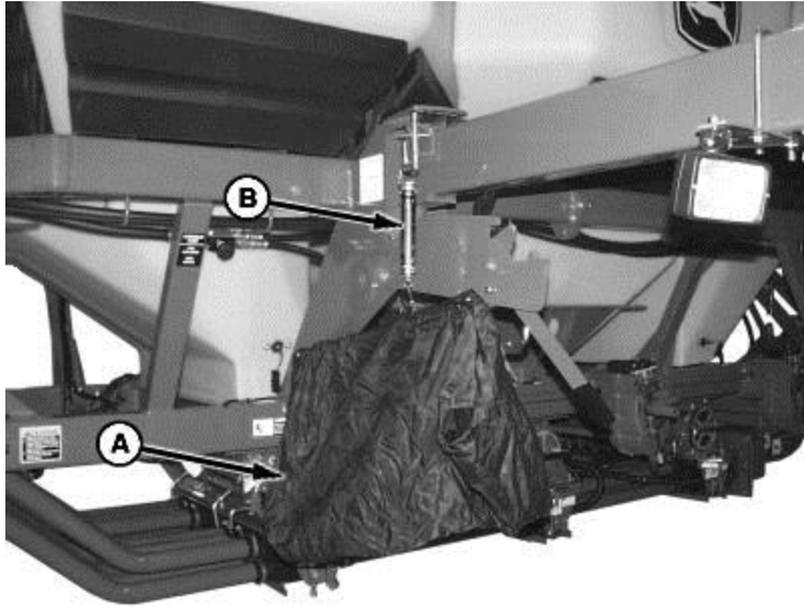


Enhanced Features

- 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**



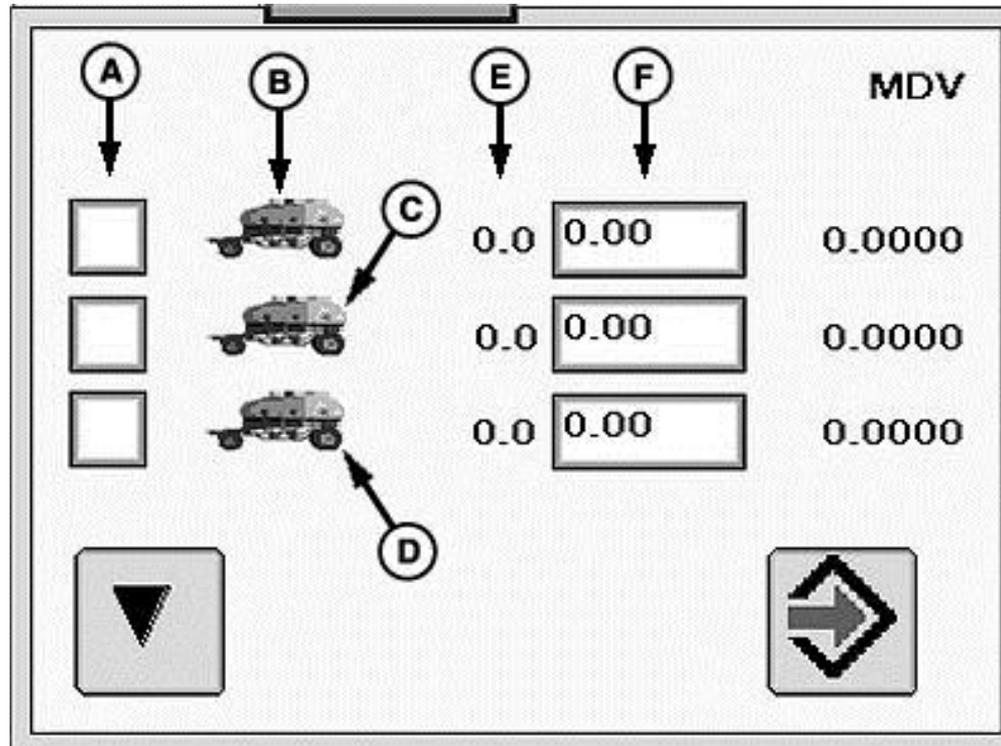
1. Zero scale



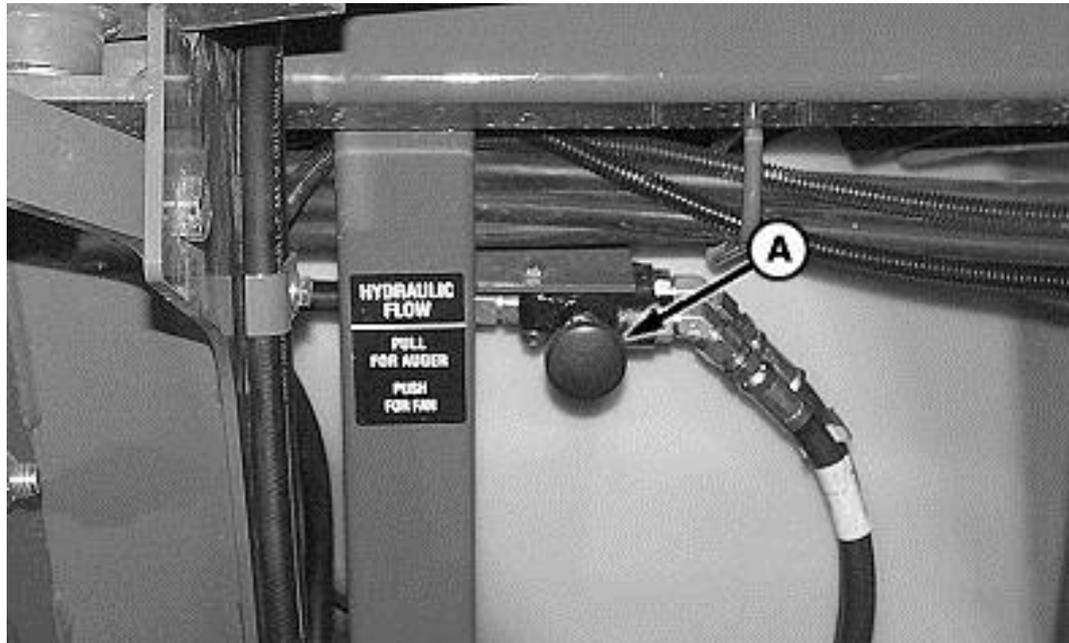
2. Remove cover plate from bottom of meter and install collection bag.

- 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.

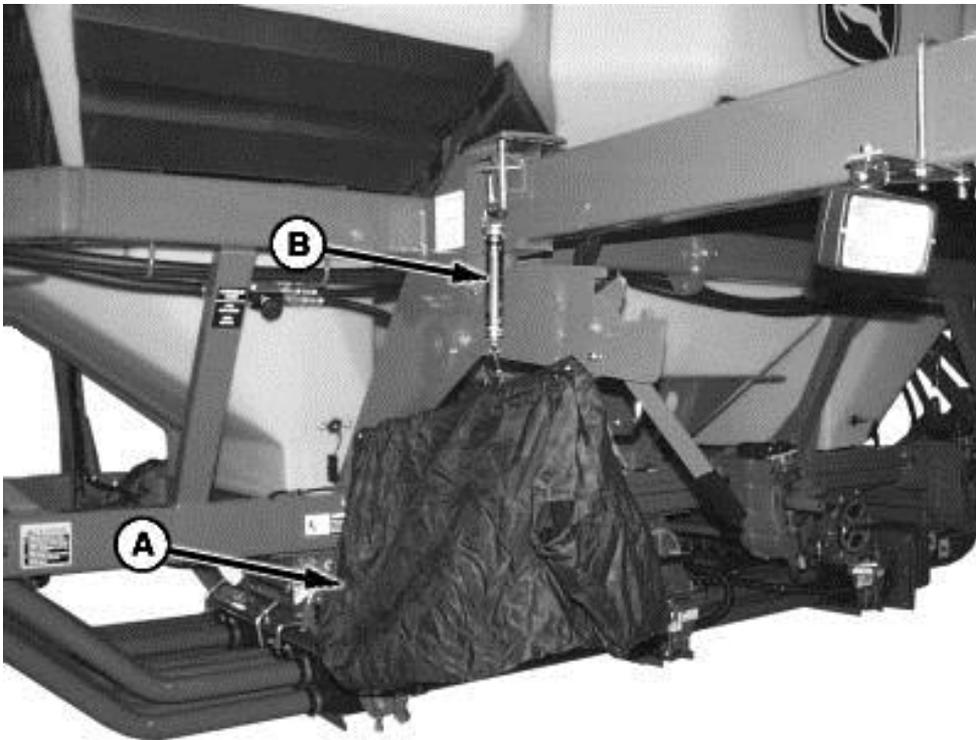


Activate calibration switch or manually rotate meter handle 12 rotations counterclockwise
Empty product from calibration bag. Meter is now full of product and ready for calibration

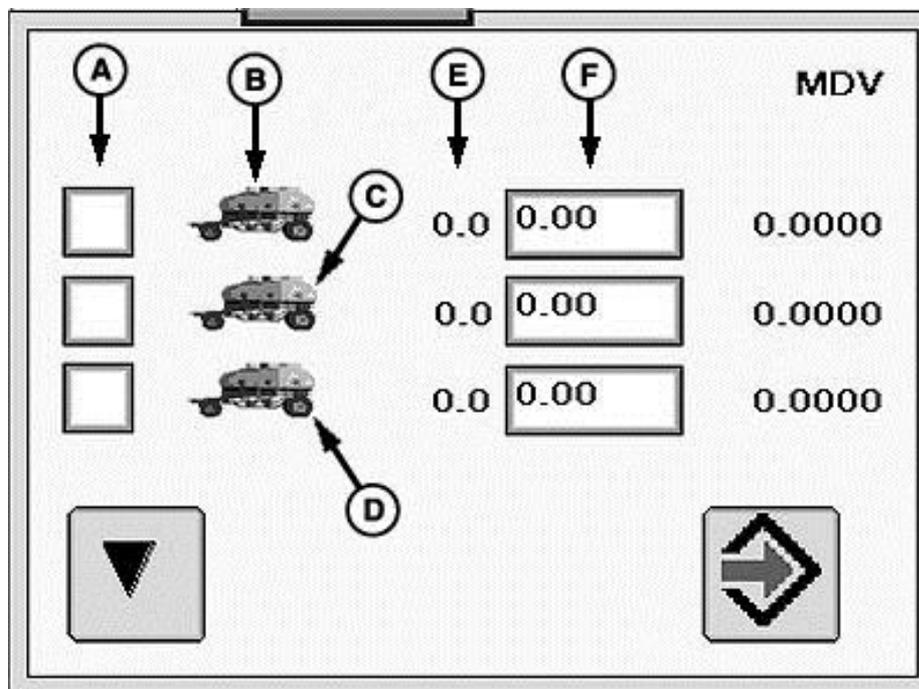
Reinstall calibration bag under meter and select Enter (Continue) button.

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.

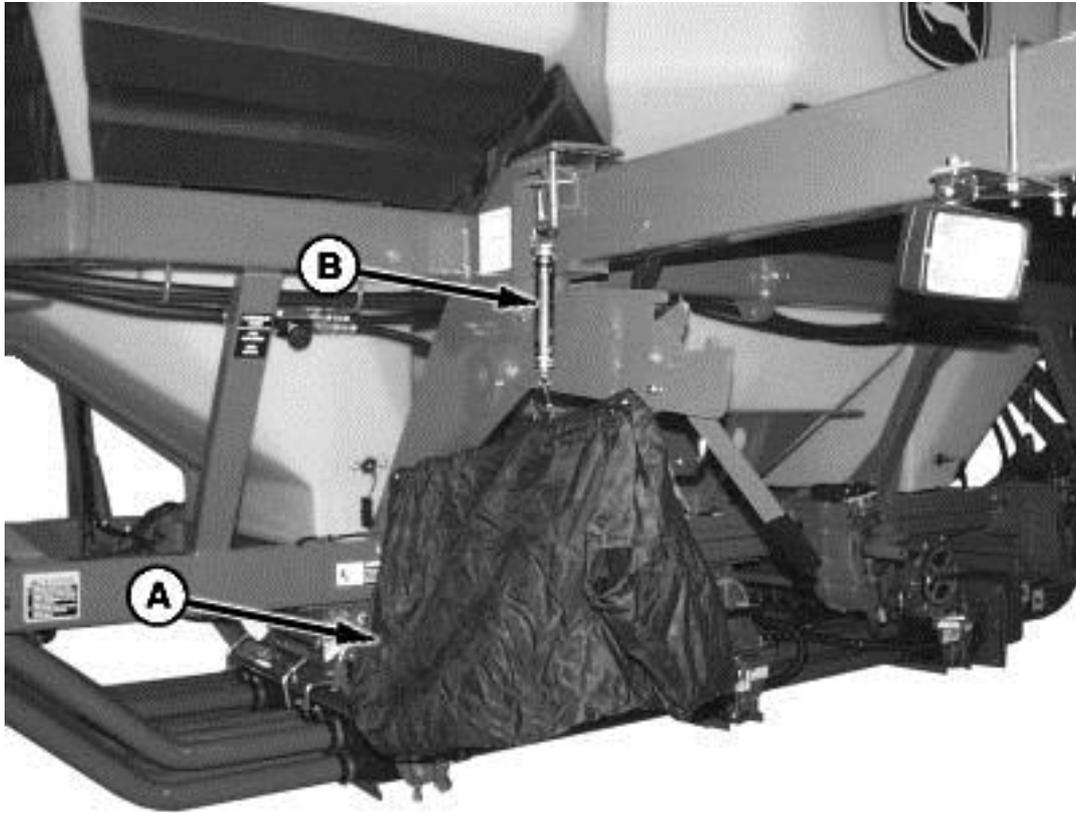
Set transmission to the Trans: value on lower area of screen.

\Repeat procedure for other tanks calibrated.

Set double shoot slides, half width handles, and hydraulic diverter valve back to original positions

METER RATE VERIFICATION

- **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:

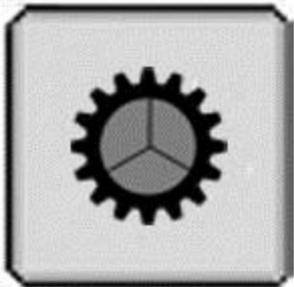
- **Correct cart tire pressure.**
- **Sufficient product in tanks.**
- **Field conditions like actual seeding conditions.**
- **Normal seeding speed.**

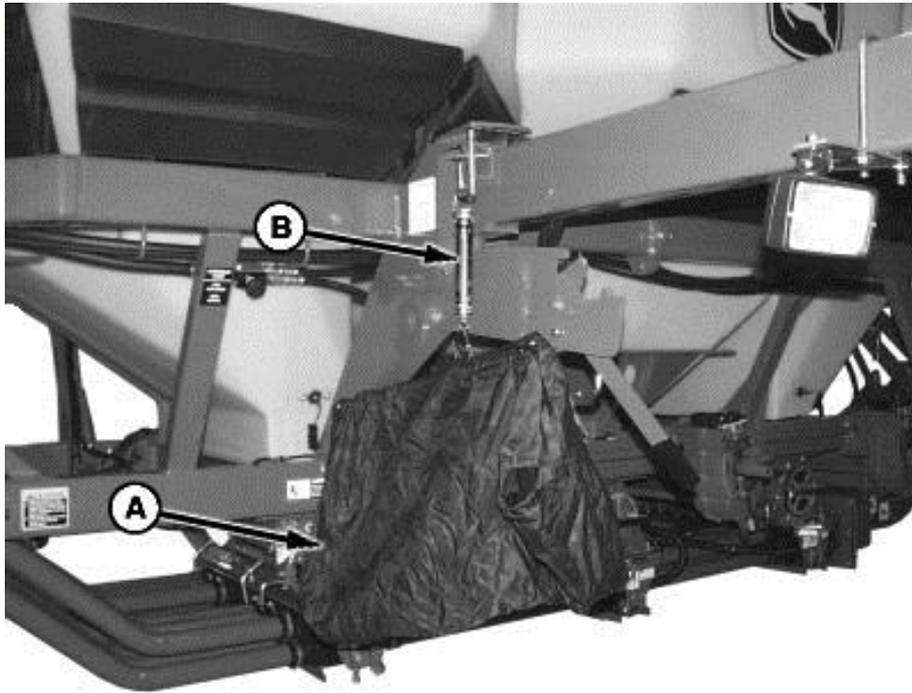
Select primary Menu button >> Air Cart button >> Main softkey.

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

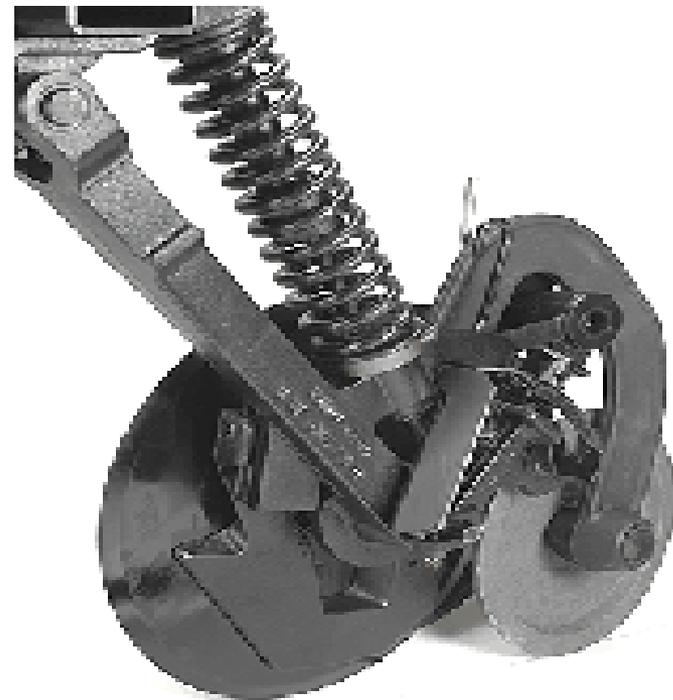


- The 7-degree openers have several features:
- 7 degree opener cuts a wider trench.
- Three optional depth gauging wheel choices.
- Fertilizer boot offers excellent placement of dry fertilizer.

Opener Types

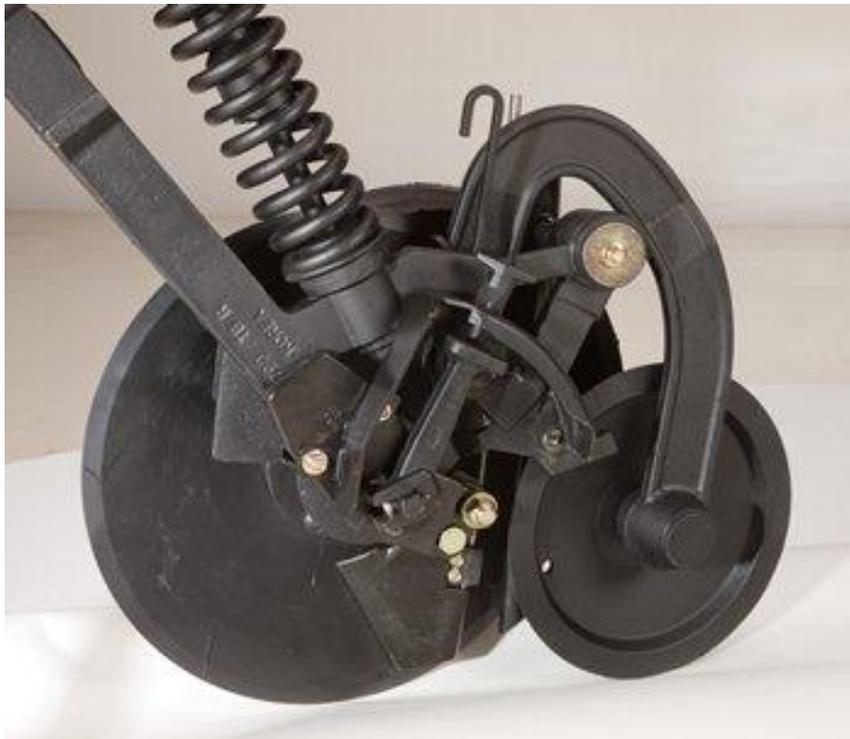
5 degree boot NH3 or dry opener

Model year 2009 and older



Opener Types

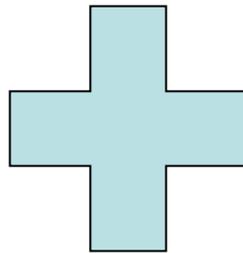
2010 and Newer Scraper Dual Tube Opener



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