



Defender2 Series Seed Tender



Owner's Manual

Safety • Operation • Maintenance



345 Burnett Road, West Lafayette, Indiana 47906, USA
Phone: 765-429-6200 Fax 765-742-4211 www.truag.com

Table of Contents

Description	Page
Warranty Information	4
Certificate of Origin	5
Registration Information	7
Identification	9
General Safety Statement	10
Safety Continued	11
Wireless Remote System	12
Operating Procedure	13
Maintenance	16
Technical Specifications	21
Parts List	24
Trouble Shooting	28
Optional Equipment	29
Notes	30
Addendums	n/a

Warranty Information

TruAG warrants all products manufactured by TruAG, to be free of defects in material or workmanship under normal usage and conditions. This will extend for a period of twelve (12) months from the date of sale to the original end user. Some components may have warranty periods longer than twelve (12) months, please contact your TruAG dealer for additional warranty information for applicable circumstances.

TruAG reserves the right to deny any warranty submissions associated to but not limited to the following: defects not caused from defective material or manufacturing, improper setup, unapproved product, or exceeding the maximum allowable rating applied to the equipment.

TruAG assumes no responsibility for field modifications which create performance, structural or storage quality problems. Warranty becomes void upon welding or cutting on any major structural or folding components. Modifications to the original design will nullify any product warranty that might otherwise have been available.

TruAG will not cover any failed components resulting from operator negligence such as excessive speed or incidental contact resulting in damage to the equipment under the factory warranty. Common wear components are not covered under warranty nor components that fail due to excessive wear resulting from lack of routine maintenance. Warranty does not include components that have been adversely affected by harmful corrosive chemicals that come into contact with the equipment.

TruAG does not cover tires or any damages to components or equipment incurred from tires either during transportation or field usage. TruAG is not responsible for damages incurred on third party components used on or in conjunction with the equipment, service repair labor, associated rental charges from failure, or loss of crop.

All factory mandatory repairs and/or Service Bulletin updates should be performed by factory authorized dealers or their designated qualified technicians. Any repairs that are not performed by the approved personnel that incur failure will be subject to warranty denial and TruAG retains authority to either administer or decline payment for any of the outside services performed to return to the equipment to the proper working condition.

All delivery and shipment charges, to and from TruAG facilities, and/or it's approved dealers, will be the responsibility of the purchaser. Any expenses incurred by the purchaser without prior written authorization from an authorized employee of TruAG shall be the sole responsibility of the purchaser.

Warranty submissions must be returned within forty five (45) days of the initial failure by the supporting dealer to the factory in order to be considered for coverage. The equipment serial number and original purchase date must be accompanied with failed components as well as verification of the warranty registration form in order to be eligible for coverage. If warranty is unapproved, the factory will contact the selling dealer on how to proceed.

Part # 28593-9105

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Certificate of Origin

Trailer Identification Information

Dealer _____	Sold To _____
_____	_____
_____	_____
_____	_____

Trailer Model # _____

Trailer Serial # _____

Seed Tender Manual - Defender2 Series



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Registration Information

Warranty Registration

This form should be completed by the dealer and signed by both customer and dealer at the time of delivery and sent to manufacturer. at the address at the bottom of this page. For your convenience online registration is also available at our website www.truag.com.

Customer Name _____ Dealer Name _____
Address _____ Dealer Address _____
City, State, Zip _____ City, State, Zip _____
Phone Number (____) _____
Model _____
Serial Number _____
Delivery Date _____

Dealer Inspection Report

___ Wheel Bolts Tight ___ Wireless Transmitter / Remote
___ Tire Pressure ___ All Decals Installed
___ Signal Lights Working ___ Lock Rods are Secure
___ Safety Chain Installed ___ Safety Latches Installed
___ Operation Manual Supplied

I have thoroughly instructed the buyer on the above described equipment.

Date _____ Dealer's Signature _____

The above described equipment and operator's manual have been received by me.

Date _____ Owner's Signature _____

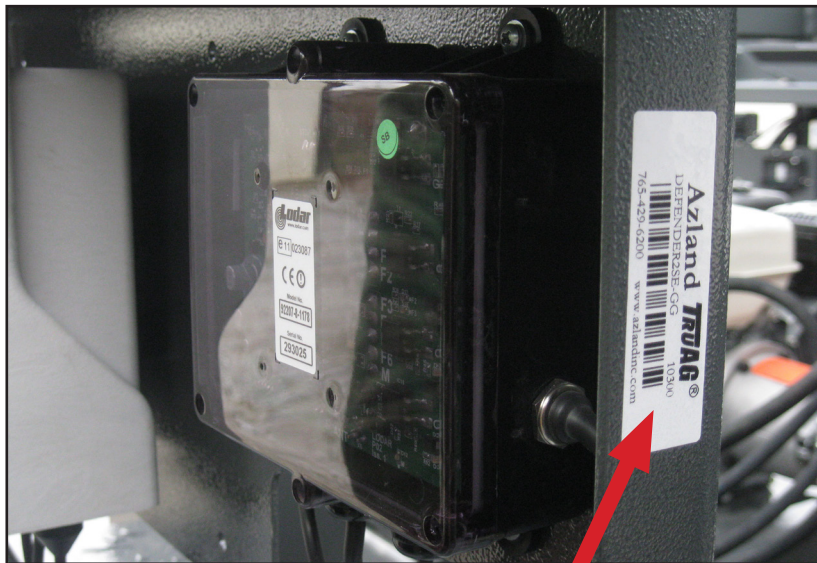


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Identification

Your Seed Tender is identified by several unique numbers. Please record this information in the space provided and refer to them when ordering replacement parts or submitting a warranty claim. The Seed Tender Serial # and Model # are located beside the wireless receiver, see Figure #1. The Trailer Serial # can be found in front of the jack stand.

Purchase Date	Top Serial #	Trailer Serial #



Unit ID Tag

Figure #1

General Safety Statement



BE ALERT!

Watch for this ⚠ symbol. It calls attention to important information concerning your personal safety. It means "ATTENTION", "CAUTION", "WARNING", "DANGER", and "BE ALERT – YOUR SAFETY IS INVOLVED". Read the information that follows and be aware of the possibility of personal injury or death.

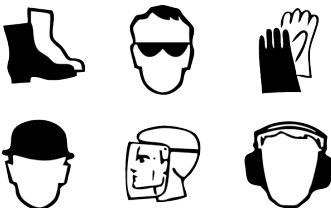
It is your responsibility as an owner, operator, or supervisor to know and instruct anyone using or near this equipment at the time of assignment, and at least annually thereafter, of the proper operation, precautions, and safety hazards that exist during the operation and servicing of this equipment in accordance with OSHA regulations.

Safety Is No Accident!

The following safety instructions, combined with general safety and common sense, will save you from unnecessary exposure to personal hazard and save your equipment from unnecessary damage. Review this manual at least once each year with new and/or experienced operators.

1. Read and understand the Owner's Manual prior to operating this Seed Tender. Failure to do so is considered a misuse of the equipment.
2. Make sure Seed Tender is secure prior to operation.
3. Always keep children and unauthorized persons away from the Seed Tender when in operation.
4. Make sure everyone that is not directly involved with the operation is out of the work area prior to beginning operation of the Seed Tender.
5. Make sure all safety devices are in place and functional prior to beginning operation of the Seed Tender.
6. Shut off power to adjust, service, or clean the Seed Tender.
7. Visually inspect the Seed Tender periodically during operation for leaks and signs of excessive vibration, loose fasteners, and unusual noises.

Safety Continued



- Keep all persons and objects clear of auger while auger is in motion.
- Be aware of high-pressure fluid hazards.
- Keep all persons and objects clear of machine and pinch points while any part of this machine is in motion.
- Always utilize ball hitch coupler clamp, latch, safety pin, safety chains, and wire harness for brakes and lights when towing. Be certain that all are functional prior to towing.
- Do not exceed the MAX tow speed of 30 MPH. Never tow at speeds exceeding safe stopping distances or safe cornering.
- Never work or climb on the seed tender while it is being transported or when it is in use.
- Do not operate auger in folded/transport position.
- Unload rear containers first to prevent dangerous tipping from load transfer.
- Always have unit properly connected to a tow vehicle before loading or unloading containers or product.
- All container lids and lock rods must be secured prior to and during transport to prevent possible road hazard.
- Wear proper hand and eye protection when dealing with high pressure hydraulic systems.
- Wear clothing and Personal Protective Equipment (PPE) appropriate for the job.
- Relieve pressure on system prior to repairing, adjusting, or disconnecting hydraulic hoses.
- Read and understand enclosed Engine Manual before operating the Honda Motor.

Wireless Remote System

Wireless Remote Control Commands

See Figure #2 regarding the Handheld Wireless Remote Control Unit. Press the RED button when finished to turn the Handheld Unit off, otherwise it will still be sending out a signal looking for the base unit. This will cause the batteries to drain prematurely.

Note that pressing the Auto button toggles the auger on and off in the forward direction and will start the unload process for auto unloading when programmed with Premium Scales.














Figure #2a

Standard Remote



Figure #2b

Premium Scales Only

	Makes Buttons Inactive & Turns Off Wireless Remote Control		Syncs Wireless Remote Control & Makes Buttons Active
	Manually Runs Auger Forward For Unloading		Manually Reverses Auger. Premium Scales Require Pressing Secondary Red Button
	Reverse Safety Button		Toggles Auger On / Off. Starts Auto Unload Process [Premium Scales Only]
	Folds Upper Auger [Premium Scales Only]		Unfolds Upper Auger [Premium Scales Only]
	Raises Entire Auger Assembly [Premium Scales Only]		Lowers Entire Auger Assembly [Premium Scales Only]
	Zeros The Scale [Premium Scales Only]		

Operating Procedure

Loading Bulk Poly-Boxes

Loading Poly-Boxes



Failure to remove both driver and passenger side lock rods will result in damage to the Seed Tender, lock rod, or bulk poly-box.

Loading Poly-Boxes



Load front of Seed Tender first, then the rear. Failure to do so could cause the Seed Tender to tip backwards.

1. Remove outer and inner lock rods on both the driver and passenger side of the Seed Tender
2. Using a forklift or other lifting vehicle, pick up the bulk poly-box with the slide gate and locking mechanism facing the forklift. Allow distance between the box and the mast of the forklift for the box to be safely lifted and put on the Seed Tender without causing damage to the corner guides.
3. Slowly lift and carefully place bulk poly-box on the Seed Tender.
4. Replace all lock rods and ensure that they are all in the locked position.

Operating the Seed Tender

1. Start the engine, see enclosed engine manual. Let the engine warm up prior to use. During this time look over hydraulic components to ensure there are no leaks.
2. Turn on the Wireless Receiver by flipping switch on the side of the receiver, see Figure #3. Once on, a red LED Fault light will flash indicating that the receiver is looking for the hand-held remote. If there is no flashing light check to make sure the power supply and ground are attached at the battery and the battery is fully charged.

Red Power Wire

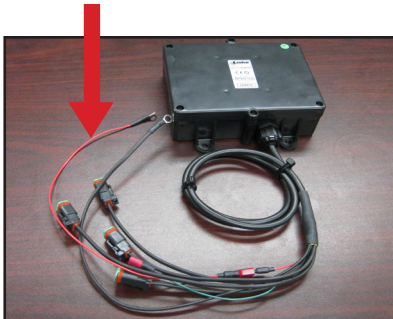
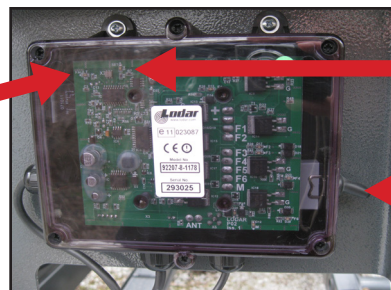


Figure #3a
[Standard Model]

Fault Light



Run Light

On / Off Switch

Figure #3b
[Premium Scales Only]

Part # 28593-9105

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Operating Procedure

Beware



Beware of overhead power lines or other obstructions when unfolding the Upper Auger to prevent bodily harm or damage to equipment.

Unlocking Auger

Press the Auger Up button before folding the auger out.

Unloading Bulk Boxes

Unload rear bulk poly-boxes before the front to prevent a tipping hazard.

3. Premium Scales Only - Press and hold the GREEN button on hand-held remote until the flashing light goes out and the run light comes on, indicating that the receiver and remote have synced up.
4. Standard Model - Disconnect Power then reconnect and within 20 seconds press and hold the GREEN button on hand-held remote then within 2 seconds press and F1 (FWD) and hold both buttons for a minimum of 5 seconds, until the LED comes on indicating that the receiver and remote have synced up.
5. Unfold the upper auger by pressing the *Unfold Auger Button*,  Make sure upper and lower auger mating faces are secured together tightly before unloading any product.
6. Open slide gate on the desired bulk poly-box.
7. Unhook the spout and place in the desired box on the planter.
8. With the spout in one hand and the remote in the other, manually unload by pressing the *Forward*  button, see Figure #5. The auger will only run as long as this button is pressed. When FWD button is released the auger stops.
9. When finished, replace & lock the spout then fold the top auger back into transport position.


**Figure #5**


Operating Procedure

Unloading Bulk Boxes



Failure to remove both the driver and passenger side lock rods could result in damage to the Seed Tender, lock rods or bulk poly-box.

10. Fold the upper auger back by pressing the *Fold Upper Auger*  until it sets in the cradle, see Figure #6.

11. Lock the auger into the transport position by pressing the Lower Auger  button, as shown in Figure #6.



Auger Rest

Figure #6

Unloading Bulk Poly-Boxes

1. Remove outer and inner lock rods, see Figure #7, on both the driver and passenger side of the Seed Tender.
2. Using a forklift or other lifting vehicle, slowly pick up the bulk poly-box. Allow distance between the box and the mast of the forklift for the box to be safely lifted and removed from the Seed Tender without causing damage to the corner guides.



Figure #7

Maintenance

Honda Engine

The Seed Tender is equipped with a Honda engine that powers the hydraulic pump for the hydraulic system. The owner's manual and warranty information are included with your paperwork.

Axles and Suspension

The Seed Tender is equipped with torsion axles. A copy of the original equipment axle manufactures manual and warranty information containing the procedure for axle lubrication and maintenance schedule are included with your paperwork.

Hydraulic Oil Filter

The oil filter should be replaced annually or when flow restriction or filter damage is evident. Use the following procedure when changing the oil filter.

1. Take precautions to ensure safety, including wearing proper PPE.
2. Relieve pressure on hydraulic system and hoses prior to removing.
3. Place an appropriate hydraulic oil container underneath the oil filter to contain any spilled fluid.
4. Slowly remove filter by turning in a counter-clockwise motion.
5. Empty remaining oil into appropriate hydraulic oil container.
6. Install new oil filter by turning in a clockwise motion. See filter instructions for additional installation information.
7. Remove container and dispose of oil filter and any oil in a manner consistent with local, state & federal regulations.

Maintenance

Battery

It is recommended that the battery be disconnected after the planting season is complete.

Battery Charging



Disconnect red power wire at spade connector prior to applying a secondary voltage to the battery.



Auger Clean Out



Failure to ensure that the Seed Tender is fully shut down could result in damage or bodily harm.

Wireless Remote and Receiver

The Seed Tender is equipped with a Wireless Remote and Receiver that controls the fold, unfold, and unload functions of the auger. The specific owner's manual and warranty information are included with this manual.

Battery

When done using the Seed Tender for the planting season, *it is recommended that the battery be disconnected* to enhance overall battery life and eliminate battery drain and terminal corrosion.

If jump starting or charging the battery, you must disconnect the red power wire spade connector prior to applying a secondary voltage to the battery.

Auger Clean Out

The auger should be cleaned out anytime a seed variety is changed and at the end of the planting season. The clean-out hatch is located at the base of the lower auger, see Figure #8. Use the following procedure when cleaning out the auger.

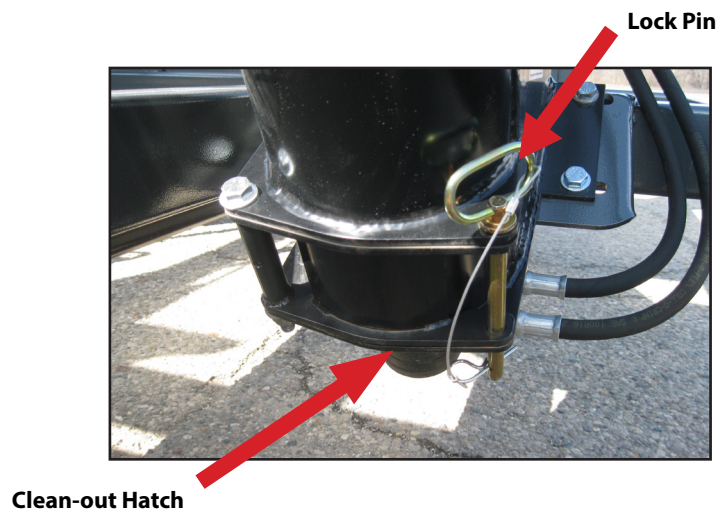


Figure #8

Maintenance



1. Take precautions to insure safety. Ensure that the Seed Tender is fully shut off and that all moving parts are no longer moving.
2. Open Clean-out by lifting the RIGHT Lock Pin and using the LEFT Hinge Pin to swing the clean-out door open.
3. Remove any remaining seed or debris from the auger by starting the engine and gently reversing the auger. An optional lid can be used to contain any excess seed.
4. Shut the engine off check that all moving parts have stopped. Close the clean-out door by using the LEFT Hinge Pin to swing the door closed and lock the clean-out door by reinserting the RIGHT Lock Pin.

Hydraulic Cylinder Valve Speed Adjustment

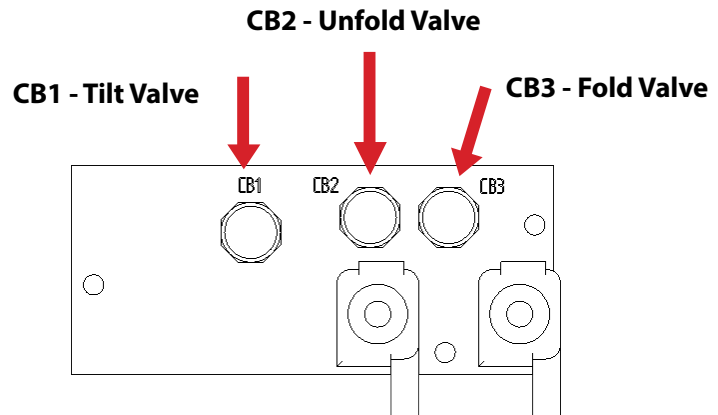


Figure #9

Upper Auger Valve Adjustment

See Figure #9 and follow the steps below to adjust the speed of the Fold/Unfold function of the Seed Tender.

Slowing Down Unfold Speed

1. Loosen jam nut on CB #2.

Maintenance

Lower Auger Valve Adjustment



Only adjust this setting if the Lower Auger is creeping downward in the infolded position.

Manual Override



The safety latch must first be lifted in order to operate the manual override function.

- Using an allen wrench, turn set-screw COUNTER CLOCK-WISE while unfolding the upper auger. Adjust until desired speed is reached.

- Tighten jam nut.

Slowing Down Fold Speed

- Loosen jam nut on CB #3.
- Using an allen wrench, turn set-screw COUNTER CLOCK-WISE while folding the upper auger. Adjust until desired speed is reached.
- Tighten jam nut.

Lower Auger Valve Adjustment

Follow the steps below to adjust the Tilt function of the Seed Tender. Only adjust this setting if the Lower Auger is creeping downward in the unfolded position.

- Loosen jam nut on CB #1.
- Using an allen wrench, turn set-screw CLOCK-WISE until the creeping stops.
- Unload some seed through the auger to ensure that the creeping has ceased.
- Tighten jam nut.

Manual Override of Solenoids

The Defender2 Series Seed Tender hydraulic system has a manual override system, see Figure #10. This was implemented that in case of remote failures, receiver failures, and/or electrical component problems, the hydraulics can still be operated. On each of the solenoids, on top of the aluminum

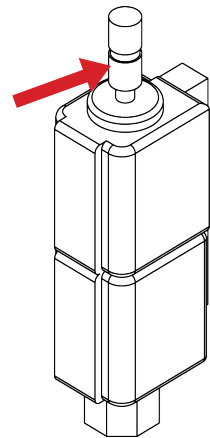


Figure #10

Maintenance

hydraulic valve assembly, are push/pull switches that engage or disengage the spool for that hydraulic function. The safety latch must first be lifted, see arrow in Figure #10, in order to use the manual override.

It is recommended to use these only when the remote is not present or an electrical system failure.

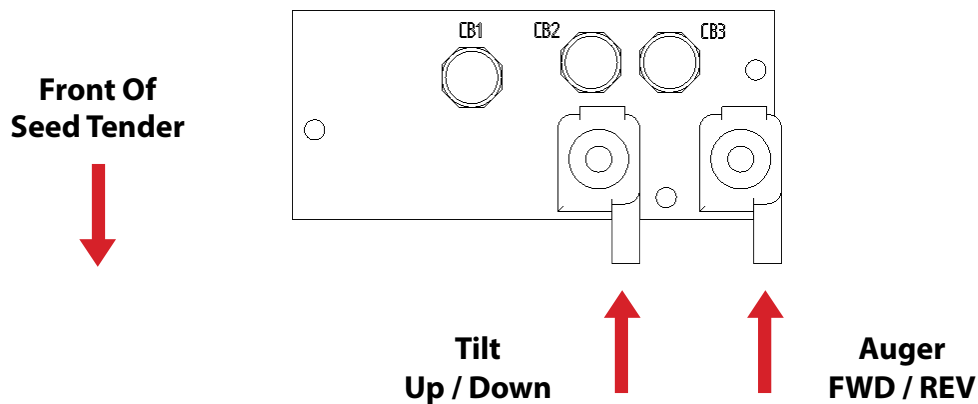


Figure #11

Technical Specifications

Engine	
Type	Honda 9.0 HP w/ Electric Start
Fuel Type	Gasoline
Oil Capacity	1 Quart
Change Oil	Annually
Oil Type	10W-30

Hydraulic	
Oil Type	AW46
Capacity	5 Gallon
Change Oil	Every 4,000 HRS
Filter	25 Micron
Fold Cylinder	2-1/2" Bore x 12" Stroke

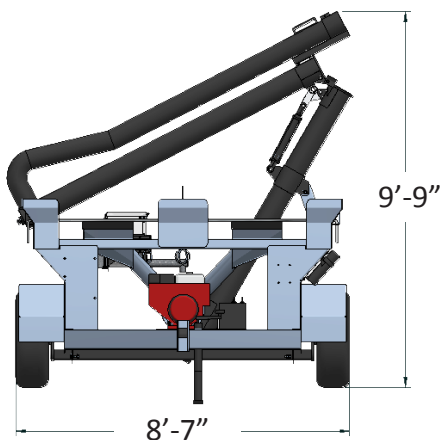
Trailer	
Tires	ST225/75D15 LRD
Tire Pressure	65 PSI
Axle Type	Torsion
Axle Capacity	6,000 Lb. Each
Coupler	2-5/16" Ball
Jack	7,000 Lb. Top Wind

Overall	
Length	12'-11" Standard 17'-10" Extended
Width	8'7"
Weight (Curb)	2560 Lbs Standard 2840 Extended

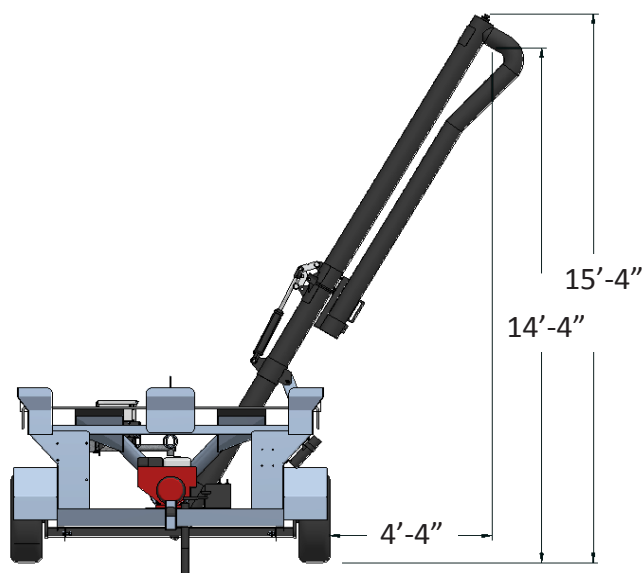
Battery	
Series	U1
Voltage	12
CCA / CA	300 / 375

Technical Specifications

Auger	
Size	6"
Type	Poly-Cupped



Transport - Maximum Height



Top Auger Fully Extended - Maximum Height

Part # 28593-9105

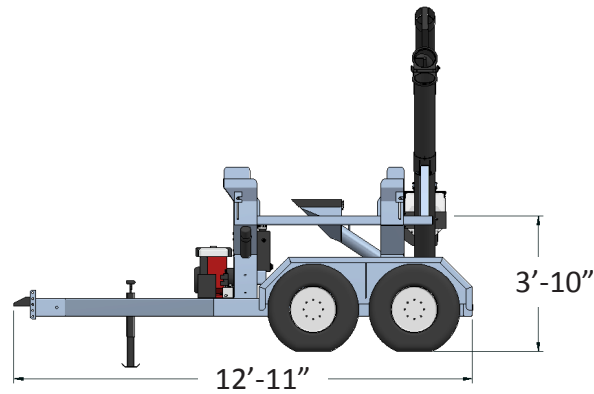
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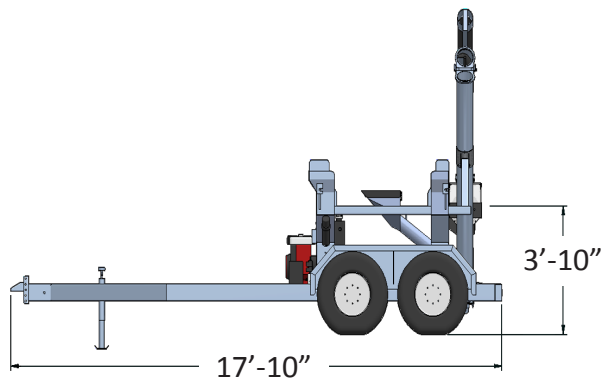
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Technical Specifications

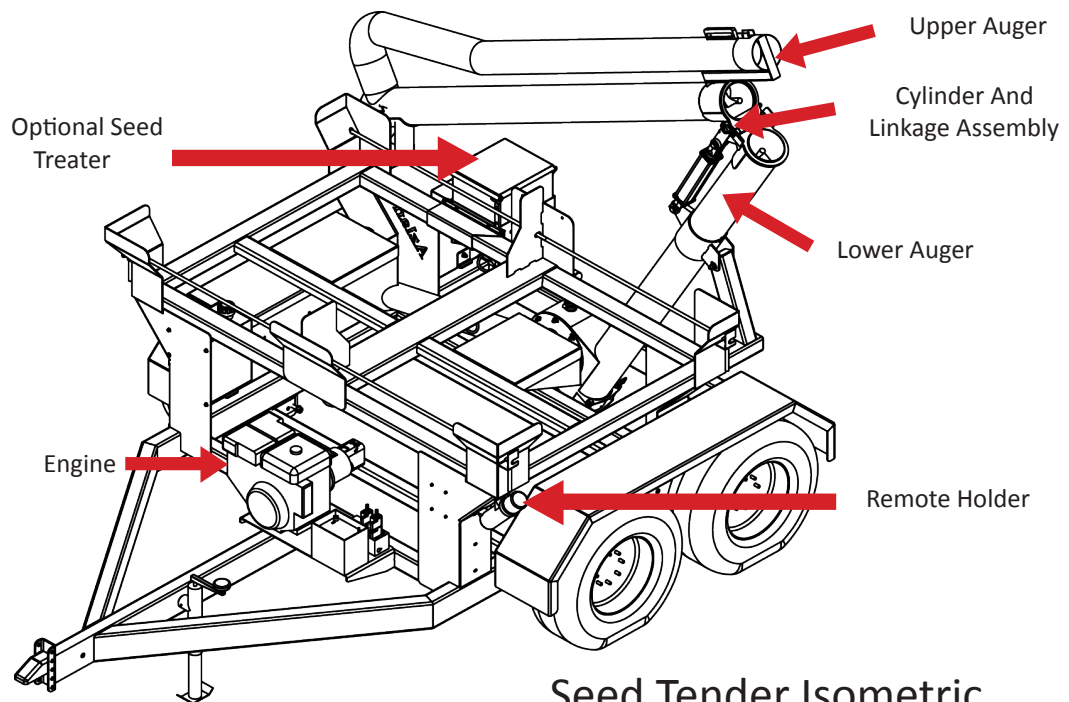


Side View Standard

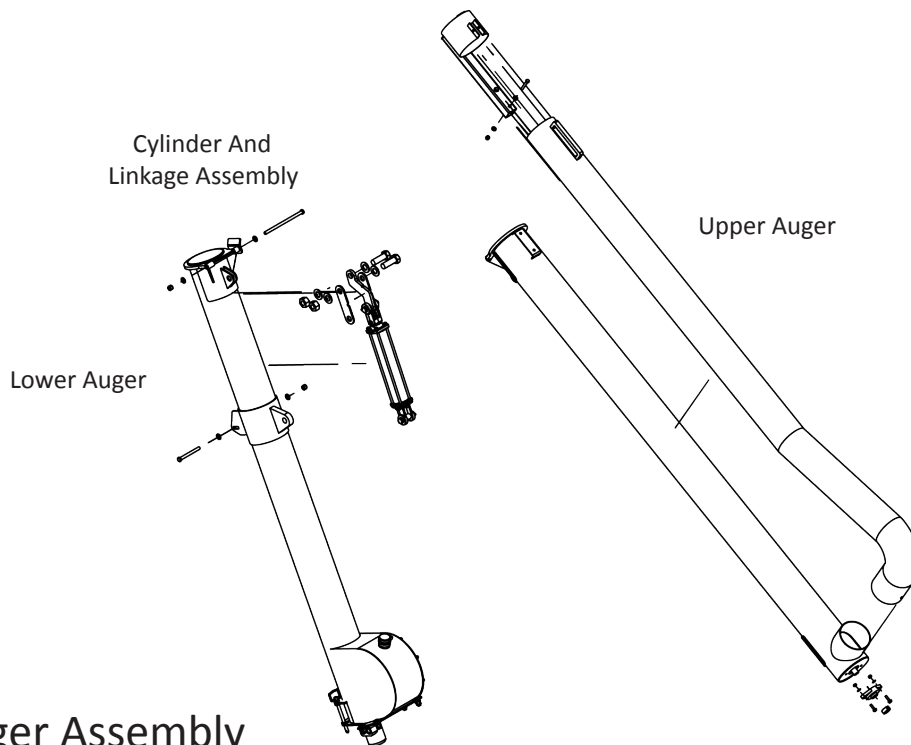


Side View Extended

Parts List



Seed Tender Isometric



Auger Assembly

Part # 28593-9105

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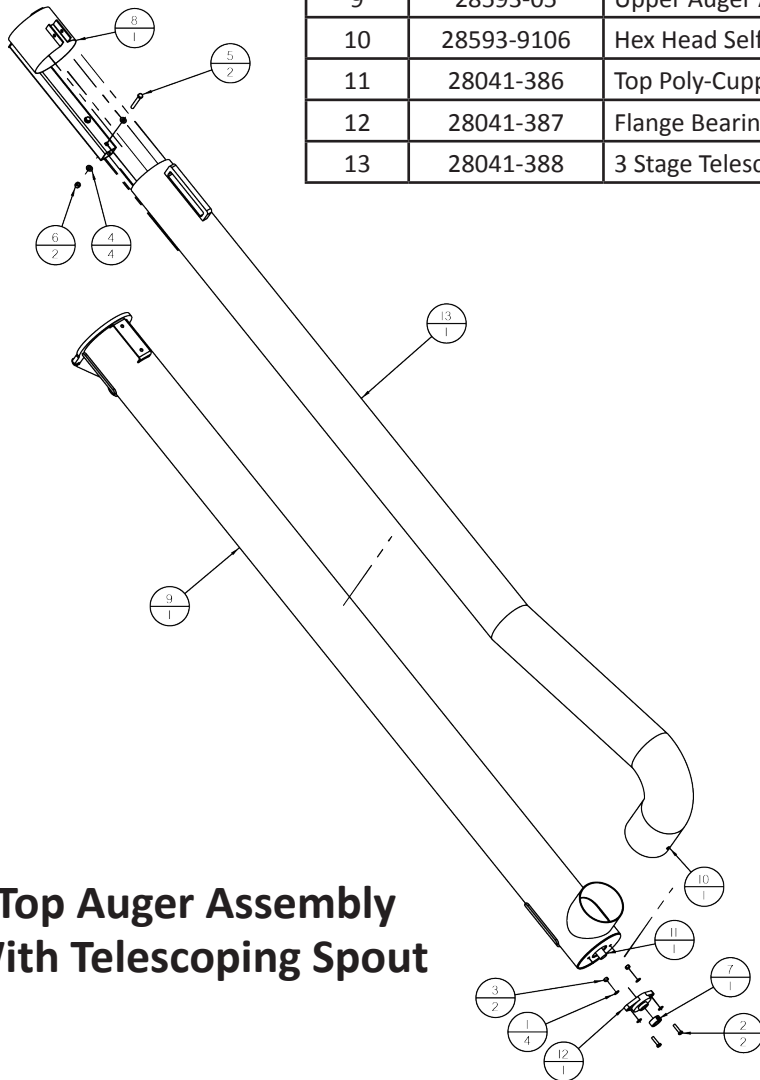
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Parts List

Item #	Part #	Description	Qty
1	n/a	5/16"" SAE Flatwasher	4
2	n/a	5/16"-18 x1.25" HHCS	2
3	n/a	5/16"-18 Nylock Nut	2
4	n/a	3/8" SAE Flatwasher	4
5	n/a	3/8"-16 x 2.75" Carriage Bolt	2
6	n/a	3/8"-16 Nylock Nut	2
7	28041-384	Shaft Collar	1
8	28041-20	Spout Holder - 3 Stage	1
9	28593-05	Upper Auger Assembly	1
10	28593-9106	Hex Head Self-Drilling Screw 10-16 x 3/4" Long	3
11	28041-386	Top Poly-Cupped Auger Section	1
12	28041-387	Flange Bearing	1
13	28041-388	3 Stage Telescoping Spout	1



**Top Auger Assembly
With Telescoping Spout**

Part # 28593-9105

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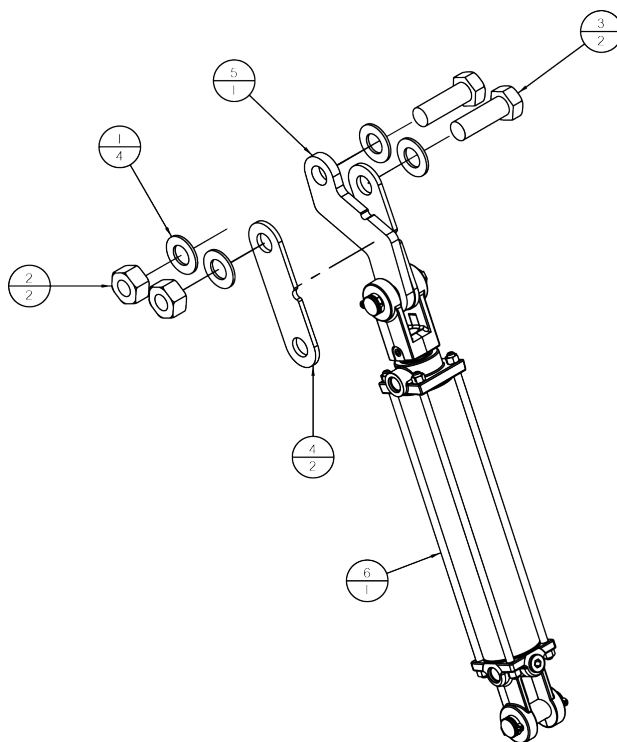


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Parts List

Item #	Part #	Description	Qty
1	n/a	1" SAE Flatwasher	4
2	n/a	1" - 8 Nylock Nut	2
3	n/a	1" - 8 HHCS x 3.00" Long	2
4	28953-130	Straight Linkage Bar	2
5	28953-131	Z Linkage Bar	1
6	28593-9107	Hydraulic Cylinder	1

Hydraulic Cylinders



Part # 28593-9105

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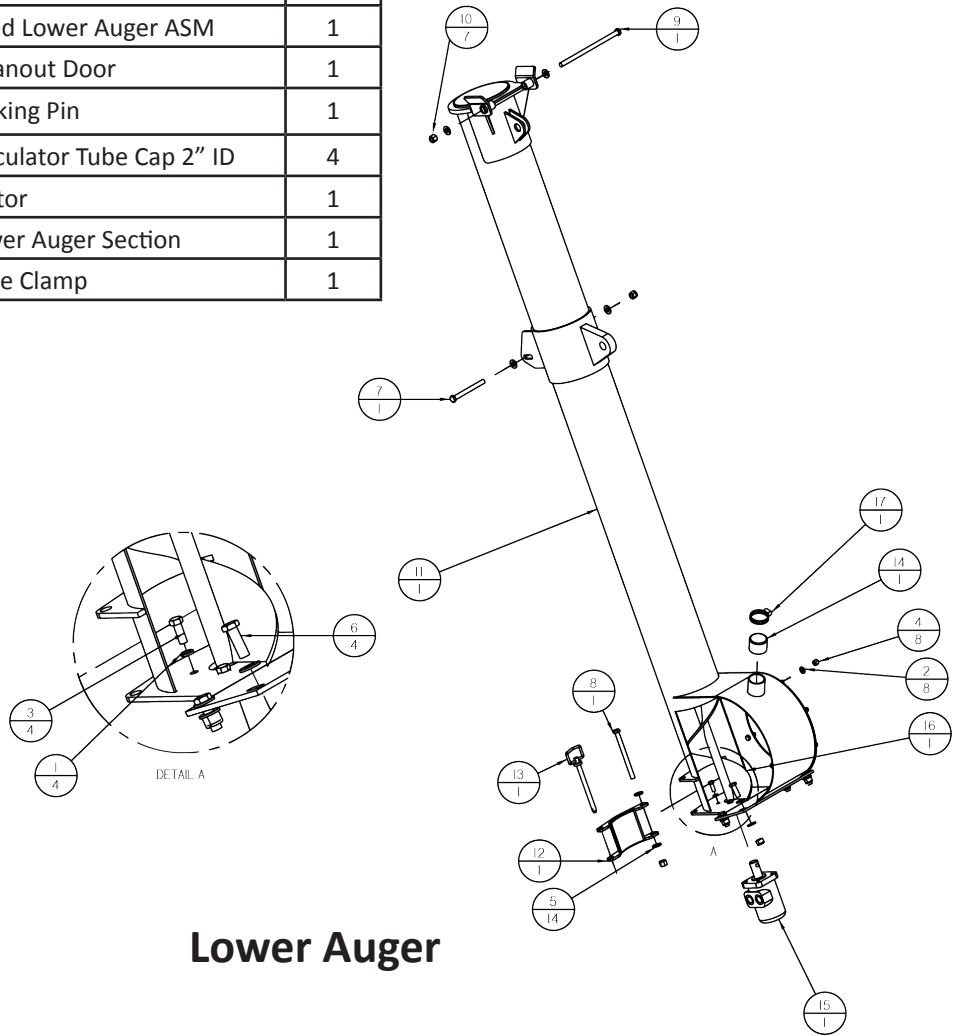
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Parts List

Item #	Part #	Description	Qty
1	n/a	3/8" Lock Washer	22
2	n/a	3/8" SAE Flatwasher	20
3	n/a	3/8"-16x1.00" HHCS	1
4	n/a	3/8"-16 Nylock Nut	1
5	n/a	1/2" SAE Flatwasher	4
6	n/a	1/2"-13 HHCS x 1.5" Long	4
7	n/a	1/2"-13 HHCS x 4.50" Long	2
8	n/a	1/2"-13 HHCS x 6.00" Long	4
9	n/a	9/16"-13 HHCS x 9.50" Long	1
10	n/a	9/16"-13 Nylock Nut	1
11	28953-03	Fixed Lower Auger ASM	1
12	28593-07	Cleanout Door	1
13	28593-137	Locking Pin	1
14	28593-9108	Inoculator Tube Cap 2" ID	4
15	28593-9109	Motor	1
16	28593-9110	Lower Auger Section	1
17	28593-9111	Hose Clamp	1



Lower Auger

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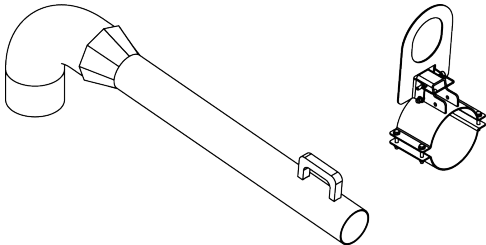
Trouble Shooting

TruAG strives to produce tough and reliable products. Our products have features that are designed to greatly improve performance and life expectancy, while increasing efficiency. However, improper use and/or neglect of these features can result in high maintenance costs, premature failure, and/or poor performance. Below is a list of potential field problems with probable causes and remedies. This guide will help to ensure that your equipment will live up to the TruAG name.

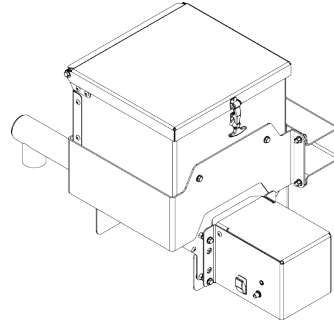
Potential Problem	Probable Causes	Solutions
Wireless Receiver Not Turning On	Poor Connection At 12V Battery	Check For Good Connection And That The Battery Terminals Are Clean.
	Dead Battery	Test Battery And Replace If Necessary
Wireless Receiver Not Responding	Base Remote Not Turned On	Press red button on wireless remote.
	Wireless Remote Not Synchronized With Receiver	Turn receiver off by flipping switch down. Then turn remote off by pressing red button. Turn receiver switch on, within 20 seconds press and hold green button & FWD button on remote for minimum 5 seconds until flashing fault light on receiver stops flashing and the red run light comes on solid.
	Batteries In Handheld Remote Are Dead	Replace Batteries. Check To Ensure Proper Polarity When Installing The New Batteries.
Remote Syncs Up, But Functions Are Not Responding	Poor Ground Connection	Check For Good Connections At Battery, That The Terminals Are Clean And The Solenoid Connections Are Good.
	Connectors Are Not Secured At The Solenoid	Remove Connector And Reinstall Until The Connector Locks With Mating Connector On Solenoid.
	Debris In Connector	Remove Connector And Clean With Electrical Connection Cleaner. Clean Both The Male And Female Ends.
Upper Auger Folds/ Unfolds To Fast	Counter Balance Valve Not Adjusted Properly	Adjust Fold/Unfold Valve, See Page 18.
Lower Auger Settles Downward In Unfold Position	Counter Balance Valve Not Adjusted Properly	Adjust Tilt Up / Tilt Down Valve, See Page 19.
Functions Performing Opposite Of Remote	Connectors Reversed	Swap Connectors From Top To Bottom On Solenoid Controlling Particular Function.

Optional Equipment

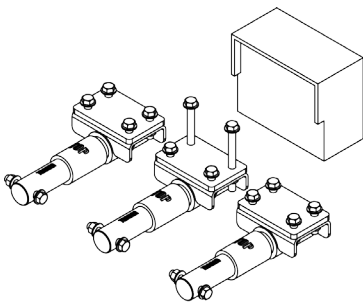
4' Spout & Holder For Bulk Planting Systems



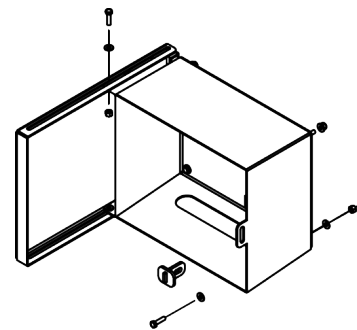
Dry Seed Treater



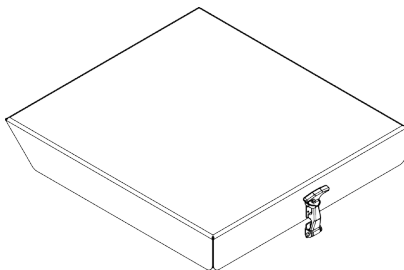
Scale Systems



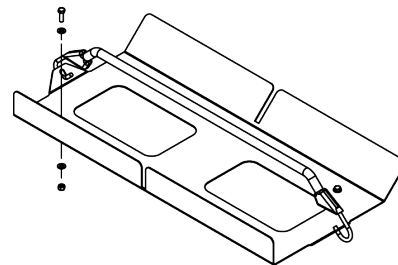
Scale Head Security Box



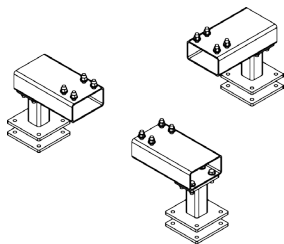
Metal Lid With SS Latch



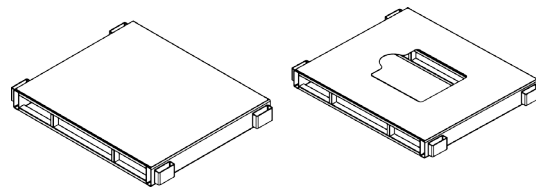
Metal Lid Holder



Stand-Off Legs For Personal Trailer Mounting



Open & Closed Steel Platforms



Seed Tender Manual - Defender2 Series

Part # 28593-9105

Release 41626

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Notes

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This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.



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