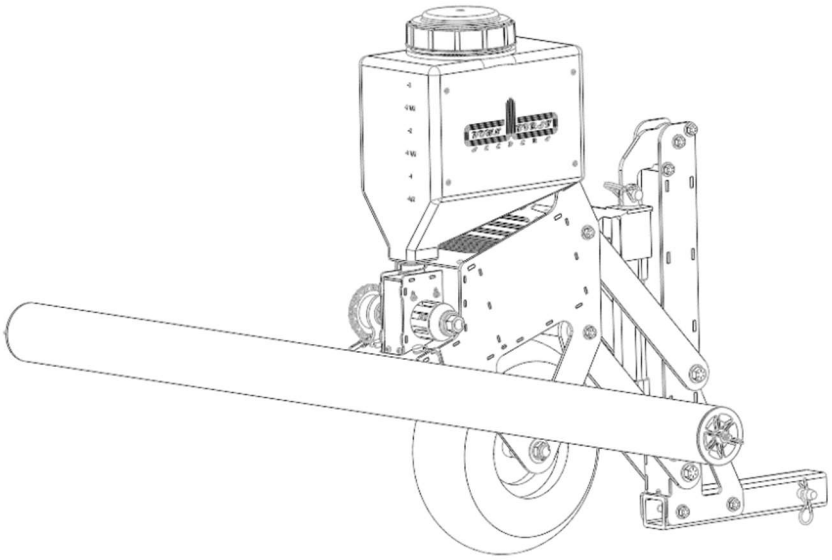
Model DS760 Owner's Manual



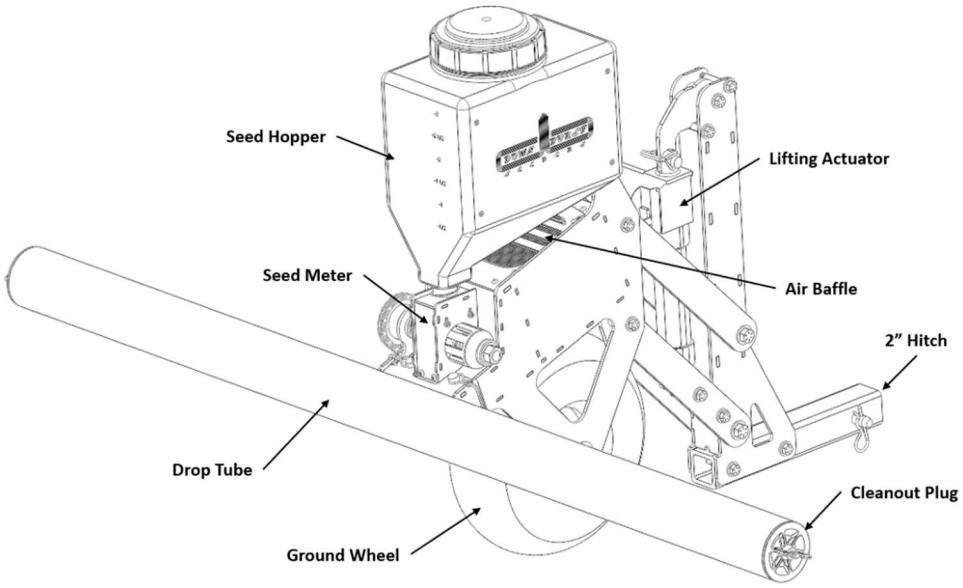
CONTENTS

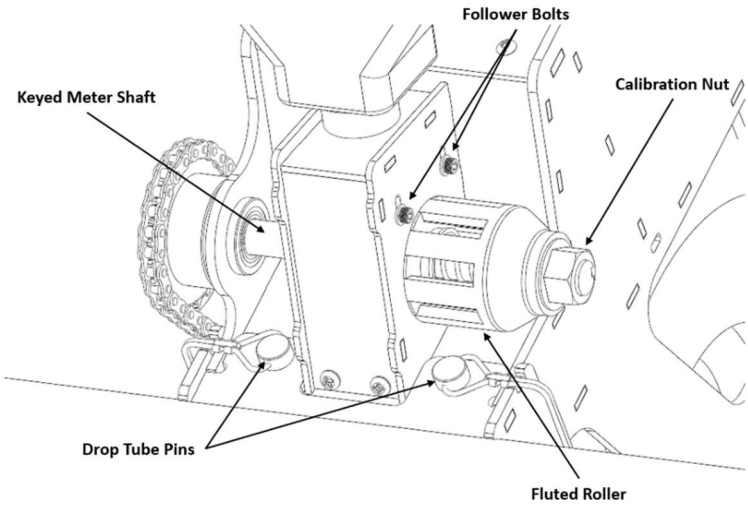
INTRODUCTION

Thank you for purchasing a Down Burst Seeder! Your machine has been designed from the ground up to be the ideal small seed spreader. It is proudly built in Northern Michigan using only the best materials and components available to ensure you will enjoy using it for years to come.

The DS760 is a vehicle mounted seeder designed to fit a variety of machines utilizing a standard 2” hitch receiver. The seeder features a durable roto-molded polyethylene seed hopper which is sealed to keep seed clean and dry while planting in adverse conditions. The hopper is translucent enabling easy monitoring of seed level while planting. The DS760 uses a ground wheel driven fluted roller seed meter that provides extremely accurate seed rates regardless of planting speed. The innovative drop tube design uses high velocity air to spread seed evenly along the width of the machine providing consistent seed coverage at the precise width of the tube. A high-speed lifting actuator raises the machine and locks the ground wheel to stop seed spreading. The machine is controlled by a wired remote with a single toggle switch to either lower the machine to begin seeding or lift the machine to stop seeding. Seed rates are infinitely adjustable from 1 to 30 Lb/Acre by tightening or loosening a single calibration nut.

Major Components





SAFETY

Please be aware of pinch point hazards marked on the machine with this symbol:

While every effort has been made to make the seeder as safe as possible there are a few pinch point locations that can't be guarded for functional purposes. Always keep hands clear of these areas.

Disconnect power before installing or removing the seeder from the planting vehicle.

Disconnect power before making any adjustments or calibrating the seed meter.

Disconnect power before filling or emptying the seed hopper.

Always keep the seeder in the "Lift" position when finished planting or when removing from the planting vehicle. Always make sure the FOB switch is in the "Lift" position before reconnecting power.

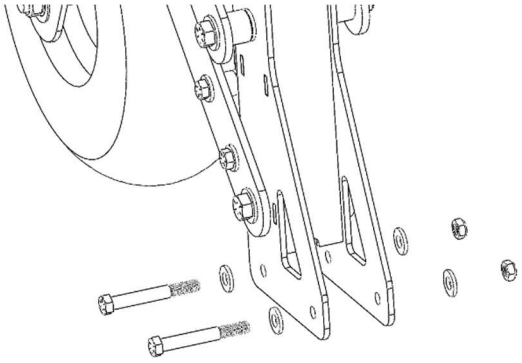
Always keep a safe distance from the seeder while in motion. This machine is not designed to be ridden on by anyone or anything.

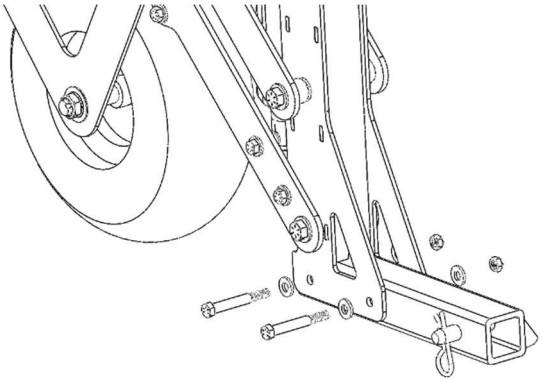
Never attempt to attach or tow anything behind the seeder.

Never allow children to operate equipment.

ASSEMBLY

Your Down Burst Seeder is already 90% assembled and only needs to have the 2” hitch tube installed to be fully operational. Remove the 3/8” Bolts from the lifting tower using a 9/16” wrench and socket. Insert the 2” square tube as shown with the hitch pin end pointing away from the ground wheel. Re-install the bolts and washers as shown and tighten securely.





INSTALLING ON PLANTING MACHINE

Hitch Requirements

Your DS760 is designed to fit a standard 2” hitch receiver and is secured with the included hitch pin. For the machine to work properly, the receiver must be between 8” and 16” from the ground. If your receiver is outside the 8” to 16” range, you will need to use an offset hitch adapter to get it within the range. If the vehicle you intend to plant with does not have a 2” receiver already installed most manufacturers offer kits to add one. There are also several “Universal” kits that will work with just about any machine.

With the vehicle safely parked on level ground, measure the height to the bottom of the hitch receiver pocket. The example shown in the image to the right measures 15” which is within the acceptable range.

The clearance required for the lifting actuator tower is 24” high at 8” back from the receiver hitch pin hole when lifted and 27” high while seeding. The easiest way to ensure clearance is to measure with a 24” framing square as shown below. If your receiver is tucked under the machine or if you have a tailgate or rack that extends rearward beyond the receiver more than 8”, you may need to use a hitch extender for the seeder to fit. Please make sure there is some extra clearance when mounted to account for machine bounce while driving. Down Burst Seeders will not be held liable for damage to the planting vehicle.

Align the 8” mark on the inside of the square with the center of the hitch pin and note the measurement at the face of the hitch. In this example it is 5.5”

Insert the square into the hitch pocket and align it to the measurement taken above. The square now replicates how the DS760 will fit on the machine. If the square contacts the machine at any point as well as 3” above the square, you will need to use a hitch extender to gain clearance.

If you determined a hitch extender or offset is needed for the DS760 to fit your machine there are a myriad of options available on the market. Note that an offset adapter will also inherently extend the hitch at the same time. Here are just a few examples of what could be used.

Mounting to the planting machine

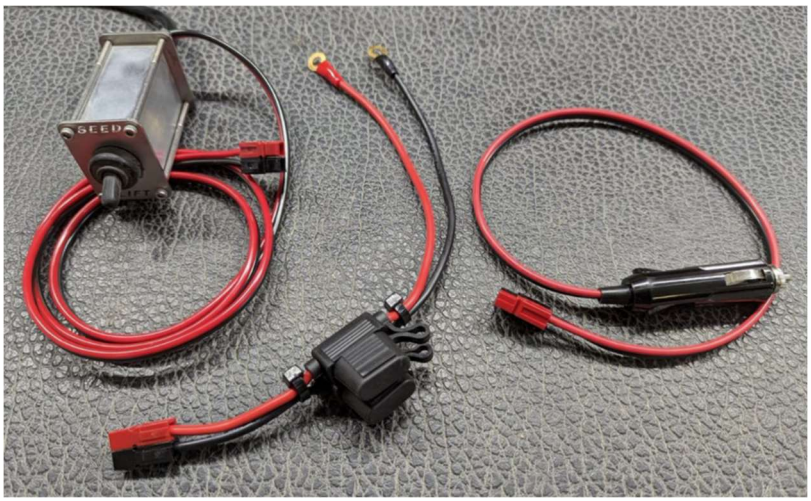
The DS760 should always be in the lifted position when it is not in use. This will ensure all over-travel is taken up, so the pivot links don't move unexpectedly during handling. Note the pinch point warning labels on the machine and keep hands clear of these areas.

Lift the seeder using the upper pivot tube as a handle. Slide the 2" tube into the hitch receiver and install the hitch pin.

Installing the Drop Tube

Remove the clevis pins from the seed discharge chute. Place the drop tube over the chute aligning the mounting tabs with the pin holes and re-install the pins. Make sure the pins are fully seated so that the wire clasp is retained from rotation by the notches in the drop tube side tabs.

Electrical Requirements



The seeder requires 12V DC power and can draw up to 15amps while lifting. Power can be provided via the included 12V aux plug cable, or it can be hardwired directly to the vehicle battery with the included ¼" ring terminal cable. Connect the red wire to the positive battery terminal and the black wire to the negative terminal. If using the 12V aux plug, please check the vehicle owner's manual to make sure it can provide 15amps. If it cannot, or you are unsure, we recommend using the ring terminal cable to hardwire directly to the battery. Both cables are equipped with Powerpole connectors that mate with the remote toggle power cable. The 12V aux plug uses a standard 15A glass tube fuse while the ring terminal cable uses standard 15A ATO/ATC automotive fuses.

Important: the seeder is intended to operate with the planting vehicle engine running and providing consistent voltage between 13.5V and 15V. Do not attempt to power the seeder with a stand-alone battery.

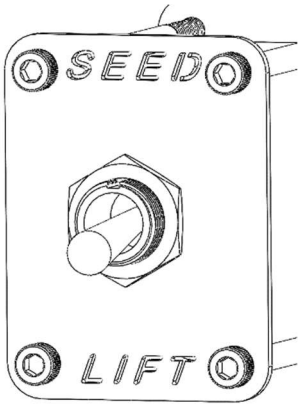
Remote Toggle Mounting and Cable Routing

Mount the remote toggle switch within reach of the operator and secure using the included wire wrap or other means. Make sure any excess cable is secured so it can't be damaged during operation. **BEFORE connecting to power make sure the toggle switch is in the "Lift" position.** Connect the power cable to the previously installed Powerpole connector – Or - plug in the 12V aux plug. Always stand clear of the seeder while connecting power. The seeder is now ready for use.

BASIC OPERATION

Operating the DS760 is very simple. There are two operating positions, 1) Seed and 2) Lift, controlled by the remote toggle switch. The lifting actuator has internal limit switches which will automatically stop the actuator at the full up or Lift position, and at the full down or Seed position. You will notice there is a center position on the toggle switch which turns off the blower and will stop the lifting actuator mid-stroke. This is only used during calibration of the seed meter and should not be used while planting. The upper pivot link of the lifting actuator allows the machine to float and stay in contact with the ground over rough or uneven terrain with the actuator fully extended.

Planting operation is as follows.



1) Drive to the planting location and stop when the drop tube is positioned where you want seeding to start.
2) Switch the toggle to Seed – the blower will turn on and the machine will lower to the ground. Any rotation of the ground wheel, forward or reverse will now spread seed.
3) Drive across the area to be planted and stop when the drop tube is positioned where you want seeding to stop.
4) Switch the toggle to Lift – the blower will turn off and the machine will lift off the ground locking the ground wheel and stopping spread of seed.
5) Reposition the vehicle to the starting point for the next seeding pass. Repeat until the planting area has been covered.

Attention: the ground wheel driven seed meter ensures accurate seed rates at any reasonable speed. However, it is gravity fed meaning excessive speed will result in lighter than expected seed rates. We recommend a maximum planting speed of 8mph to eliminate the effects of gravity on seed rate.

SEED METER OPERATION

The DS760 uses a proven fluted roller seed meter similar to those found on agricultural grain drills. The meter controls the seed rate by adjusting the length of the flutes allowed to fill with seed as the roller rotates. The flute length is set by tightening or loosening the spring-loaded meter calibration nut. The adjustment range is from 0 to 24 full turns of the calibration nut. A stainless-steel feeler gage is provided with steps at 4, 8, 12, 16, 20 and 24 full turns. The gage makes large adjustments to the meter quick and easy, after which the calibration nut can be further adjusted to fine tune the seed rate.

Attention: the calibration nut should only be turned by hand, never use a wrench or other tool to adjust the nut as this could cause damage to the meter.

Setting the Seed Rate

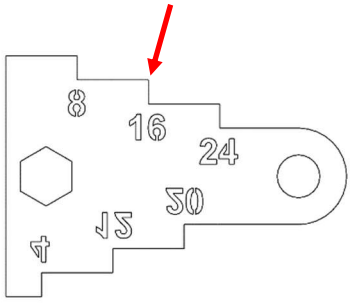
Seed rate is set by using the Seed Rate table provided with the machine. Find the species you are planting on the left-hand column of the table. If you are planting a seed mix, set the rate for the seed species that makes up the largest percentage of the mix. The row to the right of the species shows the seed rate in Lb/Acre for every full turn of the calibration nut. Find the step on the gage that is closest to the number corresponding to the seed rate you want. Loosen the calibration nut by hand until that step on the gage just fits into the meter. Loosen the nut additional turns to get to the seed rate you want (see Example below.)

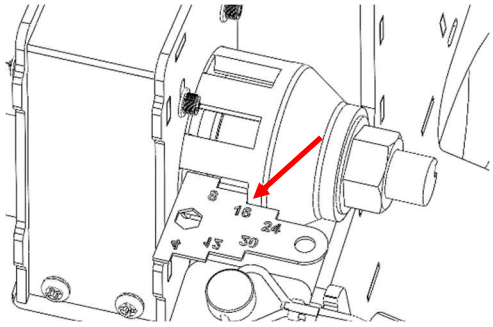
Attention: you should only open or increase the meter setting when the hopper is filled with seed. Trying to make large decreases to the meter setting while it's filled with seed could damage the seed and jam the meter. Always fill the hopper with the meter fully closed (0-meter setting) or after the seed rate has already been set.

DS760 Seed Rate Table

Meter Setting (Full Turns)	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Air Baffle	For Meter 0 to 9 Close Baffle										For Meter Greater than 9 Open Baffle														
Purple Top Turnips	1.2	2.3	3.5	4.7	5.8	7.0	8.2	9.3	10.5	11.7	12.8	14.0	15.2	16.3	17.5	18.7	19.8	21.0	22.2	23.3	24.5	25.7	26.9	28.0	29.2
Dwarf Essex Rape	1.1	2.3	3.4	4.6	5.7	6.9	8.0	9.1	10.3	11.4	12.6	13.7	14.9	16.0	17.1	18.3	19.4	20.6	21.7	22.9	24.0	25.1	26.3	27.4	28.6
Daikon Radish	1.1	2.2	3.3	4.5	5.6	6.7	7.8	8.9	10.0	11.1	12.2	13.4	14.5	15.6	16.7	17.8	18.9	20.0	21.2	22.3	23.4	24.5	25.6	26.7	27.8
Chicory (coated)	1.3	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5	13.8	15.0	16.3	17.5	18.8	20.0	21.3	22.5	23.8	25.0	26.3	27.5	28.8	30.0	31.3
Ladino White Clover (coated)	1.5	3.0	4.5	5.9	7.4	8.9	10.4	11.9	13.4	14.8	16.3	17.8	19.3	20.8	22.3	23.7	25.2	26.7	28.2	29.7	31.2	32.6	34.1	35.6	37.1
Alsike Clover (coated)	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	19.4	20.9	22.4	23.9	25.4	26.9	28.4	29.9	31.4	32.9	34.4	35.9	37.4
Balansa Clover (coated)	1.6	3.1	4.7	6.3	7.9	9.4	11.0	12.6	14.2	15.7	17.3	18.9	20.4	22.0	23.6	25.2	26.7	28.3	29.9	31.4	33.0	34.6	36.2	37.7	39.3
Crimson Clover	1.4	2.8	4.3	5.7	7.1	8.5	9.9	11.4	12.8	14.2	15.6	17.0	18.5	19.9	21.3	22.7	24.1	25.6	27.0	28.4	29.8	31.2	32.7	34.1	35.5

Example: if you want to plant Crimson Clover at 27Lb/Acre you would set the meter to 18 full turns. Loosen the meter calibration nut until the step labeled "16" on the gage just fits into the meter. Now loosen the nut an additional 2 full turns to set it to 18.





Attention: The unique design of the seed meter coupled with the precise gaging method used to set it results in very low actual seed rate error using the method above. Seed size, moisture content and coating thickness vary from source to source and year to year. This seed variation can result in actual seed rates being up to 10% off from the published table. Performing the hand calibration process below will eliminate the seed variation resulting in less than 1% actual seed rate error. This process can also be used to set the meter for seed species not listed in the seed rate table. Down Burst Seeders are designed to make hand calibration as fast and as simple as possible.

Seed Rate Table

DS760 Seed Rate Table																								
Meter Setting (Full Turns)	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Air Baffle	For Meter 0 to 9 Close Baffle										For Meter Greater than 9 Open Baffle													
Seed Rate (Lb/Acre)																								
Purple Top Turnips	1.2	2.3	3.5	4.7	5.8	7.0	8.2	9.3	10.5	11.7	12.8	14.0	15.2	16.3	17.5	18.7	19.8	21.0	22.2	23.3	24.5	25.7	26.9	28.0	29.2
Dwarf Essex Rape	1.1	2.3	3.4	4.6	5.7	6.9	8.0	9.1	10.3	11.4	12.6	13.7	14.9	16.0	17.1	18.3	19.4	20.6	21.7	22.9	24.0	25.1	26.3	27.4	28.6
Daikon Radish	1.1	2.2	3.3	4.5	5.6	6.7	7.8	8.9	10.0	11.1	12.2	13.4	14.5	15.6	16.7	17.8	18.9	20.0	21.2	22.3	23.4	24.5	25.6	26.7	27.8
Chicory (coated)	1.3	2.5	3.8	5.0	6.3	7.5	8.8	10.0	11.3	12.5	13.8	15.0	16.3	17.5	18.8	20.0	21.3	22.5	23.8	25.0	26.3	27.5	28.8	30.0	31.3
Ladino White Clover (coated)	1.5	3.0	4.5	5.9	7.4	8.9	10.4	11.9	13.4	14.8	16.3	17.8	19.3	20.8	22.3	23.7	25.2	26.7	28.2	29.7	31.2	32.6	34.1	35.6	37.1
Alsike Clover (coated)	1.5	3.0	4.5	6.0	7.5	9.0	10.5	12.0	13.5	15.0	16.5	18.0	19.4	20.9	22.4	23.9	25.4	26.9	28.4	29.9	31.4	32.9	34.4	35.9	37.4
Balansa Clover (coated)	1.6	3.1	4.7	6.3	7.9	9.4	11.0	12.6	14.2	15.7	17.3	18.9	20.4	22.0	23.6	25.2	26.7	28.3	29.9	31.4	33.0	34.6	36.2	37.7	39.3
Crimson Clover	1.4	2.8	4.3	5.7	7.1	8.5	9.9	11.4	12.8	14.2	15.6	17.0	18.5	19.9	21.3	22.7	24.1	25.6	27.0	28.4	29.8	31.2	32.7	34.1	35.5
Crimson Clover (coated)	1.4	2.8	4.1	5.5	6.9	8.3	9.7	11.1	12.4	13.8	15.2	16.6	18.0	19.4	20.7	22.1	23.5	24.9	26.3	27.7	29.0	30.4	31.8	33.2	34.6
Medium Red Clover (coated)	1.4	2.8	4.3	5.7	7.1	8.5	9.9	11.3	12.8	14.2	15.6	17.0	18.4	19.8	21.3	22.7	24.1	25.5	26.9	28.3	29.8	31.2	32.6	34.0	35.4
Birdsfoot Trefoil (coated)	1.4	2.9	4.3	5.7	7.2	8.6	10.0	11.5	12.9	14.3	15.7	17.2	18.6	20.0	21.5	22.9	24.3	25.8	27.2	28.6	30.1	31.5	32.9	34.4	35.8
Vernal Alfalfa	1.5	2.9	4.4	5.9	7.3	8.8	10.3	11.7	13.2	14.7	16.1	17.6	19.1	20.5	22.0	23.5	24.9	26.4	27.9	29.3	30.8	32.3	33.7	35.2	36.7
Timothy	1.5	2.9	4.4	5.9	7.3	8.8	10.2	11.7	13.2	14.6	16.1	17.6	19.0	20.5	22.0	23.4	24.9	26.3	27.8	29.3	30.7	32.2	33.7	35.1	36.6
Switchgrass (RC Bigrock)	1.2	2.5	3.7	5.0	6.2	7.5	8.7	10.0	11.2	12.5	13.7	15.0	16.2	17.5	18.7	20.0	21.2	22.5	23.7	25.0	26.2	27.5	28.7	30.0	31.2
Sorghum Sudangrass	1.3	2.6	3.9	5.2	6.5	7.7	9.0	10.3	11.6	12.9	14.2	15.5	16.8	18.1	19.4	20.6	21.9	23.2	24.5	25.8	27.1	28.4	29.7	31.0	32.3
Egyptian Wheat	1.3	2.7	4.0	5.4	6.7	8.1	9.4	10.8	12.1	13.5	14.8	16.2	17.5	18.9	20.2	21.6	22.9	24.3	25.6	27.0	28.3	29.7	31.0	32.4	33.7
Seed Mixes	Use table above for the highest percentage species in the mix - OR - Perform calibration process below																								
Seeds Not Listed	Perform calibration process below or check www.downburstseeders.com for latest table																								
Calibration Process: (see Owners Manual for detailed instructions)	Seed Rate (Lb/Acre) = Test Weight in Grams divided by 4.43 Seed Rate (Lb/Acre) = Test Weight in Ounces divided by 0.156 Test Weight = weight of seed metered out from 25 full turns of the ground wheel measured in Grams or Ounces																								

Hand Calibrating the Meter

Calibration "tests" the seed rate (set by using the seed rate table described above) and then allows fine tuning the meter to get the exact rate you want. This is done by turning the ground wheel by hand, catching the seed that is metered out, and then weighing it to determine the "test weight." You can then find your test weight in the calibration table to determine what the actual planting rate will be. Or you can simply divide the test weight by the calibration factor to get the exact seed rate in Lb/Acre. You can then make small adjustments to the calibration nut and repeat the test until the desired seed rate is achieved.

Calibration Setup

1) Safely Park the vehicle on flat level ground. Make sure the seeder is in the Lift position.
2) Remove the drop tube and set aside.
3) Using the center Off position on the remote toggle, adjust the height of the seeder so that a container can be placed directly under the seed chute below the meter to catch the seed. The ground wheel should be elevated, fully unlocked, and able to be turned by hand.
4) Disconnect power and then continue with the procedure below.

Calibration Procedure

1) Use the Seed Rate Table to set the meter as described above. If the species you are planting is not listed, open the meter 1 full turn for every Lb/Acre as a starting point.
2) Fill the hopper with the seed to be planted and place a clean container under the seed chute.
3) Turn the wheel a few times to fill the meter with seed. Dump any expelled seed back into the hopper and place the container back under the chute.
4) Rotate the wheel exactly 25 full turns. You can make a mark on the wheel to make it easier to count the turns.
5) Weigh the seed using a digital kitchen scale or similar. Use the Calibration Table (next page) to determine the seed rate for this test weight or divide the test weight by the calibration factor to get the exact seed rate. If measuring in grams divide by 4.43, if measuring in ounces divide by 0.156.
6) Adjust the meter accordingly and repeat steps 3 through 5 until you have the exact seed rate you want. For most small seed species 1 full turn of the calibration nut will change the seed rate 1 to 1.5 Lb/Acre.

When finished with the calibration, reconnect power and return the seeder to the Lift position. Re-install the drop tube and you are ready to plant. Precise calibration can usually be achieved in just one or two adjustments of the meter and the whole process takes less than 10 minutes to complete. Calibrating the meter allows you to truly "know what you're putting down!"

Calibration Table

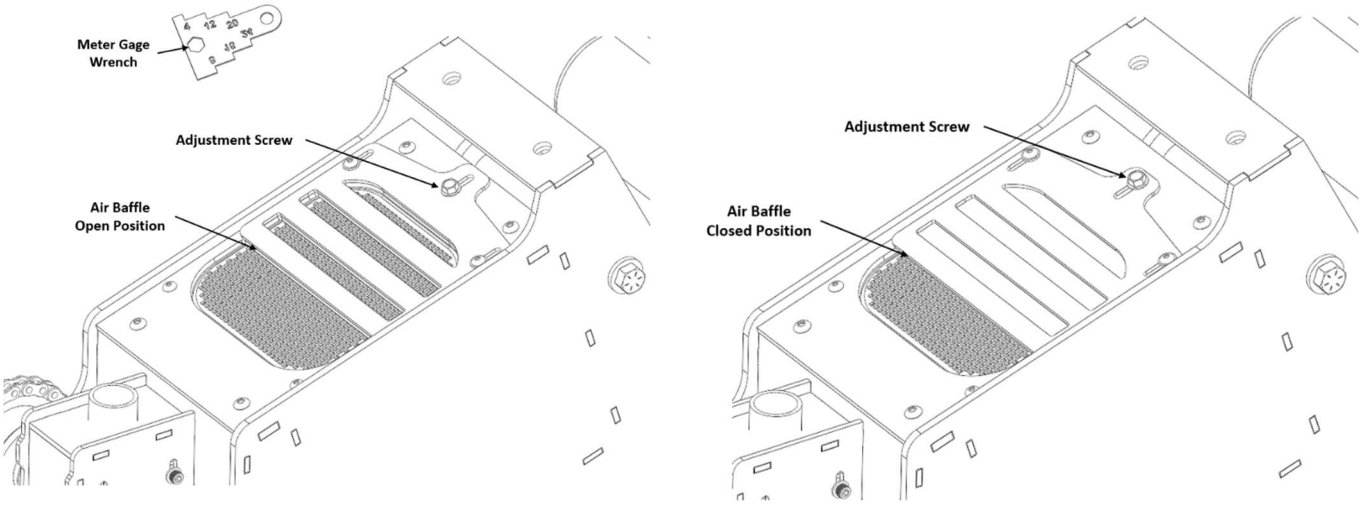
DS760 Calibration Table

Test Weight = 25 Turns of the Ground Wheel

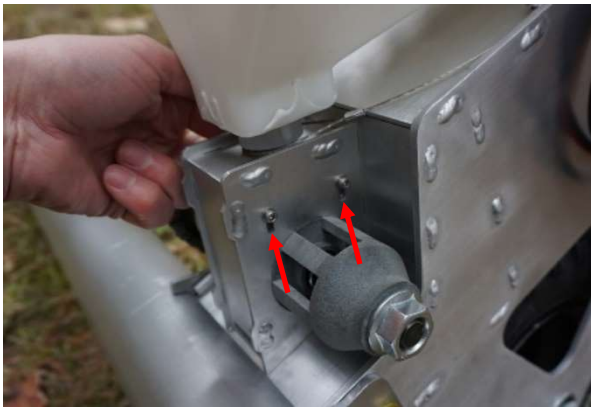
Seed Rate (Lb/Acre)	Test Weight (Grams)	Test Weight (Ounces)
1	4.4	0.16
2	8.9	0.31
3	13.3	0.47
4	17.7	0.63
5	22.2	0.78
6	26.6	0.94
7	31.0	1.09
8	35.4	1.25
9	39.9	1.41
10	44.3	1.56
11	48.7	1.72
12	53.2	1.88
13	57.6	2.03
14	62.0	2.19
15	66.5	2.34
16	70.9	2.50
17	75.3	2.66
18	79.7	2.81
19	84.2	2.97
20	88.6	3.13
21	93.0	3.28
22	97.5	3.44
23	101.9	3.59
24	106.3	3.75
25	110.8	3.91
26	115.2	4.06
27	119.6	4.22
28	124.0	4.38
29	128.5	4.53
30	132.9	4.69
For Exact Seed Rate Divide Test Weight by:	4.43	0.156

Air Baffle Operation

To achieve optimum seed spread the DS760 is equipped with an air baffle system to restrict air flow for low seed rate plantings. The air baffle is located directly under the hopper and has 2 positions, open or closed. The seed meter setting determined above will determine how the baffle should be set. If the meter is set to 9 turns or less, close the baffle. If the meter is set larger than 9 turns, open the baffle. To adjust the baffle, loosen the adjustment screw and slide the baffle plate to the desired position and then retighten the screw. The meter gage can be used as a wrench to loosen and tighten the screw. Do not over tighten, a few pounds of force on the wrench is sufficient to lock the baffle in place. The open and closed positions are shown below. (The hopper is hidden for clarity; you do not need to remove it.)



Emptying the Hopper



If you are finished planting and still have some seed remaining in the hopper it can be emptied by following the Hand Calibration procedure above. Keep rotating the wheel by hand until the hopper is empty. To make this go faster, open the meter to the 24 setting and lift and hold the small spring-loaded follower bolts upwards. This will allow seed to flow around the meter as well as through it when the ground wheel is rotated. Keep your fingers clear of the meter openings while rotating the wheel. A clean shop vac can also be used to empty the hopper. We recommend emptying the hopper and rotating the wheel/meter until all leftover seed is expelled before storing the machine for the season.

MAINTENANCE

The DS760 requires very little maintenance to stay in perfect working order. The entire chassis is made of welded Aircraft Grade Aluminum with no paint or coatings to worry about damaging. The aluminum will develop a patina of aluminum oxide over time which protects the metal from corrosion. All fasteners are either Stainless Steel or Zinc Yellow-Chromate Plated Steel to protect against corrosion. All rotating shafts ride on sealed ball bearings that do not require lubrication. All pivot points use Nylon sleeve bearings for smooth long wearing operation without grease.

Attention: The DS760 is designed and intended to spread ONLY seed. Any other material such as fertilizer, salt, sand, etc. will damage the machine.

Air Intake Screen

Inspect the air intake screen beneath the air baffle frequently for build up of debris. Remove any debris before planting with the machine.

Drop Tube Clean-out Plugs

If planting in excessively wet or muddy conditions make sure the drop tube is clear of any mud or debris that could block the seed holes. Remove both clean-out plugs to inspect. A clean rag or similar can be pushed through the tube to remove any debris.

Chain and Sprockets

The chain and sprockets are black oxide coated steel and do require a coating of oil to stay rust free. We recommend a light coating of WD40 once or twice a season or anytime the machine gets wet. Do not apply heavy weight chain or gear oil to the meter chain as this will just attract dirt and cause it to wear.

Ground Wheel

The ground wheel is a pneumatic tire and could leak down over time. If you notice the tire looks low fill with air to the pressure indicated on the sidewall of the tire. Do not over-inflate as this could change the diameter of the tire and affect calibration accuracy.

Seed Meter

If you cannot easily close the meter to the zero setting there may be debris in the fluted roller. To correct this, remove the calibration nut completely and slide the meter components off the end of the shaft. Lift slightly on the follower bolts to allow the roller to pull out easily from the meter housing. Inspect the roller flutes and remove any debris. Re-install the meter components and calibration nut and check that the meter can now be fully closed.