Elston Manufacturing GA-500 Owners Manual



Table of Contents

1	Safe	ety Information	1
2	Gen	eral Information	2
3		embly Instructions	
4	Usir	ng Your Gopher Getter	8
	Initial	Setup	8
	1)	Setup of Bait Box	8
	2)	Depth of Torpedo Tube:	8
	3)	Depth of Coulter Blade	9
	4)	Position of the Hitch Clevis on the Frame	10
	5)	Height of Transport Tire	11
	Operat	ting Instructions	12
	Ope	rating Tips	14
5	Mai	ntenance	15
	Every	use	15
	Every	season or 200 lbs. of bait	15
	GA-50	00 Grease Points	15
6	App	lication Rates for Gopher Getter	17
	Stan	ndard Machine Setup	17
	Roll	led Oats Machine Setup	17
7	Part	rs List	1-1



1 Safety Information

A WARNING

The baits used in this machine are highly toxic and can cause serious injury or death if used improperly. Always follow all precautions on the label for the bait you use. Store bait as recommended between applications. Do not store bait in the bait box.

A WARNING

Improper operation of a tractor with an implement can cause serious injury or death. If you are the least bit unsure of your ability to safely operate a tractor with an implement, find someone you respect with experience to show you how to operate a tractor safely.



Please read this manual and all safety stickers on the gopher getter before operating it.

Before continuing, there are several safety ideas that are always worth repeating.

Working for years without an accident is not the same as working safely. - It is possible to do something unsafe for years and not be hurt. This does not mean it is alright to continue this unsafe behavior; it just means you have been lucky. For example, a farmer who never had a serious accident wasn't wearing his safety belt. He rolled his tractor while moving round bales out of a ditch and he ended up underneath the tractor. Thankfully, in this case, he was only hurt, not killed, thanks to the good hearing of a neighbor who heard his calls for help. We can agree that is not operating safely. There are numerous stories of farm injuries with a similar theme. Please take the time to consider all those little things you do before your luck runs out.

Don't take short cuts with safety when you are in a hurry. - It is tempting to think that just because it will not take long nothing will go wrong. You might get lucky but then again you might end up as a sad story in the newspaper. <u>DO NOT take shortcuts.</u>





2 General Information

Thank you for purchasing a Gopher Getter from Elston Manufacturing. We are confident this product will provide you with years of service.

This gopher getter works by creating an artificial tunnel. The poison is dropped into the tunnel where the gophers find it and die underground out of reach of other animals. The depth of the tunnel is adjustable to better match the depth that the gophers are digging in your area.

The gopher getter will apply approximately one pound per acre of Elston gopher getter bait when the burrows are spaced 25 feet apart. When used with rolled oats and the seeder slide with the larger 7/8" opening, the application rate will also be slightly less than one pound per acre. These application rates are an average for the whole field and will be higher for severe infestations.

We always welcome feedback on our products. If you have comments, suggestions, or problems with the unit please contact us at 1-800-845-1385 or email at sales@elstonmfg.com.





3 Assembly Instructions

Before beginning assembly, verify that all parts were shipped with the gopher getter. The Gopher Getter is shipped from the factory in a crate with the six pieces shown in Figure 2. Three of the pieces weigh more than 100 lbs so please plan accordingly when removing the parts from the crate and assembling the unit.

Attention

A hydraulic cylinder is required to raise and lower the transport wheels and is not included. A variety of sizes work but a 2"x8" ASAE or a standard 2"x10" cylinder is recommend as these sizes are easy to find and inexpensive. If you use a different size cylinder, it must have a retracted length between 19 and 22" and an extended length between 28 ½" and 31". See Figure 1 below.



Figure 1: Typical 2" X 8" ASAE Standard Hydraulic Cylinder



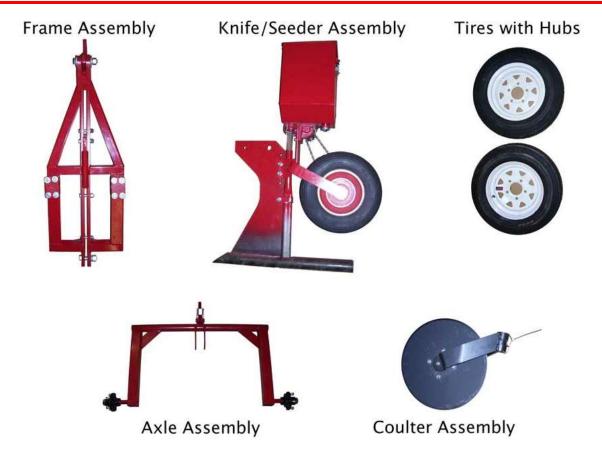


Figure 2: Parts of GA-500 as Shipped
Inside the bait box you will find a parts kit that includes the parts shown in Figure 3.

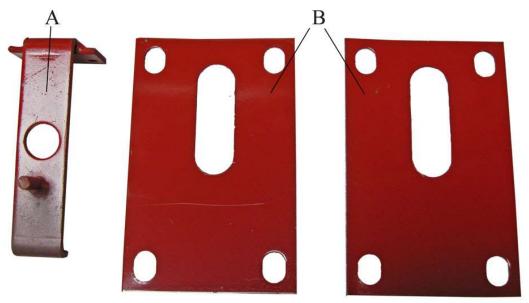


Figure 3: Parts Kit



Label	Description	
A	G4-208A Seeder Slide 7/8" Hole	
В	G4-286 Lower Poison Guide Plate	

Table 1: Contents of Parts Kit

If after reading the assembly steps below, you have any questions please refer to the parts list in the back of this manual. It presents much of the information below in a more visual way you may find easier to understand.

- 1) Remove the parts from the crate.
- 2) Attach the seeder/knife assembly to the frame assembly using the two bolts already attached to the frame. Do not over tighten these bolts as that will prevent the bolts from working as designed. The smaller bolt is designed to shear when the knife hits an underground obstruction before damage occurs to the gopher getter. When this bolt shears, the large bolt must be loose enough to allow the knife and the parts attached to it to pivot. Once assembled it will look like Figure 4. If the front of the frame is supported the unit will be stable.



Figure 4: Frame and Seeder/Knife Assembly Mounted Together

4) Attach the wheels to the axle assembly using the lug bolts threaded onto the wheel hubs on the axle assembly.





Figure 5: Axle Assembly

5) Remove the bolts holding the axle bearing assembly to the frame and take off the top casting on each assembly as shown in Figure 6.

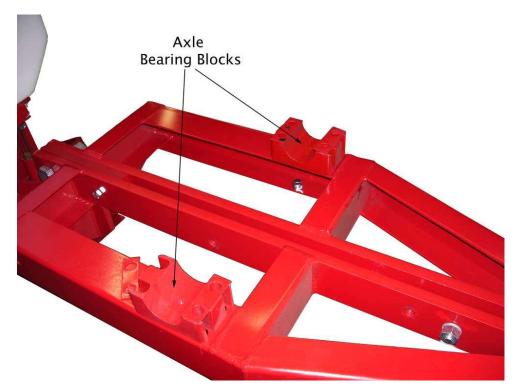


Figure 6: Axle Bearing Blocks Ready for Axle Assembly



6) Roll the axle assembly (w/ wheels) into position and place it inside the axle bearing assembly being careful not to install the axle on backward. Reattach the axle bearing assembly to the frame using the bolts removed in step 5. When finished it should appear as shown below in Figure 7.



Figure 7: Image of Axle Assembly as Installed

7) Next attach the coulter assembly to the frame. The coulter shank is already attached to the frame and should be positioned so the shaft on the shank is closer to the front of the frame for a 22" coulter and closer to the knife for a 18" coulter (see Figure 8) After the coulter shank is in place, the coulter assembly can be slid onto the coulter shank and clamped into place with the coulter clamp attached to the coulter assembly.



Figure 8: 18" Coulter Assembly as Installed

8) Finally, attach hydraulic cylinder to the frame and tractor as shown in Figure 1.



4 Using Your Gopher Getter

Initial Setup

You have 5 primary adjustments with this machine: the position of the hitch clevis on the frame, the depth of cut of the coulter, the height of the transport tire, the depth of the torpedo tube and the setup of the bait box.



Figure 9: Location of Initial Adjustments

1) Setup of Bait Box

Your gopher getter is already setup for use with Elston gopher bait (milo w/0.5% strychnine). If you are using other types of poison such as oats or cracked corn or products with a lower amount of effective ingredients, you will need to replace the factory seeder slide with a seeder slide with a larger (7/8") opening (Part # G4-208A). One of these can be found in the parts package.

The application rate can also be varied by changing the number of guide plates (see G4-286 in Figure 3). The number of plates can be varied between 0 and 4 with more plates giving a higher application rate as shown in Application Rates for Gopher Getter (page 17).

2) Depth of Torpedo Tube:

The depth of the torpedo tube should be set so the gopher getter makes a tunnel at the depth that gophers tunnel in your area. Since gophers dig at a range of depths even in the same area, aim to set the gopher getter to the average depth. It is not necessary to be exact.



To set the depth of the torpedo tube:

- 1) Loosen and remove the bolts attaching the rear (packer) wheels to the gopher getter knife assembly.
- 2) Move the packer wheels up or down to achieve the desired depth and remove the bolt. Using the top bolt will set the torpedo tube to a depth of approximately 10" and the bottom bolt to approximately 6". The exact depth will depend on the angle of the torpedo tube.

3) Depth of Coulter Blade

The best depth is just deep enough to do the job. If it is too deep, it will be more difficult to get the gopher getter into the ground. If it is too shallow, roots will catch on the knife and tear up the ground as shown in Figure 10.



Figure 10: Roots catching on knife due to coulter blade set too shallow

When operating in sod or pasture:

• Set the coulter just deep enough to cut the upper layer of roots, approximately 4 inches.

When operating in alfalfa:

• Set the coulter deeper so that the bottom of the 22" coulter blade is \(\frac{1}{4} \)" or more below the bottom of the torpedo tube as shown in Figure 11.



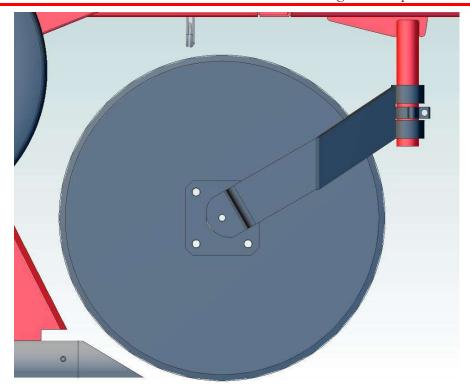


Figure 11: Coulter placement for application in alfalfa

The depth of the coulter can be set by loosening the set screw on the coulter clamp and moving the coulter up or down as necessary. Make sure the coulter will not hit the frame as it runs though the soil and the hub of the coulter will not run though the dirt.

4) Position of the Hitch Clevis on the Frame

Moving the hitch clevis to a different mounting hole, as shown in Figure 12, will control the angle of the torpedo tube. The torpedo tube should be sloping slightly downward at the operating depth. The exact angle will depend on your soil type and moisture levels but a downward slope of a couple of degrees is typically best. If the angle is too steep, the gopher getter will disturb more soil. In addition, at larger angles, the gopher getter fails to effectively get to depth so the packer wheel will turn and bait will drop. If the torpedo tube gets level or starts to slope upward, soil may plug up the torpedo tube and prevent any poison from dropping.





Figure 12: Changing Hitch Clevis on the Frame

5) Height of Transport Tire

Changing the length of the hydraulic cylinder allows you to control the height of the transport tire while allowing a slight variation in height. When transporting the GA-500 on the road, the wheels should be in the position shown in Figure 13. When the unit is all the way in the ground, the wheels should set on the ground but can still be lifted a couple inches above the ground, as shown in Figure 14. This allows the unit to tilt controllably on uneven ground while preventing excessive tilt on side slopes.



Figure 13: Transport Tire Height for Transportation





Figure 14: Transport Tire Height for Bait Application

Operating Instructions

WARNING

The bait used in this machine is highly toxic and can cause serious injury or death if used improperly. Always follow all precautions on the label for the bait you use. Store bait as recommended between applications. Do not store bait in the bait box.

A WARNING

To prevent accidents involving injury or death, do not allow anyone near the tractor or Gopher Getter while the tractor is in motion. Always follow all safety instructions provided with the tractor.

A CAUTION

Risk of expensive damage and possible injury. Always check for and avoid underground pipe or other lines in the area you will be working.

NOTICE

To avoid extensive damage to your machine,

- Never backup or turn while the machine is in the ground
- Always replace the shear bolt with an identical grade 2 bolt.
- Never over tighten the one inch bolt attaching the knife to the frame or the shear bolt. They should loosely clamp the knife and allow it to pivot when the shear bolt fails.
- Always limit your speed to 5 mph or less.
- Avoid large rocks, tree roots, concrete, and culverts whenever possible. Limit your speed further in areas with these hazards.
- Stop quickly when the shear bolt fails.
- Never add more than 500 lbs. combined of weight and down pressure to the machine.



Space your treatments 20 to 30 feet apart in straight, parallel lines in areas active with gophers or bordering areas with high population of gophers that are not treatable (like a neighbors CRP). The gopher getter will apply approximately one pound per acre of Elston gopher getter bait when the burrows are spaced 20 to 25 feet apart, as shown in Figure 15. When used with rolled oats and the seeder slide with the larger 7/8" opening, the application rate will also be approximately 1 lb/acre. These application rates are the average over a whole field and assume an average infestation that requires approximately one third of the field to be treated. If the infestation is more severe the application can be as high as 3 lbs/acre with the factory setup. See page 17 for a table of application rates. The bait will be most effective if applied when gophers are active but high quality food is scarce. Spring and fall are the most effective times - especially spring. When you use any type of gopher bait during the summer, expect reduced control results.



Figure 15: Application distance between application passes

As you start and end a pass, smoothly raise and lower the machine with the hydraulic cylinder to minimize damage to the surface of the soil. In an emergency, the gopher getter can be quickly raised but may disturb a significant amount of soil. To limit damage from erosion, avoid making burrows straight down the slope of the hill.

This machine works best in moist soil. It is rarely a problem, but if the soil is too wet, it will stick to the knife and the packer wheels and interfere with the depth setting of the gopher getter. A more common problem is soil that is too dry. When it is, the machine will be very hard to get into the ground and it will refill the tunnel (reducing the effectiveness of the bait). Depending on your soil type, you may find the gopher getter works in a huge range of soil moisture conditions or that it works well in a fairly narrow range of conditions.



If you have certain types of soil or low soil moisture, the gopher getter may have trouble getting to full depth (where the packer wheel will turn consistently). First try adjusting the angle of the frame by changing the position of the hitch clevis on the front of the frame as shown in Figure 12. Typically, it works best when the torpedo tube is sloping slightly downward into the soil (a few degrees). Next, reduce the depth of the coulter to reduce the force required to get the machine into the ground. If this doesn't fix the problem, you may add weight from 300 to 500 pounds, maximum.

The advice and tips above and below are generalized ones for gopher getter users throughout the country. For information specific to your area, please speak with the dealer that you purchased the unit from, your local extension agent, or area farmers that use gopher getters.

Operating Tips

- Never turn or back up with the machine in the ground. This will damage the unit.
- Never over tighten the one inch bolt attaching the knife to the frame. The large bolt must be loose enough to allow the knife and the parts attached to it to pivot when the shear bolt fails.
- Never over grease the seeder slide. Too much grease will cause bait to build up on the interior surfaces of the unit when it contacts the bait traveling through the opening in the seeder slide and cause it to plug.
- Always replace the shear bolt with an identical grade 2 bolt. A higher grade bolt like a grade 5 this greatly increase the risk of expensive damage to the frame when you hit a large obstruction.
- Always check that there are no underground pipes or other lines in the area you will be working. There is nothing worse to hit with your gopher getter. (Yes, it's happened.)
- Always start slow especially if you're new to the gopher getter or operating in an unfamiliar field. At no point should you go faster than 5 mph. In some conditions, especially hard or rocky ground, it will be necessary to limit your speed further.
- Always stop quickly when the shear bolt fails. If you are moving quickly and/or the obstruction that you hit is especially tenacious like a tree root or an oddly shaped rock, the tip can catch long enough for the bait box to pivot around and damage itself on the frame.



5 Maintenance

Every use

Inspect torpedo tube/point for excessive wear or damage Inspect shear bolt for damage, replace if necessary

Every season or 200 lbs. of bait

Check if the unit needs to be greased. If so, lightly grease the unit at the grease points packer wheel axle, see Figure 16, on the seeder casting, see Figure 17, and on the coulter hub, see Figure 18. Be careful not to over grease the seeder casting.

Replace any safety decals that are no longer readable.

GA-500 Grease Points

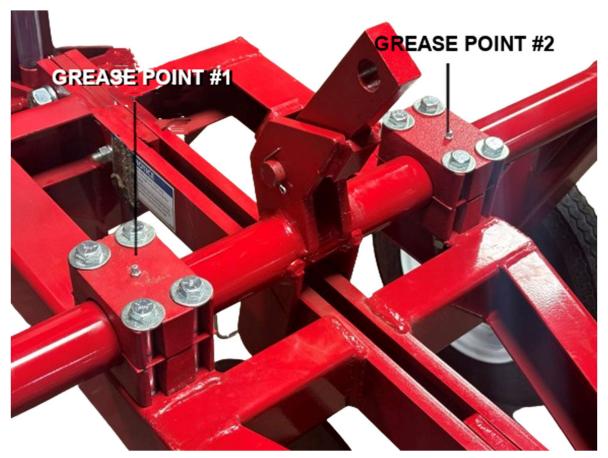


Figure 16: Packer Wheel Axle Grease Points



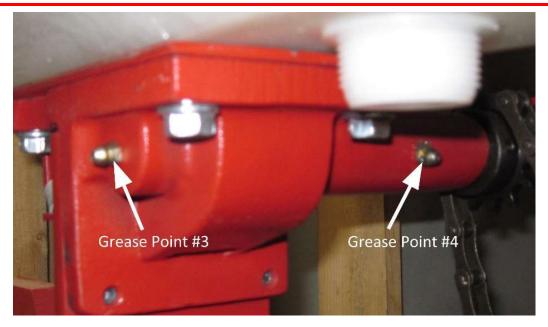


Figure 17: Seeder Casting Grease Points

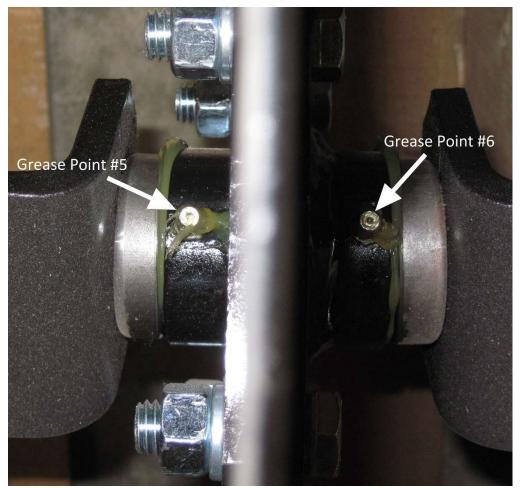


Figure 18: Coulter Hub Grease Points



6 Application Rates for Gopher Getter

Standard Machine Setup

Seeder Slide Used: Standard 5/8" (G4-208) **Bait Used:** Gopher Getter Bait (Milo based)

	Burrow Spacing (feet)			
	20	25	30	
No Plate	2.0 lbs/acre	1.6 lbs/acre	1.3 lbs/acre	
1 Plate	2.7 lbs/acre	2.1 lbs/acre	1.8 lbs/acre	
2 Plates	4.3 lbs/acre	3.4 lbs/acre	2.8 lbs/acre	
3 Plates	5.9 lbs/acre	4.7 lbs/acre	3.9 lbs/acre	

Rolled Oats Machine Setup

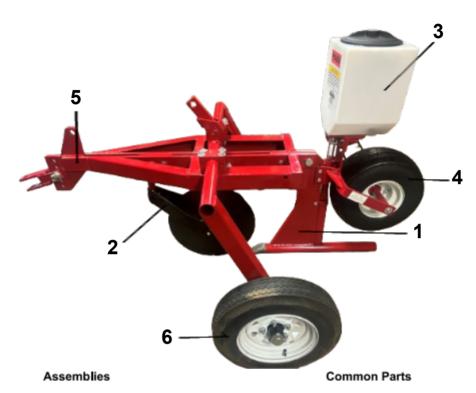
Seeder Slide Used: Oversize 7/8" (G4-208A)

Bait Used: Rolled Oats-based bait

	Burrow Spacing (feet)		
	20	25	30
1 Plate	2.2 lbs/acre	1.6 lbs/acre	1.5 lbs/acre
2 Plates	2.7 lbs/acre	2.1 lbs/acre	1.8 lbs/acre
3 Plates	3.6 lbs/acre	2.9 lbs/acre	2.4 lbs/acre
4 Plates	4.4 lbs/acre	3.6 lbs/acre	3.0 lbs/acre

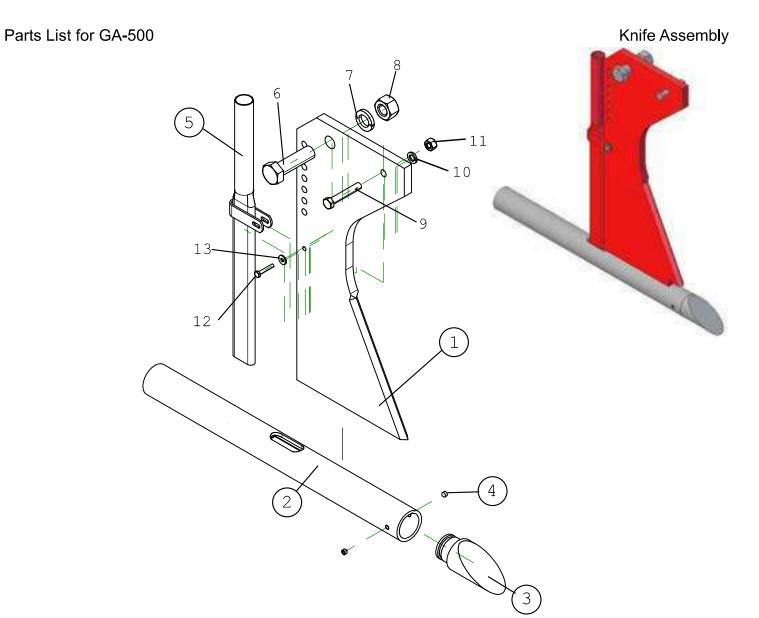
When counting plates, only plates with long slots count toward the total. Long slots are those longer than the slots in the bottom of the bait box.

Parts List for GA-500 Complete Unit



Page # Ref# Name Page # Name Part # Torpedo Point 1 1-2 G1-105 1-2 Knife Assembly Coulter Blade - 18" 2 Coulter Assembly 1-3 G2-370 1-3 3 Seeder Assembly 1-4 Tire G3-125 1-5 1-4 4 Packer Wheel Assembly 1-5 Tripper G4-269 5 Frame Assembly 1-6 Knife Assembly G1-100 1-2 (Complete) 6 Axle Assembly 1-7

Please Call Elston Manufacturing for information on purchasing gopher bait (poison).

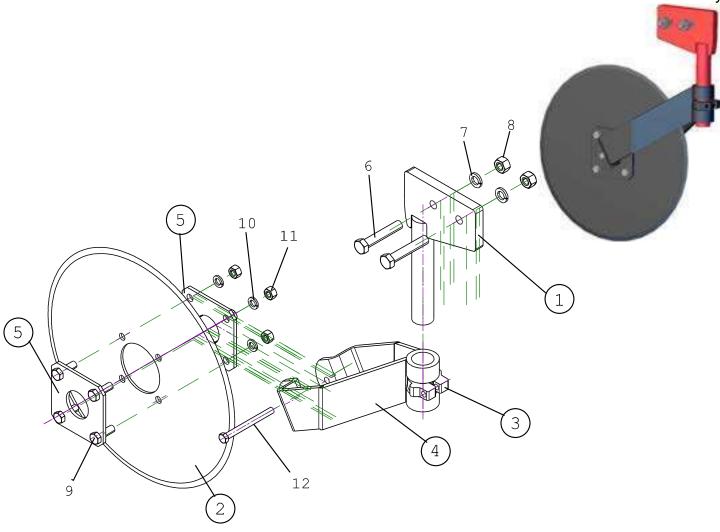


Ref#	Name	Part #	Ref#	Description
1	Knife	G1-103	6	1" x 3 1/2" Hex Head Bolt
2	Torpedo Tube	G1-104	7	1" Lock Washer
0	·	04.405	8	1" Hex Nut
3	Torpedo Point	G1-105	9	1/2" x 3" Hex Head Bolt (Grade 2)*
4	3/8" x 3/8" Set Screw	G1-143	10	1/2" Lock Washer
5	Seeder Tube	G1-193	11	1/2" Hex Nut
1 5	Knifa Aggambly	G1-100	12	1/4" x 1 1/2" Hex Head Bolt
1-5, 12-15	Knife Assembly (complete)	G1-100	13	1/4" Flat Washer (One Not Shown)
12 10	(complete)		14	1/4" Lock Washer (Not Shown)
			15	1/4" Hex Nut (Not Shown)

^{*} This bolt must be grade 2 (or softer). It is designed as a shear bolt to prevent damage when hitting underground obstructions. Using a harder bolt could result in expensive repairs.

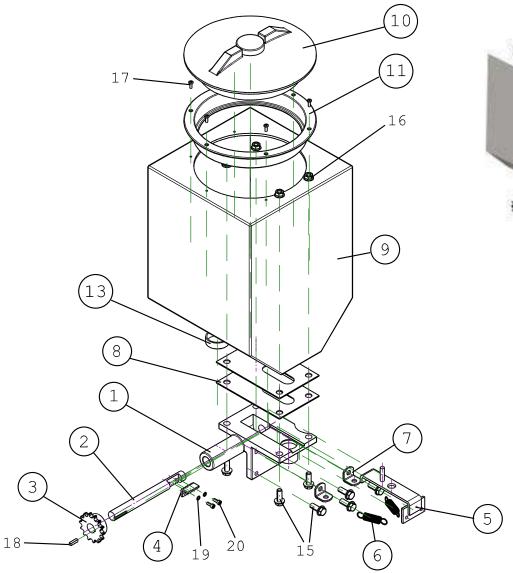
All hardware listed is coarse thread (UNC) and Grade 5 or better unless otherwise noted.



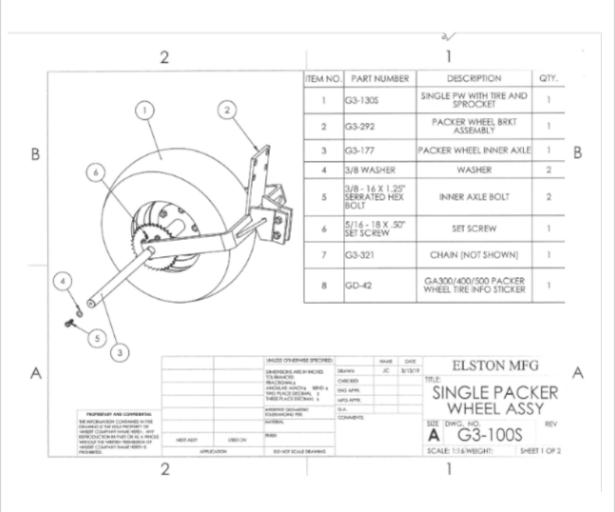


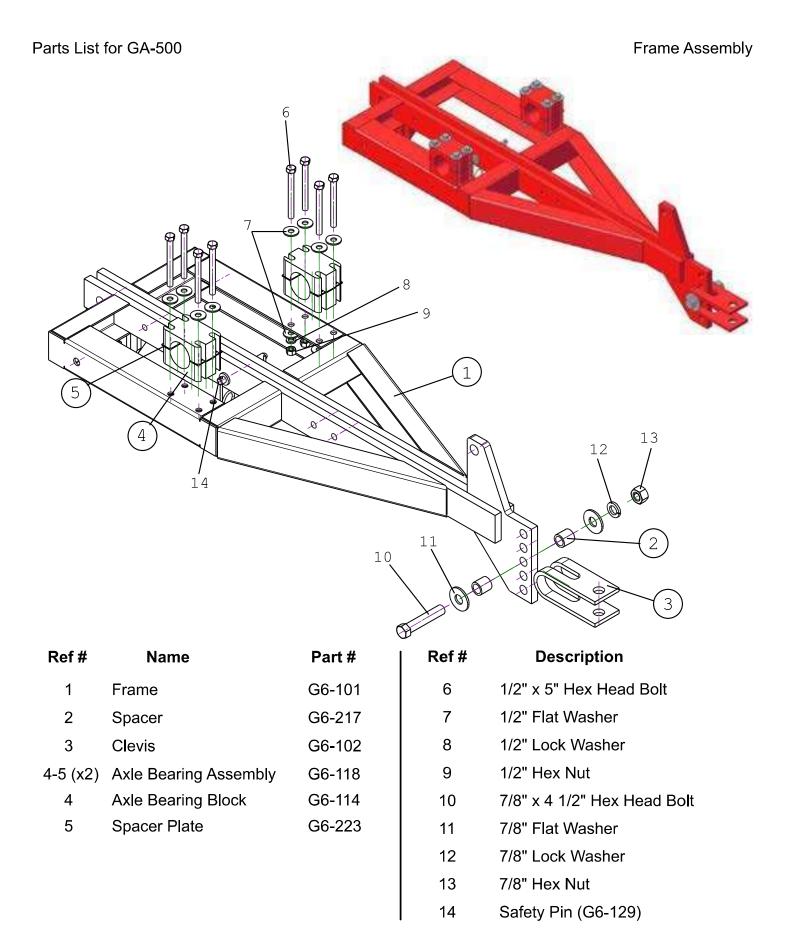
Ref#	Name		Part #	Ref#	Description
1	Coulter Shank		G2-326	6	5/8" x 2 1/2" Hex Head Bolt
2	Coulter Blade - 18"		G2-370-18	7	5/8" Lock Washer
	Coulter Blade - 20" Coulter Blade - 22"		G2-370-20 G2-370-22	8	5/8" Hex Nut
3	Coulter Clamp		G2-375	9	1/2" x 1 1/2" Hex Head Bolt
4	Coulter Side - 18"		G2-380-18	10	1/2" Lock Washer
	Coulter Side - 20" Coulter Side - 22"		G2-380-22 G2-380-22	11	1/2" Hex Nut
_				12	7/16"-20 4 1/2" Hex Head Bolt
5 5 0 14	Coulter Blade Hub	براط	see p. 3-1	13	7/16" Lock Washer (Not Shown)
5,9-14 2,5, 9-14	Coulter Hub Assem Coulter Blade and Hub Assembly	18" 20" 22"	G2-379 G2-390-18 G2-390-20 G2-390-22		7/16" Hex Nut (Not Shown) dware listed is coarse thread (UNC) and
2-5, 9-14	Coulter Assembly	er Assembly 18" G2-100-18 20" G2-100-20 22" G2-100-22		I Grade	5 or better unless otherwise noted.

Seeder Assembly



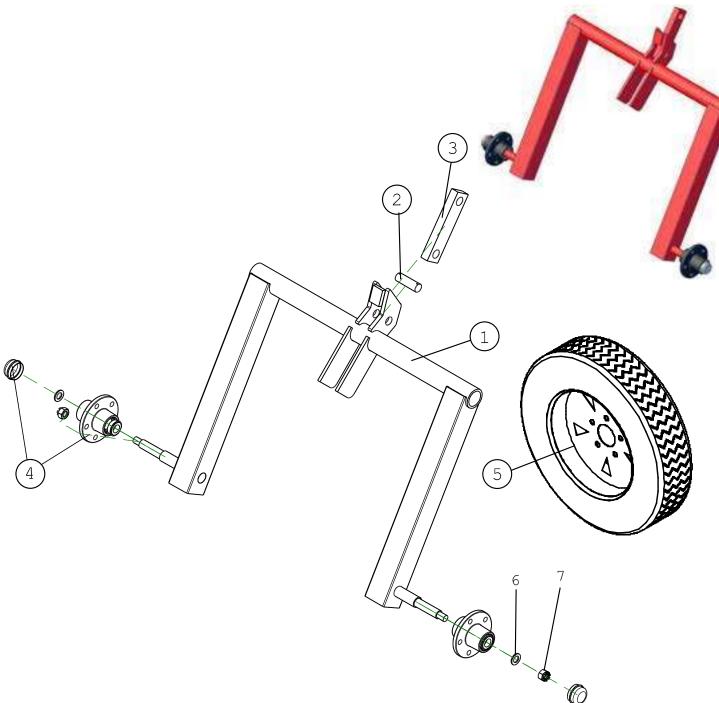
Ref#	Name	Part #	Ref#	Name	Part #
1	Seeder Casting	G4-200	13	Drain Cap	G4-221P
2	Seeder Axle	G4-201	14	Plastic Hose (Not Shown)	G4-122
3	Drive Gear	G4 - 203	9-13,17	Seeder Box Assembly	G4-235P
4	Tripper	G4 - 269	1-20	Seeder Assembly	G4-100P
5	Seeder Slide - 5/8" Hole	G4-208			
	for 7/8" Hole use G4-208A		Ref#	Description	
6	Seeder Slide Spring	G4-215	15	3/8"-16 x 1" Wislock Hex E	Solt
7	Spring Holder Clip	G4-278			
8	Guide Plate - Long Slot	G4-286	16	3/8"-16 Wislock Hex Nut	
	Short Slot	G4-286A	17	#8 1/2" Sheet Metal Screw	,
9	Seeder Box	G4-230P	18	9/16" of 3/16" Square Key	Stock
10	Seeder Box Lid	G4 - 234P	19	#10 Internal Locking Wash	er
12	Lid Retaining Strap (Not Shown)	G4-233P	20	#10-24 1/2" Allen Screw (U	Jse LocTite)
10-12	Seeder Box Lid Assembly	G4-231P			Page 1-4





All hardware listed is coarse thread (UNC) and Grade 5 or better unless otherwise noted.

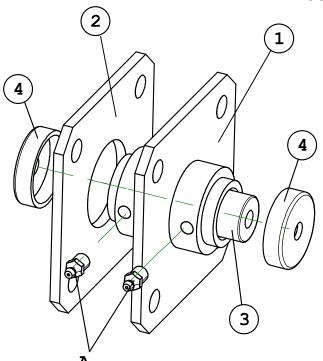
Parts List for GA-500 Axle Assembly



Ref#	Name	Part #	Ref#	Description
1	Axle (Complete)	Replace w/G6-115B	6	3/4" Narrow Flat Washer
2	Cylinder Pin	G6-184	7	3/4" Castle Nut
3	Cylinder Arm	G6-262	8	Cotter Pins (not shown)
4,6,7,9,10	Hub Assembly	G6-117	9	Lug Bolts (not shown)
5	Tire with Rim	G6-116	10	1/2" Lug Nuts (not shown)

Parts List for GA-500 Subassemblies

Coulter Hub



Label	Name	Part #
1	Blade Flange w/ Hub	G2-381
2	Blade Flange	G2-382
3	Inner Bearing	G2-383
4	Bearing Cap	G2-384
А	1/4"-28 SAE-LT Grease Fitting	N/A*

*Not Available Separately

LIMITED WARRANTY TERMS

Elston Manufacturing, Inc. offers a one (1) year, non-transferable, Limited Warranty against specified defects as set forth below for Elston Manufacturing, Inc. product lines from the date of purchase through proof of purchase by providing original receipt.

This Limited Warranty specifically excludes normal wear and tear of products and is provided solely under the conditions that the product has been properly installed, operated and maintained in accordance with all applicable instructions. Proper installation instructions, or operating manuals, are provided with each product and operating condition. Travel, diagnostic cost, labor, transportation and any and all such costs related to reparing a defective product will be the responsibility of the owner. This warranty is extended only to the original owner of any equipment, the end user.

Elston Manufacturing, Inc.'s sole obligation under this Limited Warranty is to, in its sole and absolute discretion, either repair, modify, or replace (i.e. correct), Elston Manufacturing, Inc.'s products subject to this Limited Warranty. The allegedly defective products must be returned to Elston Manufacturing Inc. or an authorized service center freight paid by buyer. After confirmation by Elston Manufacturing, Inc. that a defect does exist in the product that is covered under this Limited Warranty then Elston Manufacturing, Inc. shall, in its sole and absolute discretion, either repair, modify or replace the product(s) and return the product(s) to the owner freight paid by Elston Manufacturing, Inc.

Elston Manufacturing, Inc. products received by Elston Manufacturing, Inc. within one (1) year from the original sale date to customer and found to be defective as referenced above will be corrected as referenced in the previous paragraph at no charge for parts (provided by original factory) or labor but will include freight paid by buyer. Failure to use original factory parts voids this warranty. Elston Manufacturing, Inc. products received by Elston Manufacturing, Inc. after one (1) year from original shipment date to customer will be corrected as foresaid for a charge of the then-current sale price of parts and labor with freight paid by buyer. Exception: Any parts to be found defective at any time that come under a recall status from providing manufacturer, will be covered under the terms and conditions of the recall status provided by manufacturer.

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Accessory items furnished by Elston Manufacturing, Inc. are covered by a Limited Warranty for a period of one (1) year from date of original sale, subject to the conditions, limitations, and disclaimers stated above, for replacement of defective materials, provided such items are returned freight paid by buyer to Elston Manufacturing, Inc. and are determined by Elston Manufacturing, Inc. to be defective in its sole and absolute discretion.

This Limited Warranty shall not apply to any piece of equipment, parts or accessories repaired by anyone other than Elston Manufacturing, Inc. personnel, or its authorized service organizations.