



# HAWKINS



## OPTIMIZER BASKET OWNER'S MANUAL

FOR PART NUMBER 321591

REVISED 10.19

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# GENERAL INFORMATION



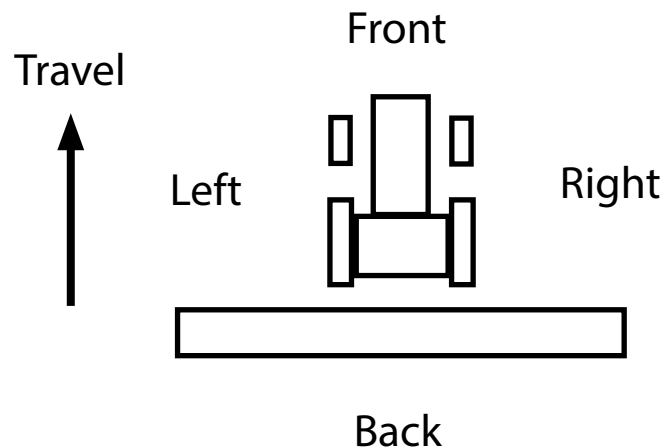
## HOW TO USE THIS MANUAL

This manual is divided into sections. The first section contains a Table of Contents, General Information, Safety Information, Installation Guide, Operation Guide, and a Part Number Index. The remaining sections divide the machine into assemblies and sub-assemblies which illustrate and list all parts.

Hawkins Ag parts in this manual are specially designed for this machine and should be replaced with Hawkins Ag parts only.

Information in this manual was current at time of printing. However, due to Hawkins ongoing product improvement, production changes may cause your machine to appear slightly different in detail. Hawkins Ag reserves the right to change specifications or design without notice and without incurring obligation to install the same on machines previously manufactured.

Right-hand and left-hand as used in this manual are determined by facing the direction the machine will travel while in use.



## MANUAL REPLACEMENT INFORMATION

Replacement manuals are available. Call the Hawkins Ag Main Office at 308.708.8185, or download a printable PDF from our website, [www.HawkinsAg.com](http://www.HawkinsAg.com).

## MANUAL REVISIONS

When this manual is revised, the modification date is printed on the front cover and on the revised page(s).

## TOUCH-UP PAINT

Repaint parts where paint is worn or scratched to prevent rust. Aerosol touch-up paint is available. To order, call Hawkins Ag at 308.708.8185.



## INTRODUCTION

Thank you for your purchase of Optimizer Basket row units. Putting your trust in our equipment is something we don't take lightly and are humbled that you chose Hawkins Ag. Having designed all of our equipment with farmers like you in mind, we hope you enjoy years of productive use from it. Please read and understand this manual before operation.

## WARRANTY INFORMATION

AGROdeviate LLC (AGROdeviate) warrants each Hawkins Ag product it manufactures to be free from defects in material and workmanship for a period not to exceed one (1) year from the date of sale to the original owner. The warranty is valid provided written notice of the alleged defect is received by AGROdeviate during said period and within ten (10) working days after its discovery.

In addition, AGROdeviate warrants each TOOLBAR FRAMEWORK to be free from defects in material and workmanship for a period not to exceed three (3) years from the date of sale to the original owner. The warranty is valid providing written notice of the alleged defect is received by AGROdeviate during said period and within ten (10) working days after its discovery.

This warranty is subject to completion of Product Registration and submission to AGROdeviate. Warranty applies only if product is installed, operated, and maintained according to product manual and instructions. Warranty will be void if the product has been subject to misuse, misapplication, neglect, collision with obstruction, or alteration.

For products, parts, and components NOT manufactured by AGROdeviate, the warranty obligations of AGROdeviate shall be limited to the Original Equipment Manufacturers' warranty. Tires on AGROdeviate equipment are warranted through the respective tire manufacturer and their network of dealers.

All returns must be pre-approved by AGROdeviate and authorization issued before return. All returns must include a copy of the original invoice in order to be processed. Any returns without a copy of the original invoice will not be eligible to receive credit.

If determined that the product is defective in material and/or workmanship, the necessary parts will be replaced and/or repaired. All warranty repair or labor is to be performed by an AGROdeviate authorized party. AGROdeviate obligation under this warranty shall be limited to repairing or replacing parts deemed defective. Warranty does not cover travel expenses. AGROdeviate will bear no other costs including loss, incurred labor, rental fees, nor other.

All returns shall be pre-paid. If warranty is approved by AGROdeviate, return freight will be credited.

This warranty by AGROdeviate LLC is expressly in lieu of all other warranties, expressed or implied, including warranty of merchantability and fitness for use. We neither assume, nor authorize, any other entity to accept for us any liability relating to the sale of our products.



### SAFETY

TAKE NOTE! THIS SAFETY ALERT SYMBOL FOUND THROUGHOUT THIS MANUAL IS USED TO CALL YOUR ATTENTION TO INSTRUCTIONS INVOLVING YOUR PERSONAL SAFETY AND THE SAFETY OF OTHERS. FAILURE TO FOLLOW THESE INSTRUCTIONS CAN RESULT IN INJURY OR DEATH.



**THIS SYMBOL MEANS:**  
**-ATTENTION!**  
**-BECOME ALERT!**  
**-YOUR SAFETY IS INVOLVED!**

### SIGNAL WORDS:

Note the use of signal words DANGER, WARNING, and CAUTION with the safety messages. The appropriate signal word for each has been selected using the following guidelines:



**DANGER:** Indicates an imminently hazardous situation that, if not avoided, will result in death or serious injury. This signal word is to be limited to the most extreme situations typically for machine components which, for functional purposes, cannot be guarded.



**WARNING:** Indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury, and includes hazards that are exposed when guards are removed. It may also be used to alert against unsafe practices.



**CAUTION:** Indicates a potentially hazardous situation that, if not avoided, may result in minor or moderate injury. It may also be used to alert against unsafe practices.

If you have questions not answered in this manual or require additional copies or the manual is damaged, please contact Hawkins Ag, 2120 4th Ave., Holdrege, NE 68949, 308.708.8185, or visit our website: [www.hawkinsag.com](http://www.hawkinsag.com)



## SAFETY... YOU CAN LIVE WITH IT!



### EQUIPMENT SAFETY GUIDELINES

Safety of the operator is one of the main concerns in designing and developing a new piece of equipment. Designers and manufacturers build in as many safety features as possible. However, every year many accidents occur which could have been avoided by a few seconds of thought and a more careful approach to handling equipment. You, the operator, can avoid many accidents by observing the following precautions in this section. To avoid personal injury, study the following precautions and insist those working with you, or for you, follow them.

In order to provide a better view, certain photographs or illustrations in this manual may show an assembly with a safety shield removed. However, equipment should never be operated in this condition. Keep all shields in place. If shield removal becomes necessary for repairs, replace the shield prior to use.

Replace any CAUTION, WARNING, DANGER or instruction safety decal that is not readable or is missing. Location of such decals is indicated in this booklet.

Do not attempt to operate this equipment under the influence of drugs or alcohol.

Review the safety instructions with all users annually.

This equipment is dangerous to children and persons unfamiliar with its operation. The operator should be a responsible adult familiar with farm machinery and trained in this equipment's operations. Do not allow persons to operate or assemble the unit until they have read this manual and have developed understanding of the safety precautions and how it works.

To prevent injury or death, use a tractor with a Rollover Protective Structure (ROPS). Do not paint over, remove or deface any safety signs or warning decals on your equipment. Observe all safety signs and practice the instructions on them.

Never exceed the limits of a piece of machinery. If its ability to do a job, or to do so safely, is in question - DON'T TRY IT.







## SAFETY SIGNS

Good safety requires that you familiarize yourself with the various Safety Signs, the type of warning and the area, or particular function related to that area, that require your SAFETY AWARENESS.

**REMEMBER: If Safety Signs have been damaged, removed, become illegible or parts replaced without decals, new decals must be applied. New decals are available from Hawkins Ag.**

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## SAFETY SIGN CARE

- Keep safety signs clean and legible at all times.
- Replace safety signs that are missing or have become illegible.
- Replaced parts that displayed a safety sign should also display the current sign.
- Safety signs are available from Hawkins Ag.

## HOW TO INSTALL SAFETY SIGNS

- Be sure that the installation area is clean and dry.
- Decide on the exact position before you remove the backing paper.
- Remove the smallest portion of the split backing paper.
- Align the decal over the specified area and carefully press the small portion with the exposed stick backing in place.
- Slowly peel back the remaining paper and carefully smooth the remaining portion of the decal in place.
- Small air pockets can be pierced with a pin and smoothed out using the piece of decal backing paper.



## REMEMBER

Your best assurance against accidents is a careful and responsible operator. If there is any portion of this manual or function you do not understand, contact Hawkins Ag.



## BEFORE OPERATION

- Carefully study and understand this manual.
- Do not wear loose-fitting clothing which may catch in moving parts.
- Always wear protective clothing and substantial shoes.
- It is recommended that suitable eye protection be worn.
- The operator may come in contact with certain materials which may require specific safety equipment (ie: extremely dusty, molds, fungus, bulk fertilizers).
- Keep bolts tightened to specific torque listed on page 18.
- Give the unit a visual inspection for any loose bolts, worn parts or cracked welds, and make necessary repairs. Follow the maintenance safety instructions included in this manual.
- Be sure that there are no tools lying on or near the equipment.
- Do not use the unit until you are sure that the area is clear, especially children and animals.
- Because it is possible that this equipment may be used in dry areas or in the presence of combustibles, special precautions should be taken to prevent fires and fire fighting equipment should be readily available.
- Don't hurry the learning process or take the unit for granted. Ease into it and become familiar with your new equipment.
- Practice operation of your equipment and its attachments. Completely familiarize yourself and other operators with its operation before using.



## DURING OPERATION

- Keep hands and clothing clear of moving parts.
- Do not clean, lubricate or adjust your equipment while it is moving.
- Be especially observant of the operating area and terrain - watch for holes, rocks or other hidden hazards. Always inspect the area prior to operation.
- Periodically clear the equipment of brush, twigs or other materials to prevent buildup of dry combustible materials.
- Do not walk or work under raised components or attachments unless securely positioned and blocked.
- Keep all bystanders, pets and livestock clear of the work area.
- Never stand alongside of unit with engine running or attempt to start engine and/or operate machine while standing alongside of unit.
- As a precaution, always recheck the hardware on equipment following every 100 hours of operation. Correct all problems. Follow the maintenance safety procedures.



## FOLLOWING OPERATION

- Store the unit in an area away from human activity.
- Do not park equipment where it will be exposed to livestock for long periods of time. Damage and livestock injury could result.
- Do not permit children to play on or around the stored unit.
- Make sure all parked machines are on a hard, level surface.



## PERFORMING MAINTENANCE

- Good maintenance is your responsibility. Poor maintenance is an invitation to trouble.
- Before working on this machine, stop the towing vehicle, set the brakes, shut off the engine and remove the ignition keys.
- Be certain all moving parts on attachments have come to a complete stop before attempting to perform maintenance.
- Always use the proper tools or equipment for the job at hand.
- Use extreme caution when making adjustments.
- Follow the torque chart in this manual when tightening bolts.
- Replace all shields and guards after servicing and before moving.
- After servicing, be sure all tools, parts and service equipment are removed.
- Never replace hex bolts with less than Grade 5 bolts unless otherwise specified. Refer to bolt torque chart for head identification marking.
- Where replacement parts are necessary for periodic maintenance and servicing, genuine factory replacement parts must be used to restore your equipment to original specifications. The manufacturer will not claim responsibility for use of unapproved parts and/or accessories and other damages as a result of their use.
- If equipment has been altered in any way from the original design, the manufacturer does not accept any liability for injury or warranty.
- A first aid kit should be kept readily accessible while performing maintenance on this equipment.



# INSTALLATION GUIDE



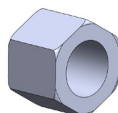
## Required Tools:

- Safety Glasses
- 3/4" Impact Socket
- Impact Driver
- Rubber Mallet
- Leather Gloves

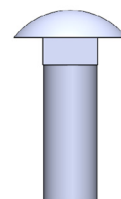
## Included Parts:



4 x 413508  
1/2" Lock Washer



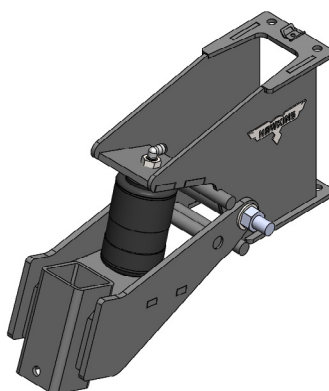
4 x 412058  
1/2"-13 Nut



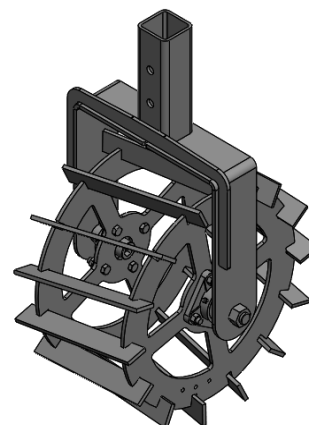
4 x 411785  
1/2"-13 x 1 1/2" Carriage Bolt



Pin 1 x 333099  
Pin Clip 1 x 333021



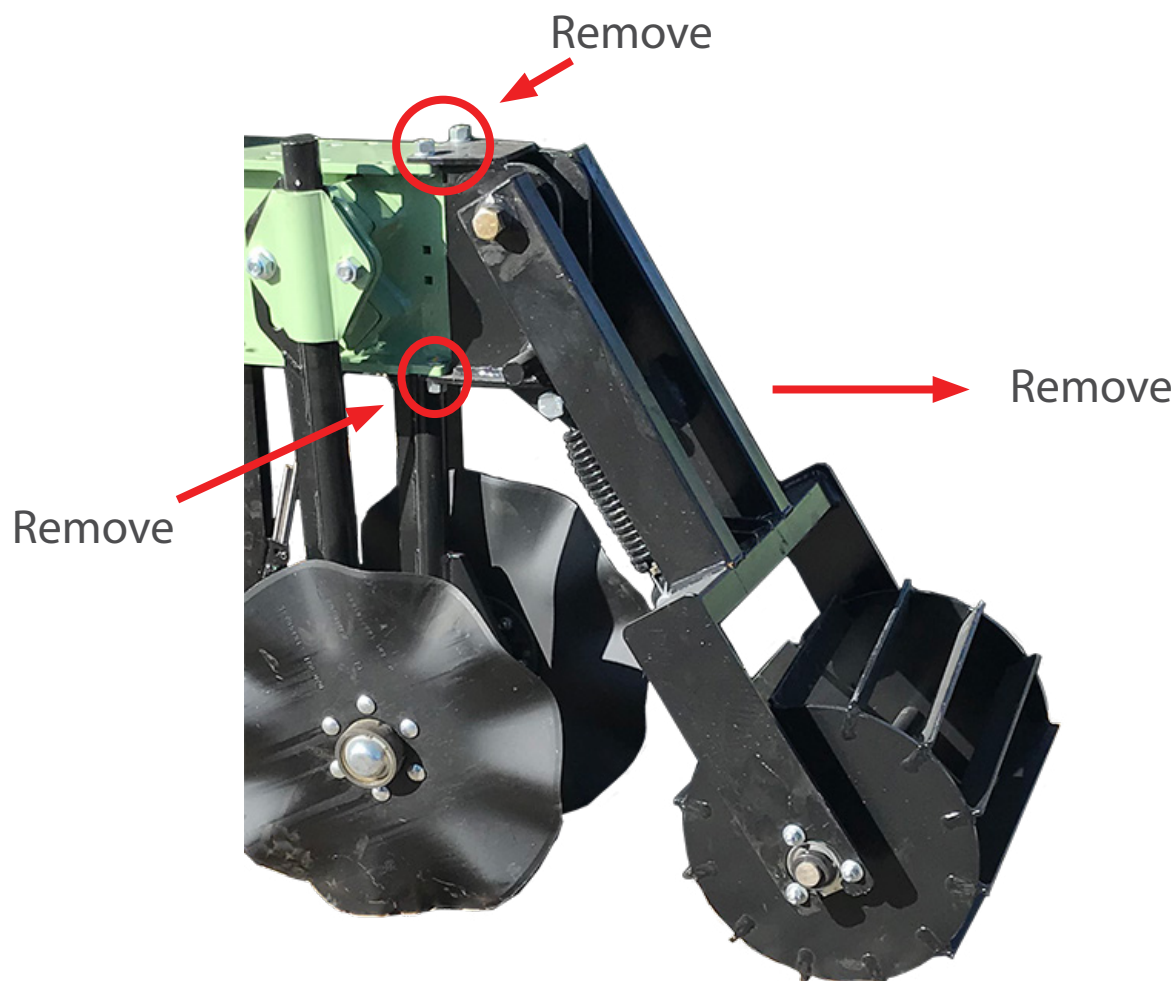
1 x 321590  
Basket Adapter



1 x 321592  
Basket Insert



## (1) Remove Orthman™ 1tRIPr™ Basket



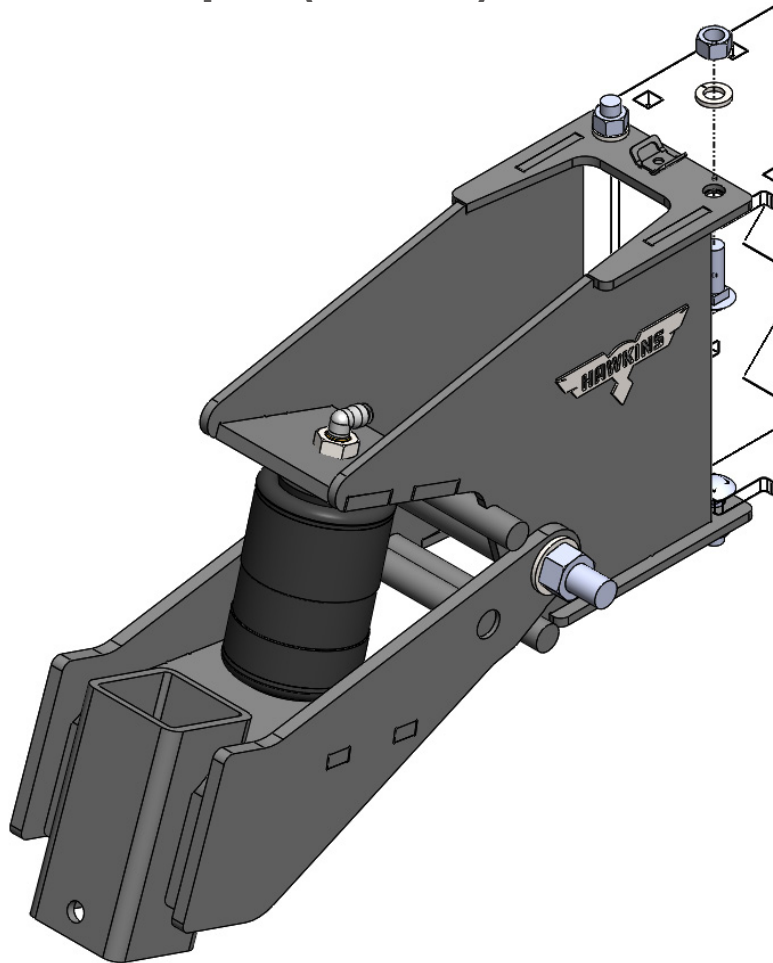
**1.1** - Using 3/4" Wrench and Rubber Mallet, carefully remove Orthman™ 1tRIPr™ Basket. All parts can be set aside and will NOT be reused.



To avoid crushing hazard, DO NOT place any body part beneath the basket as you remove it.



## (2) Bolt in Basket Adapter (321590)



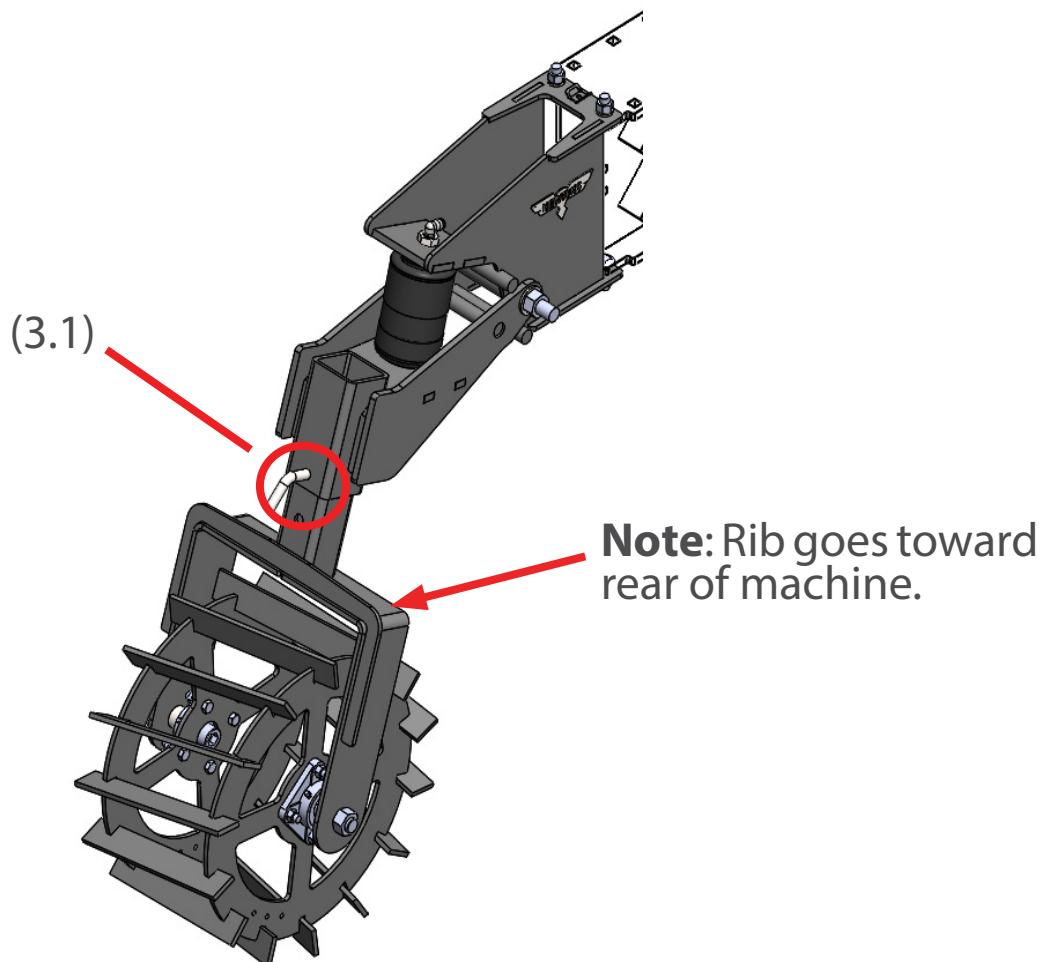
**2.1** - Using four (4) **Carriage Bolts (411785)**, four (4) **1/2" Lock Washers (413508)** and four (4) **1/2" Nuts (412058)**, attach the **Basket Adapter (321590)** to the 1tRIPr™ row unit.

**NOTE:** Due to OEM Frame Variations, some bolt heads may be tight to frame.





## (3) - Pin new Optimizer Basket into Adapter



**3.1** - Pin new **Basket Insert (321592)** into **Basket Adapter (321590)** using **Pin (333099)** and securing with **Pin Clip (333021)**.

### **CAUTION**

To avoid crushing hazard, DO NOT place any body part beneath the Optimizer Basket while pinning basket into adapter.



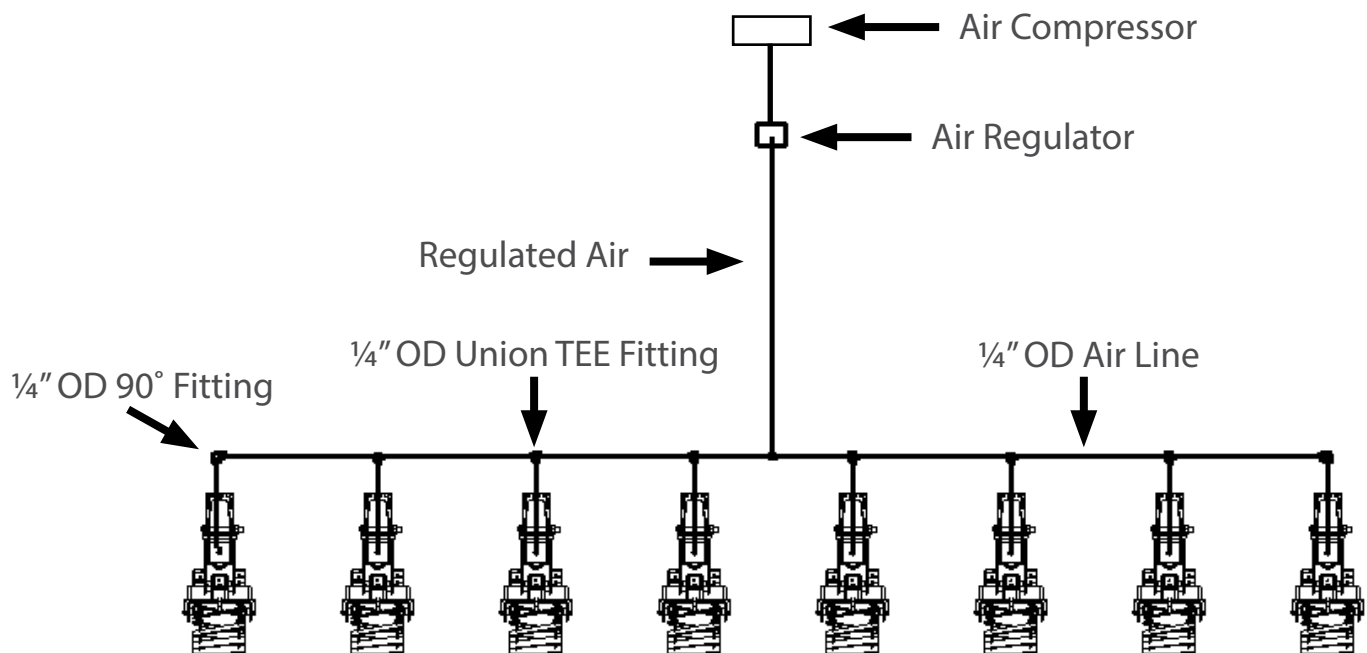
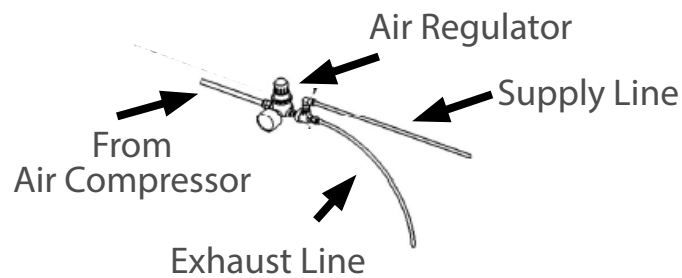
## (4) - Pneumatic System Installation

- The Optimizer Basket System has an air requirement of 120 psi of clean, dry air. A 12-volt, 50% duty cycle air compressor with one gallon tank is recommended.
- The system uses 1/4" OD Push-to-Connect Air Line.
- The line should be secured with zip ties. Do not crush air line by overtightening zip ties.
- Test air line fitment on one row before routing all rows.
- Rows are designed to be tied into the main line and secured to the toolbar.
- Make sure air line is secured and free of any pinch or wear points through the entire movement of the row unit and toolbar.
- To ensure sealing, tube ends need to be cut smooth and square.
- Ensure regulator exhaust line is routed out away from regulator and down to prevent moisture from entering into the system.

**NOTE:** See next page for Air Hose Diagram.



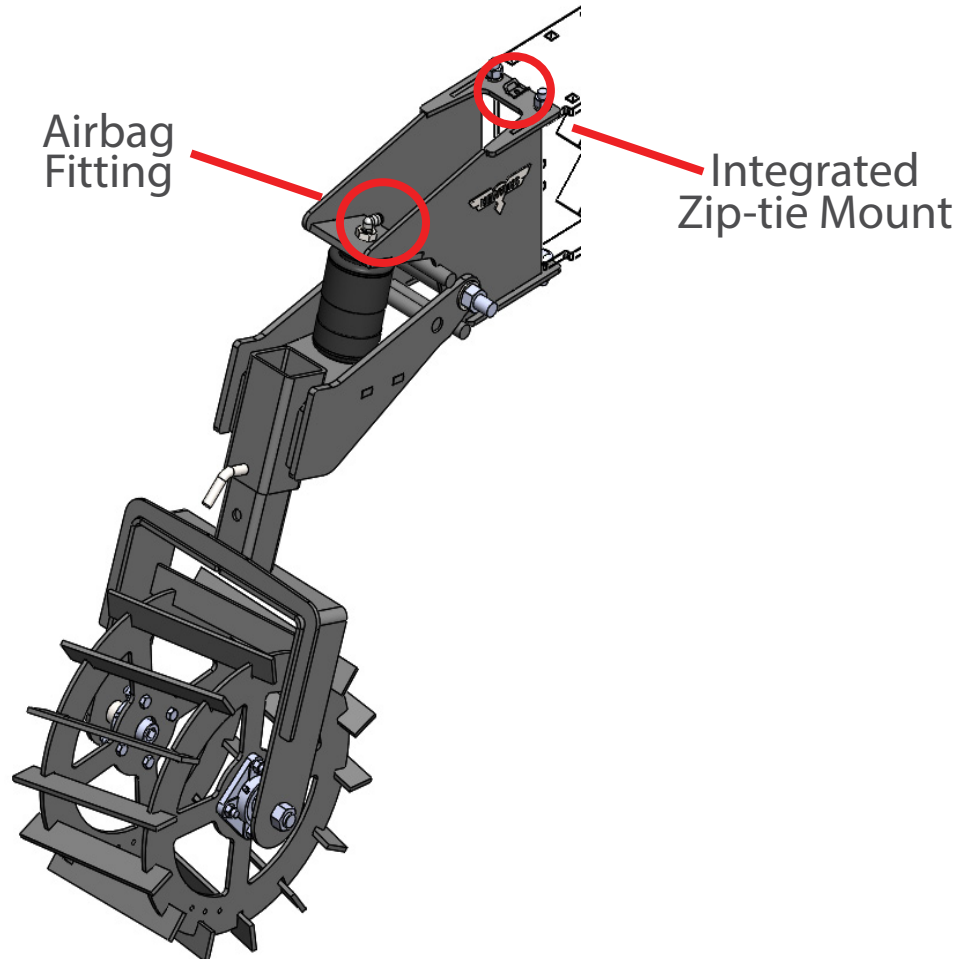
## Air Hose Diagram



- Each row will connect to the main line with a 1/4" TEE Fitting and end rows connect to the main line with a 1/4" PTC 90° Fitting.
- The location of the supply line to the main line is unimportant.
- The air flows from the air compressor, to the air regulator, to the supply line, to the row unit line, and finally to the air bag.



## (4) - Pneumatic System Installation (continued)



**4.1** - Route 1/4" air line to air bag in Optimizer Basket. Retain hose in integrated zip tie mount.

**4.2** - Plumb all lines in parallel as shown on page 13, from an air regulator to the Optimizer Baskets.

**NOTE:** Length will vary by model of 1tRIPr™. We recommend a 5' air line for 2009 and newer machines, older will be 6' or longer.





### WHAT TO EXPECT IN THE FIELD

- Optimizer Basket operates best at speeds above 4 mph. Failure to operate above this speed will cause poor strip conditioning.
- When set properly, Optimizer Basket will create a consistent and uniform strip texture and firmness.
- Your desired seedbed firmness is directly related to pressure adjustment in the basket. Higher pressures will press more firmly, creating a firmer and tighter seedbed.
- Optimizer Basket should move up and down, and spin freely (see Troubleshooting Guide (page 17) for issues with air system).
- Optimizer Basket should be free of air leaks (see Troubleshooting Guide (page 17) for issues with movement).
- The larger diameter and open center design of the Optimizer Basket is less likely to plug than OEM baskets. Running in too wet of conditions could still cause some plugging. In that case, it is recommended to reduce pressure or wait for conditions to improve.

NOTE: These settings are recommendations only. Your soil, moisture, and other variables may require you to adjust slightly differently than recommended.



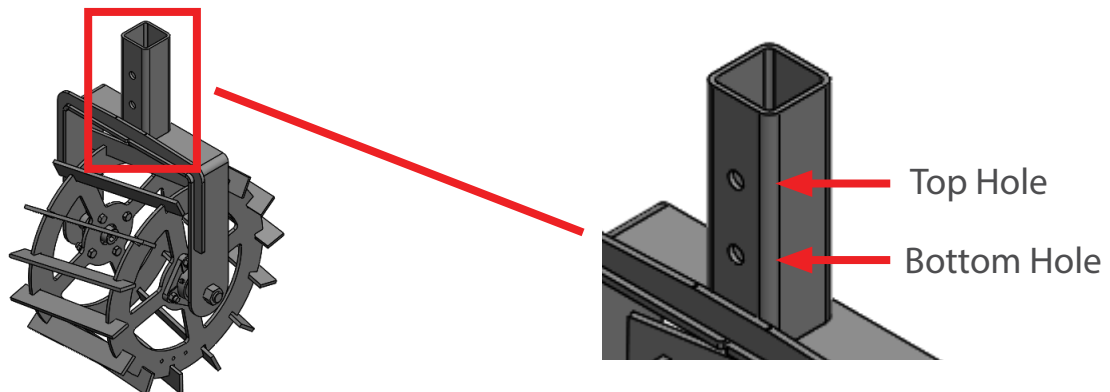
## ADJUSTMENTS

### Optimizer Basket Air Bag Operation

it is recommended to start at 60 psi. However, the air bag can run at any pressure in the range of 0-120 psi. Increase or decrease the pressure to get the conditioning that is desired. The basket is expected to condition the soil into a firm strip. If large clods are still present after the basket has run, increase air pressure to help reduce their size. If a divot is made where the basket ran, reduce air pressure to improve the quality of the strip.

### Optimizer Basket Depth Adjustment

The Optimizer Basket has two pin positions to change depth settings. The top hole is the recommended setting. The lower hole raises the basket for lighter soil contact.



### Optimizer Basket Removal

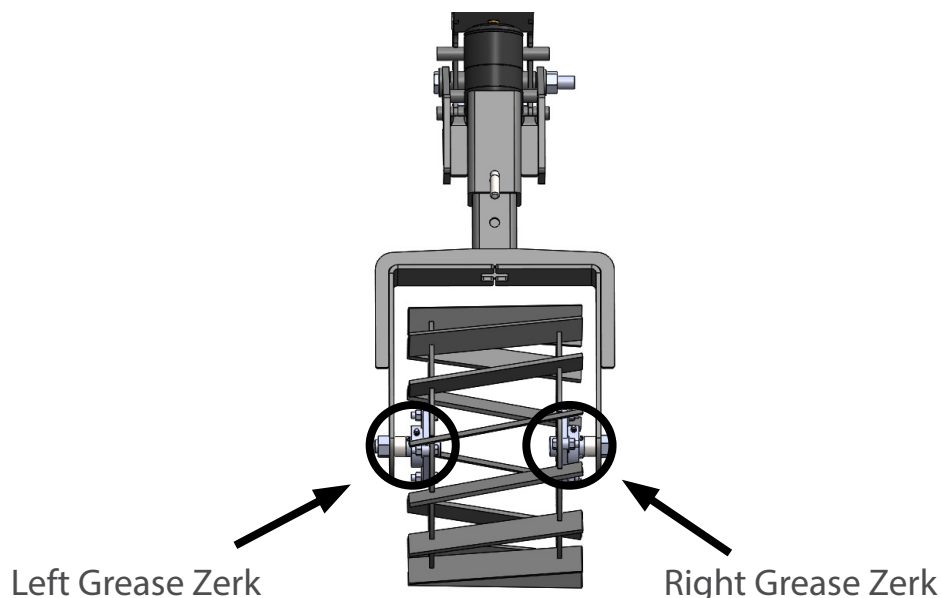
When field conditions don't require use of the Optimizer Basket or it is not desired, simply remove the basket assembly by pulling the pin and carefully removing the basket (see Installation Guide Step 3).



## MAINTENANCE

### Bearing Maintenance

We recommend greasing each grease zerk weekly. This will greatly prolong the life of the bearings in the Optimizer Baskets.



### Optimizer Basket Do's and Don'ts

- DON'T run air pressure greater than 120 PSI - the system is rated for a maximum of 120 PSI.
- DON'T operate at low speeds. The Optimizer Basket was designed for speeds greater than 4 mph. Speeds below 4 mph will not yield optimum strip conditioning.
- DO keep Optimizer Baskets free of debris and excessive mud buildup.
- DO work to regularly maintain your Optimizer Baskets. With proper care, you can expect a longer and more effective lifespan for all of your Hawkins equipment.
- DO check that baskets rotate freely before each use. Failure of basket to rotate freely may decrease effectiveness and cause damage to the Optimizer Basket. If baskets seize or make excessive noise during operation, replace bearings.





## TROUBLESHOOTING

Troubleshooting		
Problem	Possible Cause	Solution
Inconsistent strip Large clods	Pressure on Optimizer Basket too low. Pressure on basket is too low.	Increase PSI in air bag to increase Optimizer Basket pressure. DO NOT exceed 120 psi.
Large indentation in strip	Pressure on basket too high.	Reduce air bag PSI to reduce basket pressure.
Basket not turning properly	Clogged up with mud. Seized bearing.	Remove plug and reduce PSI in air bag. Or, wait for conditions to improve. Replace bearings with quality Hawkins Parts.
Not holding pressure	Pressure leak in system.	Check system for leak. Repair leak if found.
No pressure in system	Regulator set to 0 (zero) pressure. Air compressor not running. Air line not connected, is cut, or is pinched.	Adjust regulator to operating pressure. Repair air compressor. Check to ensure air system is fully connected and no air lines are cut or pinched. Repair if necessary.



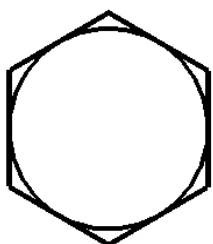
## CHECKING BOLT TORQUE

The table shown below gives correct torque values for various bolts and capscrews. Tighten all bolts to the torques specified in chart unless otherwise noted. Check tightness of bolts periodically, using bolt torque chart as a guide. Replace hardware with the same grade bolt.

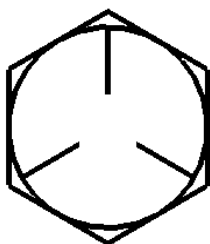
Torque Specifications						
Bolt Diameter	Bolt Torque*					
	SAE Grade 2		SAE Grade 5		SAE Grade 8	
INCH	lbft	Nm	lbft	Nm	lbft	Nm
1/4	6	(8)	9	(12)	12	(17)
5/16	10	(13)	19	(25)	27	(36)
3/8	20	(27)	33	(45)	45	(63)
7/16	30	(41)	53	(72)	75	(100)
1/2	45	(61)	80	(110)	115	(155)
9/16	70	(95)	115	(155)	165	(220)
5/8	95	(128)	160	(215)	220	(305)
3/4	165	(225)	290	(390)	400	(540)
7/8	170	(230)	420	(570)	650	(880)
1	226	(345)	630	(850)	970	(1320)

## BOLT HEAD IDENTIFICATION

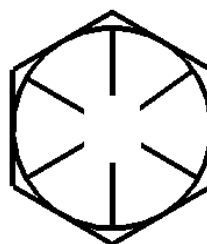
**Grade 2**



**Grade 5**



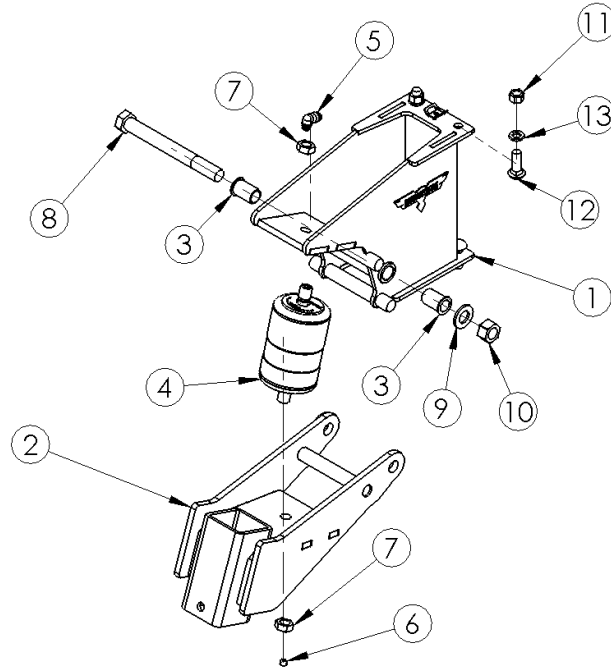
**Grade 8**







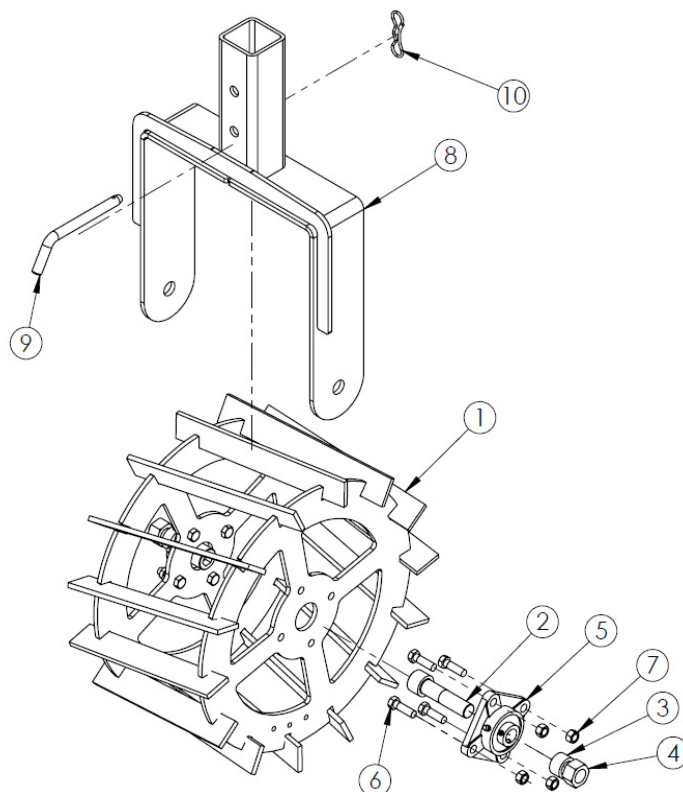
## BASKET ADAPTER



Item Number	Part #	Description	Quantity
1	321600	Basket Accessory Mount	1
2	321599	Basket Mount Lower Half	1
3	321499	Poly Bushing	2
4	321498	Air Bag	1
5	457405	90° 1/4 OD Air Fitting	1
6	456150	Brass Plug 1/8 NPT	1
7	412410	5/8-11 Hex Jam Nut	2
8	411599	3/4-10 x 7.5 GR8 Hex Head Bolt	1
9	413072	3/4 Flat Washer SAE	1
10	410012	3/4-10 Nut Center Lock	1
11	412058	1/2-13 Nut	4
12	411785	1/2-13 x 1 1/2 Carriage Bolt	4
13	413508	1/2 Lock Washer	4



## BASKET INSERT



Item Number	Part #	Description	Quantity
1	321220	Basket 10" Wide x 16" Dia.	1
2	414520	Socket Head Screw	2
3	321218	Spacer Bushing	2
4	410012	3/4-10 Lock Nut	2
5	321497	Bearing With Block	2
6	411508	3/8-16 x 1.25 GR5 Bolt	8
7	412006	3/8-16 Nut	8
8	321593	Basket Frame	1
9	333099	1/2 x 4 bent pin	1
10	333021	Cotter pin bow	1



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