



**30" AVENGER COULTER  
OPERATORS MANUAL**

WITH PARTS IDENTIFICATION  
2565-480\_REV\_D 07/2013

**YETTER MANUFACTURING CO.**  
*FOUNDED 1930*

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**YETTER**

## FOREWORD

You've just joined an exclusive but rapidly growing club.

For our part, we want to welcome you to the group and thank you for buying a Yetter Avenger Coultter.

This is a unique and revolutionary new product.

We hope your new Avenger coultter will help you achieve both increased productivity and increased efficiency so that you may generate more profit. This operator's manual has been designed into four major sections.

Foreword, Safety Precautions, Installation and Operation.

Throughout the manual references may be made to left side and right side. These terms are used as viewed from the operator's seat facing the front of the tractor.



This **SAFETY ALERT SYMBOL** indicates important safety messages in the manual. When you see this symbol, be alert to the possibility of **PERSONAL INJURY** and carefully read the message that follows.

The word **NOTE** is used to convey information that is out of context with the manual text. It contains special information such as specifications, techniques, reference information of a supplementary nature.

The word **IMPORTANT** is used in the text when immediate damage will occur to the machine due to improper technique or operation. Important will apply to the same information as specified by note only of an immediate and urgent nature.

It is the responsibility of the user to read the operator's manual and comply with the safe and correct operating procedure and to lubricate and maintain the product according to the maintenance schedule in the operator's manual.

The user is responsible for inspecting his machine and for having parts repaired or replaced when continued use of the product would cause damage or excessive wear to the other parts.

It is the user's responsibility to deliver his machine to the Yetter dealer who sold him the product for service or replacement of defective parts which are covered by the warranty policy.

**IMPORTANT:** When raising 3 pt. Toolbars watch tractor tire clearance. **EXAMPLE:** In most cases 3 pt. hitches require a cat. 2 or cat. 3 quick hitch coupler to offset toolbar away from tractor tires.

### YETTER MANUFACTURING CO.

309/776-4111

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## WARRANTY POLICY

Yetter Manufacturing warrants all products manufactured and sold by it against defects in material. This warranty being expressly limited to replacement at the factory of such parts or products as will appear to be defective after inspection. This warranty does not obligate the Company to bear cost of labor in replacement of parts. It is the policy of the company to make improvements without incurring obligations to add them to any unit already sold. No warranty is made or authorized to be made, other than herein set forth. This warranty is in effect for one year after purchase.

Model Number: \_\_\_\_\_

Dealer : \_\_\_\_\_

**Yetter Manufacturing warrants its own products only and cannot be responsible for damage to equipment on which mounted.**

## **SAFETY**

**A brief description of signal words that may be used in this manual:**

**CAUTION:** Used as a general reminder of good safety practices or to direct attention to unsafe practices.

**WARNING:** Denotes a specific potential hazard.

**DANGER:** Denotes the most serious specific potential hazard.

### **SAFETY PRECAUTIONS**

You can make your farm a safer place to live and work if you observe the safety precautions given. Study these precautions carefully and insist that they be followed by those working with you and for you.

Finally, remember this: an accident is usually caused by someone's carelessness, neglect or oversight.



#### **WARNING**

Never clean, lubricate or adjust a machine that is in motion. Always lower or block the implement before performing service.

If the machine must be serviced in the raised position, jack or block it up to prevent it from accidentally falling and injuring someone.

Do not allow riders on the tractor or implement.

Use speeds and caution dictated by the terrain being traversed. Do not operate on any slope steep enough to cause tipping or loss of control.

Be sure all personnel are clear of the immediate area before operating.

Read and understand the operator's manual and require all other persons who will operate the equipment to do the same.

Be familiar with all tractor and implement controls and be prepared to stop engine and implements quickly in an emergency.



#### **CAUTION**

Consult your implement and tractor operator's manual for correct and safe operating practices.

Beware of towed implement width and allow safe clearance.

**FAILURE TO HEED MAY RESULT IN PERSONAL INJURY OR DEATH.**

## GENERAL INFORMATION

Examine all equipment carefully for damage or shortages.

- 2986-030 - 30" Avenger Coultter  
 includes QTY  
 (1) 2986-106 – Arm Assembly  
 (1) 2986-130 – Parts Box  
 (1) 2571-205 – 30" Blade  
 (1) 6000-002 – Close wheel Kit

Optional Equipment: 2986-108 – Skid Shoe Kit.

Lubricate all bearings and moving parts as you assemble and see that they work freely.

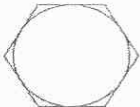
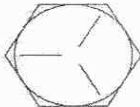
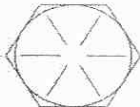
**NOTE:** When you are behind the coultter looking forward, the right hand coultter is assembled with the blade to the right hand of the arm assembly. The left hand coultter is assembled with the blade to the left hand of the arm assembly.

## BOLT TORQUE

READ THESE INSTRUCTIONS FIRST:

1. **Improperly tightened bolts will result in damage, breakage, expense, and down time.**
2. **Always replace bolts with the specified grade and type.**
3. **Torque properly before first use of the machine and every 2-4 hours of use until you are sure bolts are staying tight.**
4. **The chart below is a guide for proper torque. Use it unless a specified torque is called out elsewhere in the manual.**
5. **Torque is the force you apply to the wrench handle or the cheater bar, times the length of the handle or bar.**
6. **Use a torque wrench whenever possible.**

The following table shows torque in ft. lbs.

| BOLT DIA.<br>AND<br>THREADS PER<br>INCH |  |  |  |
|---|---|---|---|
|   | GRADE 2   | GRADE 5   | A-325   |
| 1/4                                     | 6   | 10  | 14  |
| 5/16                                    | 12  | 20  | 30  |
| 3/8 – 16                                | 25  | 35  | 50  |
| 7/16 – 14                               | 35  | 55  | 80  |
| 1/2 – 13                                | 55  | 85  | 125   |
| 9/16 – 12                               | 75  | 125   | 175   |
| 5/8 – 11                                | 105   | 170   | 235   |
| 3/4 - 10                                | 185   | 305   | 425   |
| 7/8 – 9                                 | 170   | 445   | 690   |
| 1-8                                     | 260   | 670   | 1030  |
| 1 1/8 – 7                               | 365   | 900   | 1460  |
| 1 1/4 - 7                               | 515   | 1275  | 2060  |
| 1 3/8 – 6                               | 675   | 1675  | 2700  |
| 1 1/2 - 6                               | 900   | 2150  | 3500  |
| 1 3/4 – 5                               | 1410  | 3500  | 5600  |

## ASSEMBLY INSTRUCTIONS



**WARNING:** Never work under the toolbar while in a raised position without using safety lockups.



**WARNING:** Use extreme caution, the blade is sharp and may cause bodily injury.

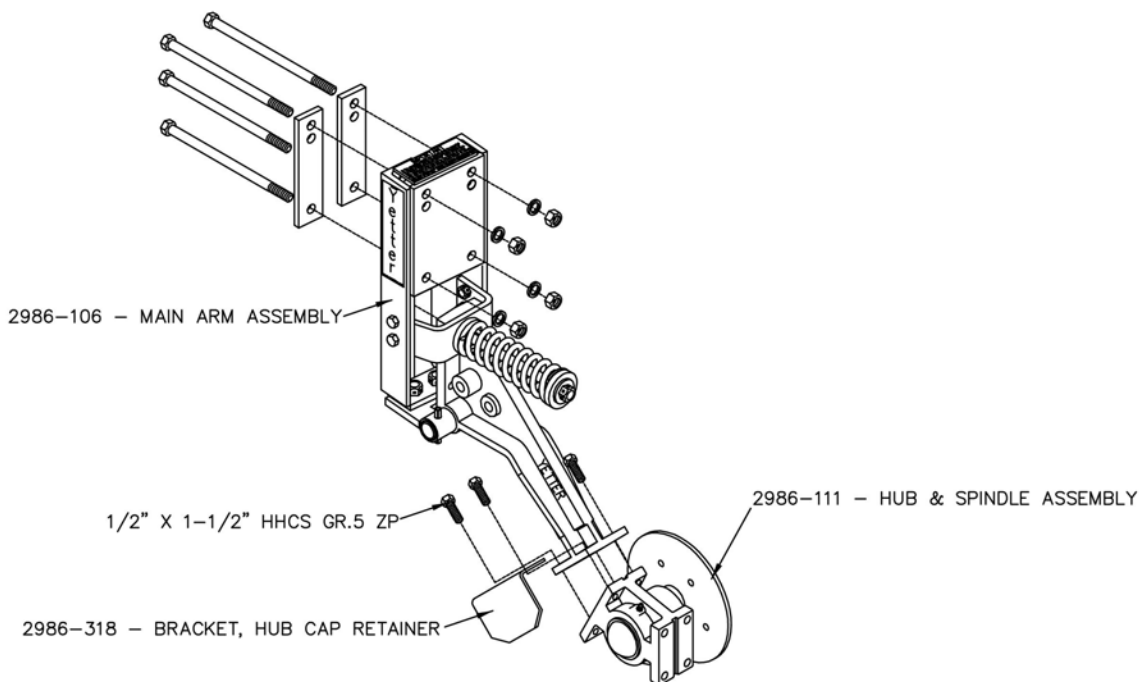
The 30" coulters that are mounted on 12" spacing will need to be completely assembled before mounting to the toolbar.

**NOTE:** To aid the assembly of the opener, it is recommended that a stand be constructed to temporarily attach the opener and hold it in an upright position.



**CAUTION:** The coulters and its components are very heavy. Extra attention to lifting techniques while handling and or maneuvering the coulters during assembly is very important. **Failure to do so may lead to personal injury or death.**

**STEP 1.** Attach the 2986-111 hub assembly and 2986-318 hub cap retainer to the 2986-106 main arm assembly using (4) 1/2" x 1-1/2" hex head bolts. This step will determine right hand or left hand coulters assembly.

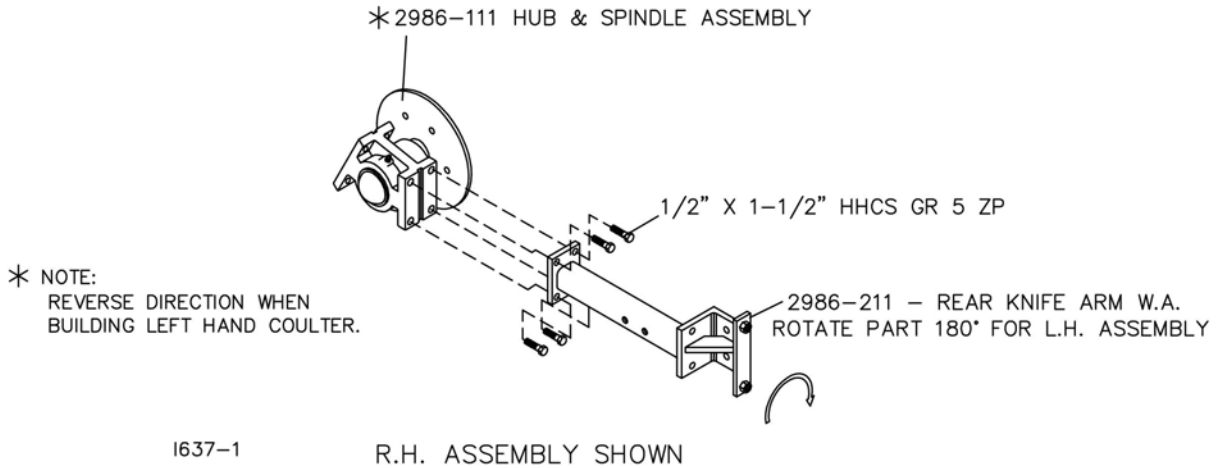


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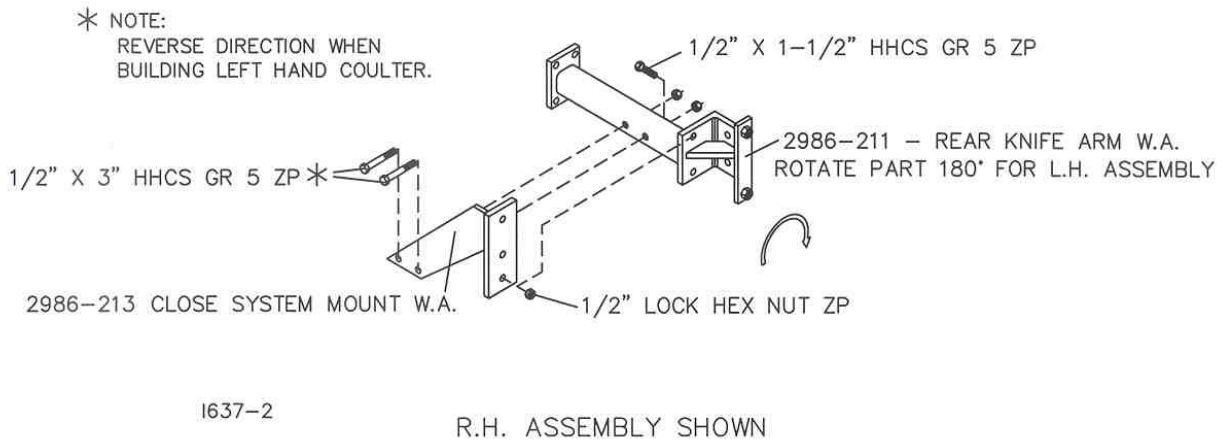
### RIGHT HAND ASSEMBLY

## ASSEMBLY INSTRUCTIONS

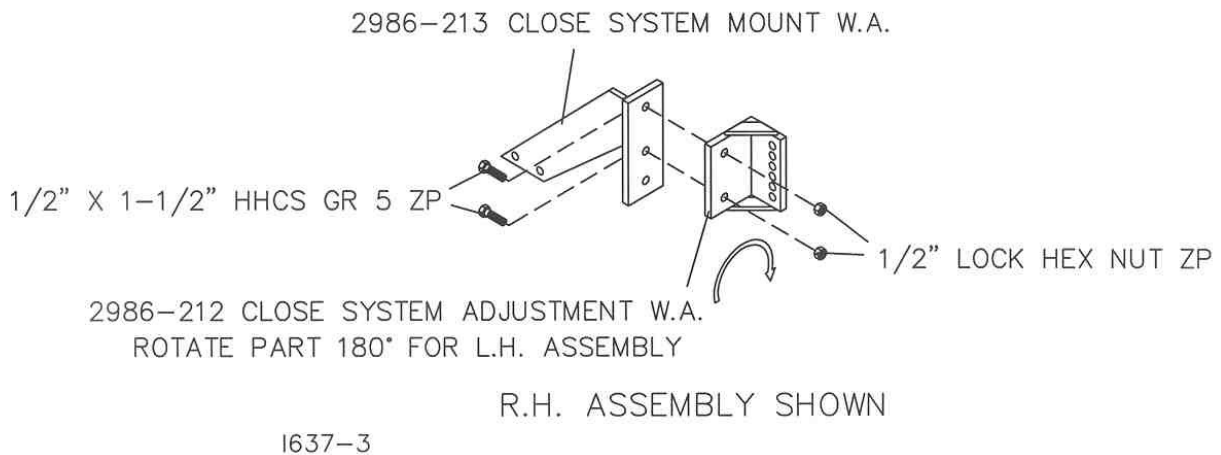
**STEP 2.** Attach the 2986-211 Rear Knife Arm to the 2986-111 hub assembly using (4) 1/2" x 1-1/2" hex head bolts. Make sure that the mount for the knife is on the same side of the arm as the spindle/blade.



**STEP 3.** Attach the 2986-213 Closing System Mount to the 2986-211 Knife Arm using (2) 1/2" x 3" hex head bolts and (1) 1/2" x 1 1/2" hex head bolt and 1/2" hex lock nuts.



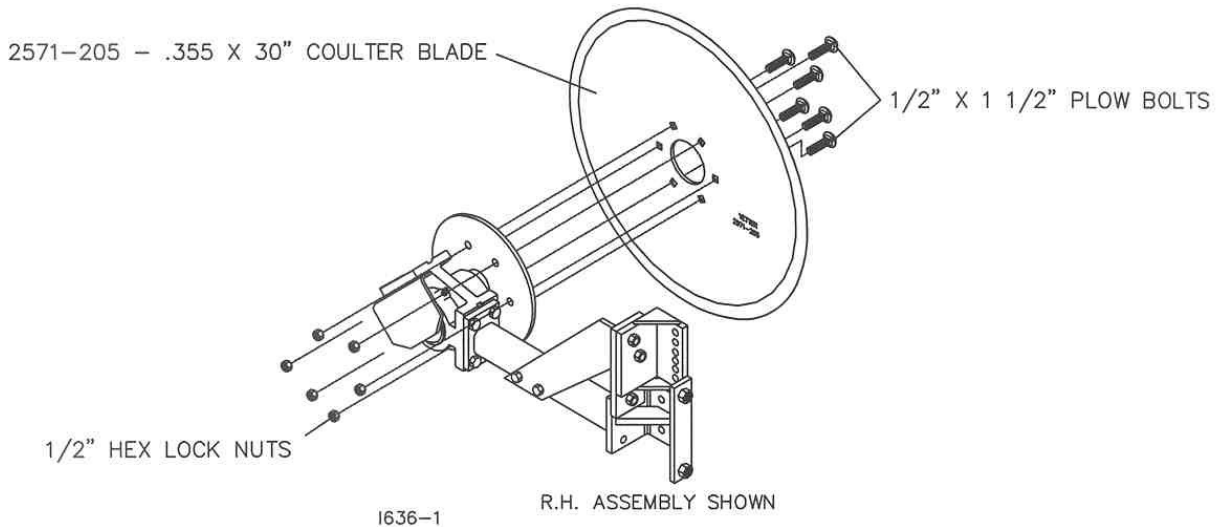
**STEP 4.** Attach the 2986-212 Closing System Adjustment to the 2986-213 Closing System Mount Bracket using (2) 1/2" x 1 1/2" hex head bolts and 1/2" hex lock nuts.



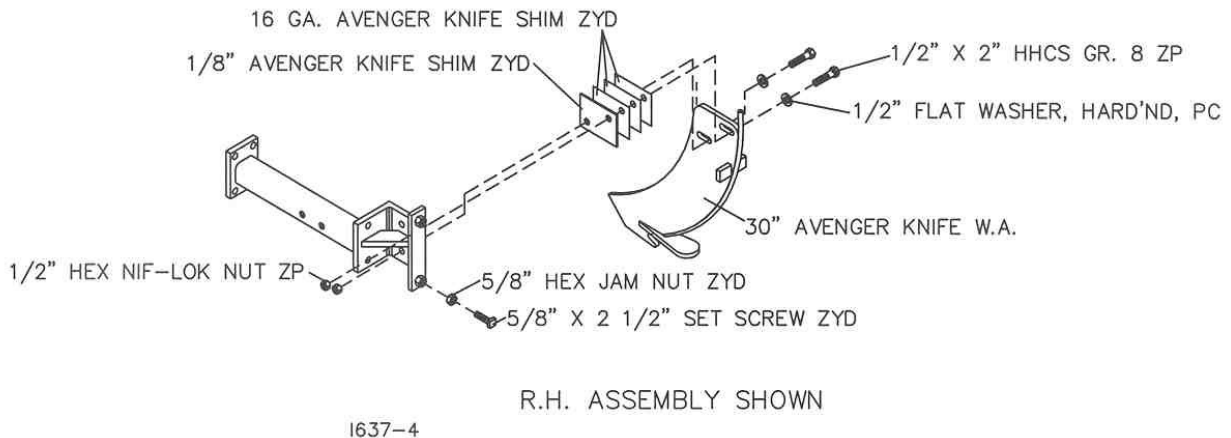
## ASSEMBLY INSTRUCTIONS

**STEP 5.** Attach the 30" blade 2571-205 to the 2986-111 hub assembly using (6) 1/2" x 1 1/2" plow bolts and 1/2" hex lock nuts.

**NOTE:** The blade must be centered on the spindle. Bolts are to be just slightly tightened. At **STEP 7** they are to be tightened securely and torqued to 90-96 FT/LBS.



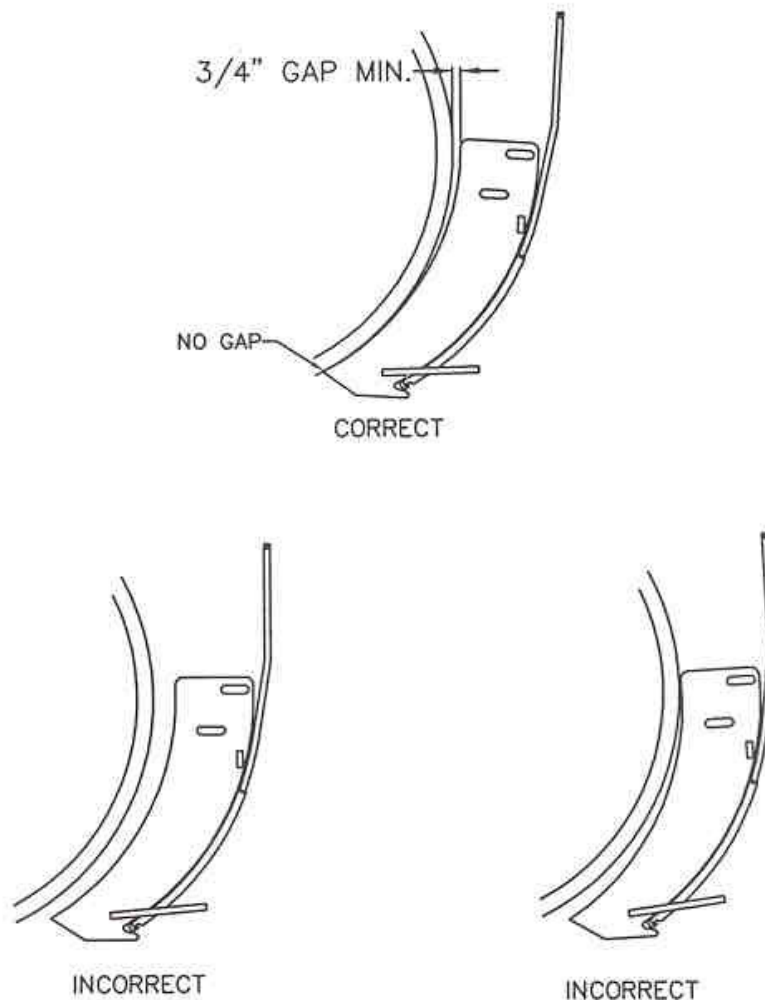
**STEP 6.** Attach the Avenger Knife 2986-214 to the Knife Arm 2986-211 using shims as needed to align the knife point with blade and using (2) 1/2" x 2" hex head bolts, hardened flat washers and 1/2" NIF-LOK nuts.



**STEP 7.** Center the blade on the spindle, check by rotating blade and watching clearance between knife and blade. Move the blade on the spindle as required until the blade runs concentric. Tighten (6) 1/2" lock nuts, torque to 90-96 ft/lbs. **THE BLADE MUST RUN CONCENTRIC.**

**STEP 8.** Adjust knife clearance to blade as close as possible. The high point of the blade should clear the knife no more than 1/64" max. as the blade is rotated. The blade should rotate freely. Tighten (2) 1/2" x 2" hex bolts to 120 ft/lbs. Re-check clearances by rotating blade one full revolution after all bolts are tight. Lock the knife in place by using the 5/8" x 2 1/2" setscrew and 5/8" hex jam nut to prevent the knife from moving rearward.

## KNIFE ADJUSTMENT



S 421

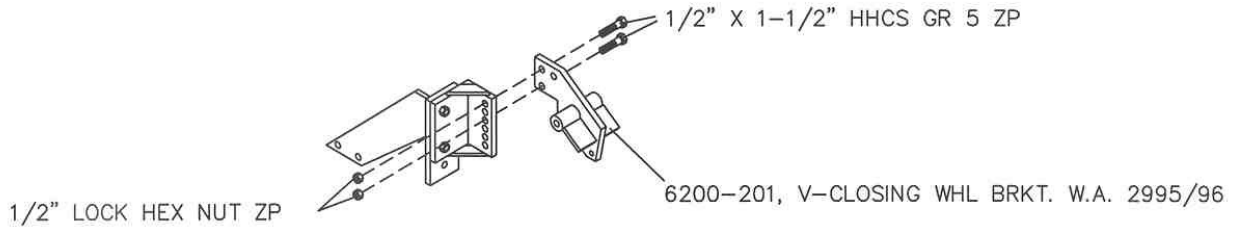
The adjustment of knife clearance to the blade is critical to trouble free operation of the coultter, in certain conditions the coultter can "plug" in just a few feet if not correctly adjusted.

1. The disc blade must run concentric. Adjust by loosening six hub nuts and centering the blade.
2. Set knife to rub slightly on blade, especially at bottom of knife. See illustrations above. Tighten NIF-LOK nuts to 120 ft/lbs. by using the wrench on both the bolt head and the nut.
3. Adjust the 5/8" x 2 1/2" bolt down against the stop of the knife to lock the knife in place, tighten the jam nut to secure bolt.



## ASSEMBLY INSTRUCTIONS

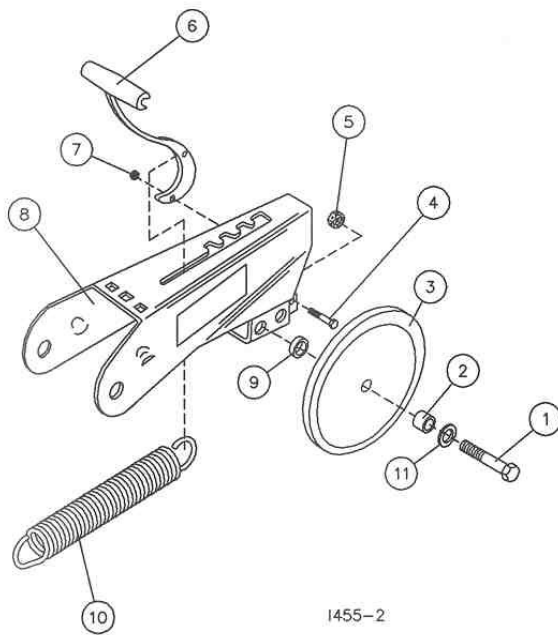
**STEP 9.** Attach the 6200-201 Closing Wheel Bracket to the 2986-212 adjustment bracket using (2) 1/2" x 1-1/2" hex head bolts and lock nuts. NOTE: Securely tightening the bolts at this step is not necessary because the infield height adjustment will be done later for proper operation of the closing system.



R.H. ASSEMBLY SHOWN

1637-5

**STEP 10.** Assemble the 6000-002 Close Wheel Kit as shown in illustration below.

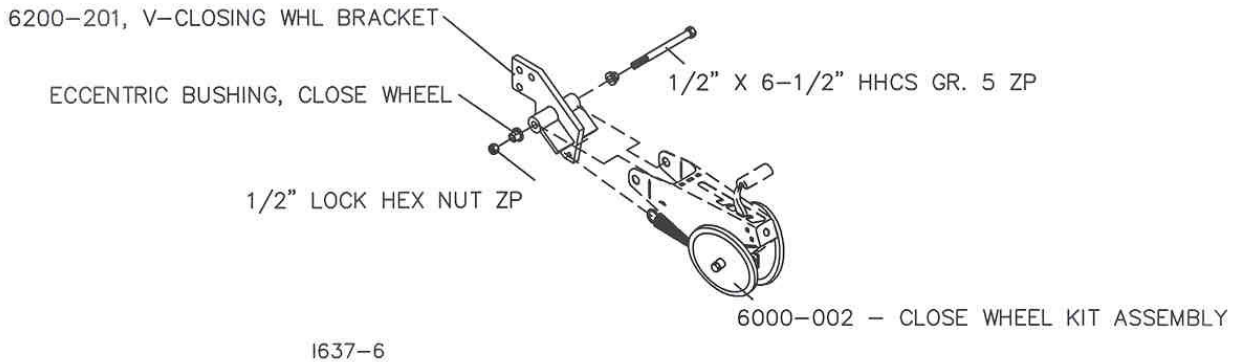


### 6000-002 CLOSE WHEEL KIT ASSEMBLY

| KEY | QTY | PART NO. | DESCRIPTION                        |
|-----|-----|----------|------------------------------------|
| 1   | 2   | 2502-336 | 5/8-11 x 4 HHCS GR. 5 ZP           |
| 2   | 2   | 6000-335 | 9/16" BUSHING                      |
| 3   | 2   | 2570-751 | 1 X 12 NYL CLOSING WHEEL 40MM SMCR |
|     | 2   | 2550-061 | BEARING, 40 MM                     |
| 4   | 1   | 2502-206 | 5/16-18 X 1 1/2 HHCS GR. 5 ZP      |
| 5   | 2   | 2520-459 | 5/8-11 LOCK HEX NUT ZP             |
| 6   | 1   | 6000-524 | CLOSE WHEEL LEVER                  |
| 7   | 1   | 2520-205 | 5/16-18 LOCK HEX NUT ZP            |
| 8   | 1   | 6000-247 | CLOSE WHEEL ARM W.A.               |
| 9   | 2   | 6000-336 | BUSHING PIVOT                      |
| 10  | 1   | 6000-525 | CLOSE WHEEL SPRING (PAINTED)       |
| 11  | 2   | 2526-453 | 5/8 SAE FLATWASHER                 |

1455-2

**STEP 11.** Attach the 6000-002 Close Wheel Assembly to the 6200-201 Close Wheel Mount Bracket by first inserting the hook of the spring through the hole of the mount bracket then use (1) 1/2" x 6 1/2" hex head bolt, eccentric bushings and 1/2" lock nut.

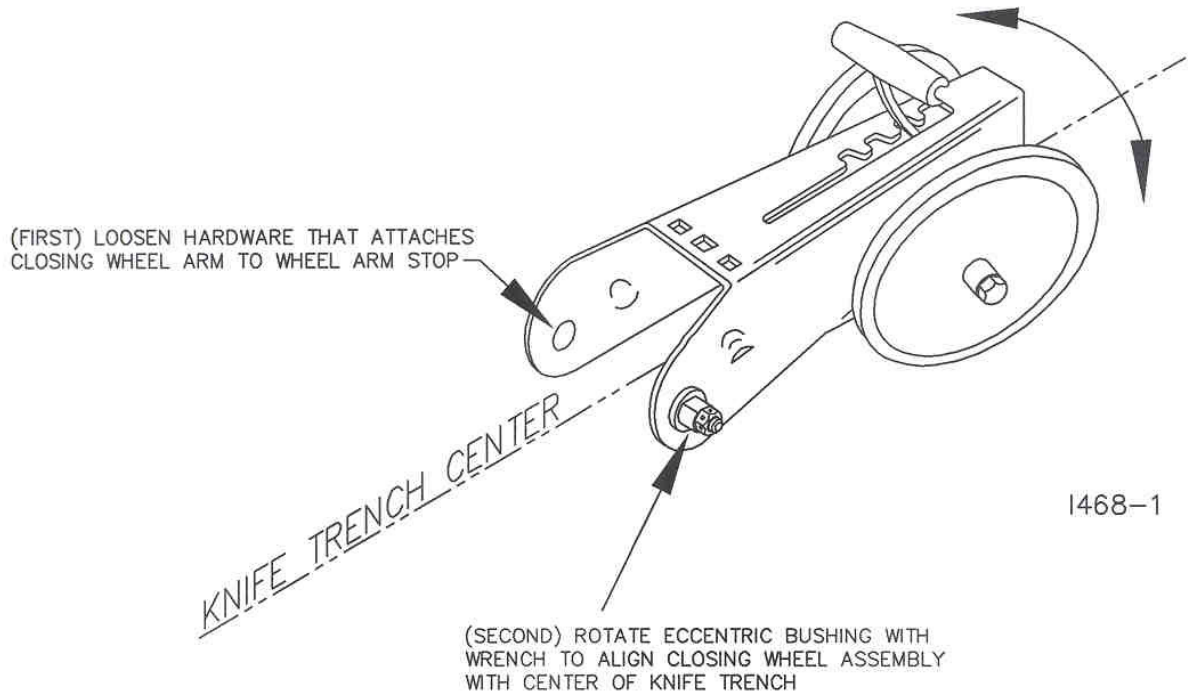


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## ASSEMBLY INSTRUCTIONS

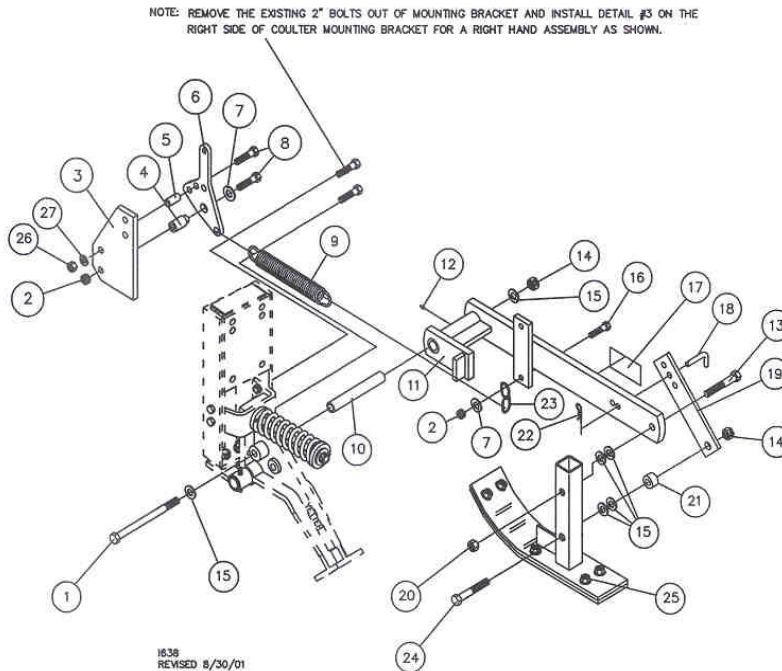
**STEP 12.** An eccentric bushing allows centering of the closing wheels on the row. To properly apply pressure on both sides of the slot when closing the trench. When adjusted properly, the closing wheels are centered on the trench. To adjust, loosen the  $\frac{1}{2}$ " x  $6 \frac{1}{2}$ " hex bolt that attaches the closing wheel assembly to the wheel mount bracket. Rotate eccentric bushing with wrench to align closing wheel assembly with center of trench. Tighten bolt that attaches closing wheel arm to wheel mount bracket.

(CLOSING WHEEL ASSEMBLY SHOWN NOT ASSEMBLED TO COULTER FOR VISUAL CLARITY)



# OPTIONAL EQUIPMENT

## STEP 13. Assembly of 2986-108 Skid Shoe Kit.



2986-108 MAIN ARM & SKID SHOE ASSEMBLY

| KEY | QTY | PART NO. | DESCRIPTION                    |
|-----|-----|----------|--------------------------------|
| 1   | 1   | 2502-348 | 5/8-11 X 11 HHCS GR. 5 ZP      |
| 2   | 2   | 2520-357 | 1/2-13 LOCK HEX NUT ZP         |
| 3   | 1   | 2986-327 | LEVER MOUNTING PLATE           |
| 4   | 1   | 2986-324 | LEVER PIVOT BUSHING            |
| 5   | 1   | 2986-308 | TUBE, SPRING ADJUSTMENT        |
| 6   | 1   | 2986-326 | SPRING ADJUSTING LEVER         |
| 7   | 2   | 2526-351 | 1/2 STANDARD FLATWASHER ZP     |
| 8   | 2   | 2502-296 | 1/2-13 X 2-1/2 HHCS GR. 5 ZP   |
| 9   | 1   | 6000-525 | CLOSE WHEEL SPRING, PAINTED    |
| 10  | 1   | 2986-422 | 5-13/32" INNER BUSHING         |
| 11  | 1   | 2986-209 | AVENGER STRAIGHT ARM W.A.      |
| 12  | 1   | 2533-110 | 1/4-28 ZERK, STRAIGHT SELF-TAP |
| 13  | 1   | 2502-324 | 5/8-11 X 3-1/2 HHCS GR. 5 ZP   |
| 14  | 2   | 2520-459 | 5/8-11 LOCK HEX NUT ZP         |
| 15  | 6   | 2526-451 | 5/8 STANDARD FLATWASHER ZP     |
| 16  | 1   | 2502-294 | 1/2-13 X 1-1/2 HHCS GR. 5 ZP   |
| 17  | 1   | 2565-366 | AVENGER COULTER DECAL          |
| 18  | 1   | 2967-381 | COMBO ADJUSTMENT PIN ZP        |
| 19  | 1   | 2986-337 | SKID SHOE ADJUSTMENT PLATE     |
| 20  | 1   | 2520-467 | 5/8-11 HEX LOCK NUT, JAM ZP    |
| 21  | 1   | 2967-302 | SPACER, 3/4" ZYD               |
| 22  | 1   | 2570-448 | 1/8 STD. HAIRPIN COTTER ZP     |
| 23  | 1   | 2986-332 | 5/16 CHAIN 2 LINKS             |
| 24  | 1   | 2502-336 | 5/8-11 X 4 HHCS GR. 5 ZP       |
| 25  | 1   | 2986-107 | AVENGER SKID SHOE SUB-ASSY     |
| 26  | 1   | 2520-352 | 1/2-13 HEX NUT ZP              |
| 27  | 1   | 2525-352 | 1/2 MED. LOCKWASHER ZP         |

The Skid Shoe can be attached to both R.H. and L.H. coulters assemblies. Begin by removing (2) 1/2" x 2" bolts from the 2986-423 spring stop and save for the next step. Remove the bolts from the R.H. side when working on a R.H. coulters or the bolts from the L.H. side when working on a L.H. coulters. Attach the 2986-327 to the spring stop using (2) 1/2" x 2" hex head bolts and reusing the locknuts that were saved from the previous step. Next, attach the grease zerk 2533-110 to the arm 2986-209 and also insert bushing 2986-422 (**pre-lube bushing before installing**) and attach to the 30" Coulters assembly using (1) 5/8" x 11" hex head bolt, (2) 5/8" flat washers and 5/8" hex lock nut. Attach the chain to the lower hole in the arm using (1) 1/2" x 1 1/2" hex head bolt, 1/2" flat washer and 1/2" hex lock nut. Hook the 6000-525 spring to the chain link and hook the other end into 2986-326 Spring Adjust Lever. Attach the adjustment lever to Lever Mounting Plate first using a 1/2" x 2 1/2" hex head bolt, 2986-324 bushing and 1/2" hex lock nut in the lower hole and using a 1/2" x 2 1/2" bolt, tube spacer and 1/2" lock nut in the upper hole. Now attach the Skid Shoe adjustment plate 2986-337 to the Skid Shoe Assembly 2987-107 using (1) 5/8" x 4" hex head bolt, (2) 5/8" flat washers, 3/4" spacer and (1) 5/8" hex lock nut. Fasten the Skid Shoe Assembly to the arm 2986-209 using (1) 5/8" x 3 1/2" hex head bolt, (2) 5/8" flat washers and (1) 5/8" hex lock jam nut.

**Adjust.** Set the shoe to the blade, equally front and back. Start with no gap between the blade and shoe. Set the shoe just touching the blade.

# ASSEMBLY INSTRUCTIONS

**STEP 14.** The coultter assembly is now ready to be mounted to the toolbar frame. YETTER suggests that mounting of the coultters start at the center of the front toolbar using RIGHT HAND coultter assemblies. At this time the 3-point hitch should already be mounted on the toolbar, if not, mount the 3-point hitch now. After hitch is mounted, the coultter spacing should be marked out on the toolbar. For 12" opener spacing the RIGHT HAND coultters mounted on the front bar will be spaced 24" on center. An example for even numbers of openers is shown in the illustration below.

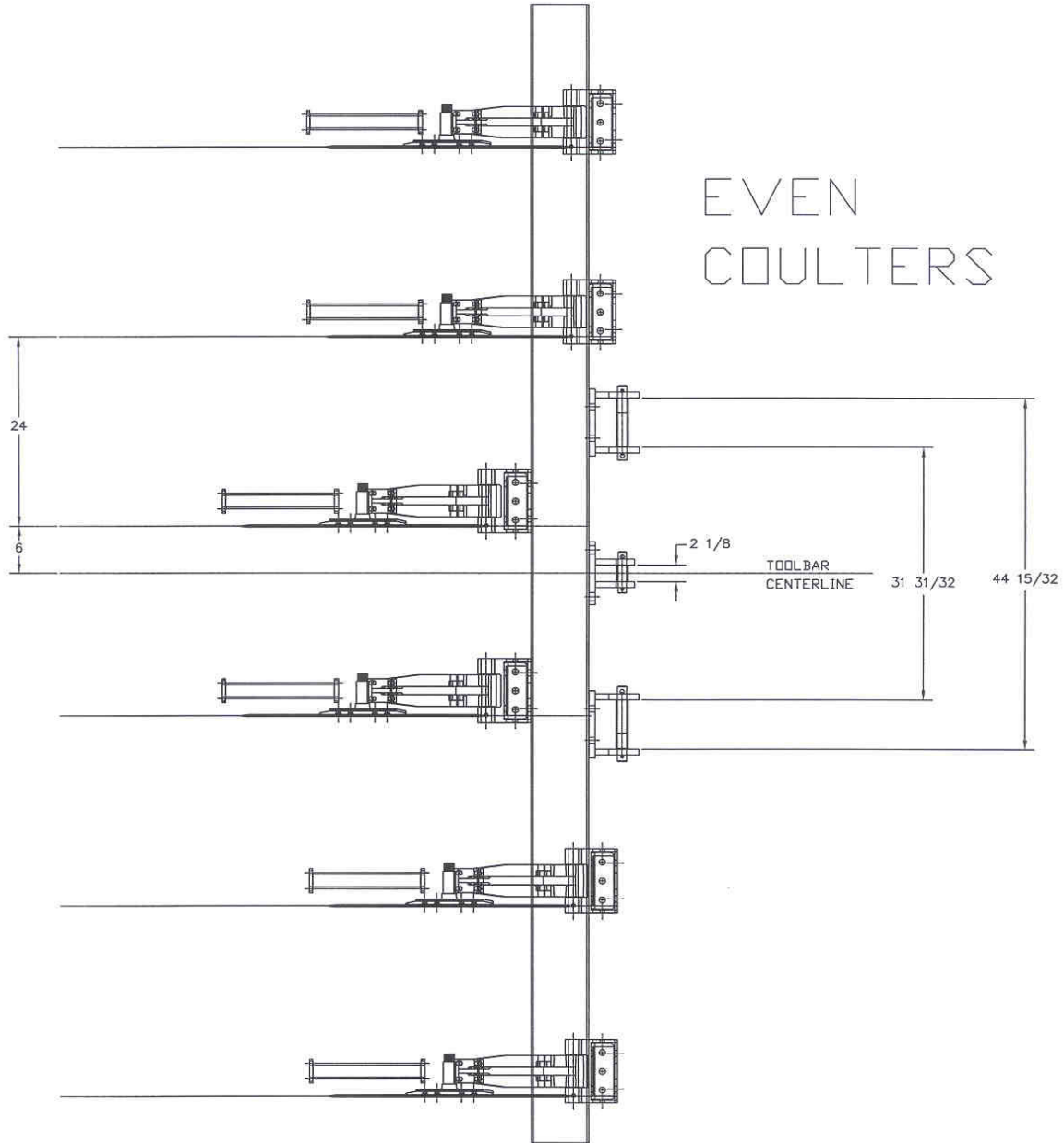


ILLUSTRATION SHOWN FROM TOP VIEW OF 12' TOOLBAR WITH DIMENSIONS SHOWN TO BLADE CENTERS

Attach the coultter to the toolbar using the (4)  $\frac{3}{4}$ " x 12" hex head bolts, 2986-306 straps,  $\frac{3}{4}$ " lock washers and  $\frac{3}{4}$ " hex nuts. (*assembly view shown clearly in **STEP 1.***)

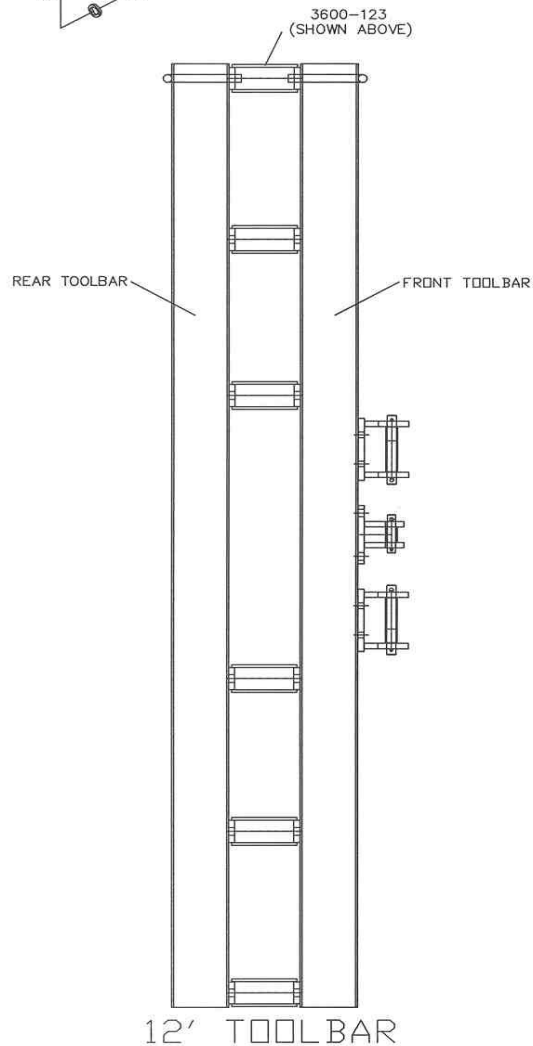
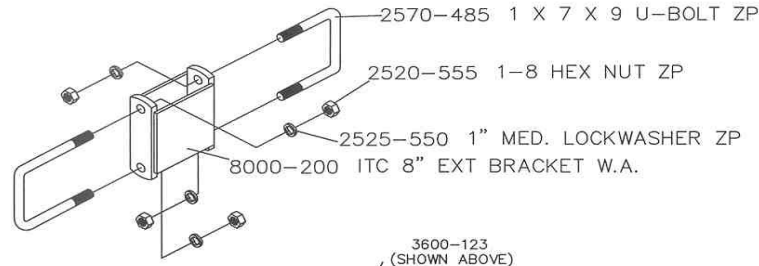
**NOTE:** In the hitch area, the opener may use the same bolts as the 3-point hitch plates.

Once the coultters are mounted at the desired location and spacing, tighten the  $\frac{3}{4}$ " bolts to 300 ft/lbs.

## ASSEMBLY INSTRUCTIONS

**STEP 15.** Attach the 8" toolbar spacers 8000-200 to the rear of the toolbar using the 1" x 7" x 9" u-bolts, lock washers and nuts provided. Do not over tighten the nuts as the spacers may have to be moved slightly so not to interfere with the openers that are mounted to the rear toolbar frame.

NOTE: 12' toolbar will need (6) 3600-123 – 8" Spacer Kits  
16' toolbar will need (8) 3600-123 – 8" Spacer Kits  
21' toolbar will need (10) 3600-123 – 8" Spacer Kits



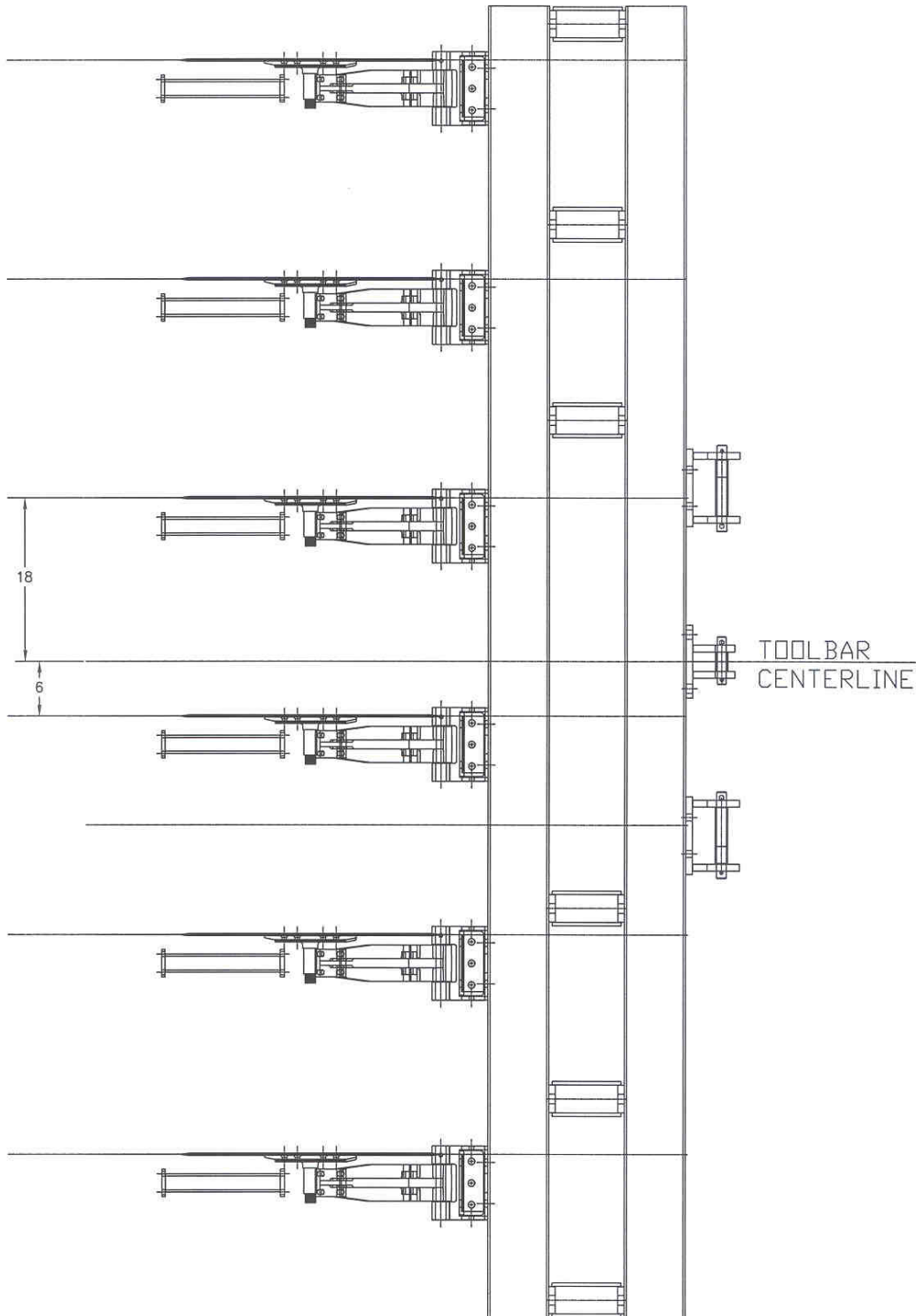
### COULTERS FROM PREVIOUS STEP NOT SHOWN FOR ASSEMBLY CLARITY

**STEP 16.** Attach the rear/second toolbar frame to the 8000-200 - 8" spacers using the remaining 1" x 7" x 9" u-bolts, lock washers and hex nuts provided.

NOTE: Do not over tighten the 1" hardware because the spacers may have to be moved slightly.

# ASSEMBLY INSTRUCTIONS

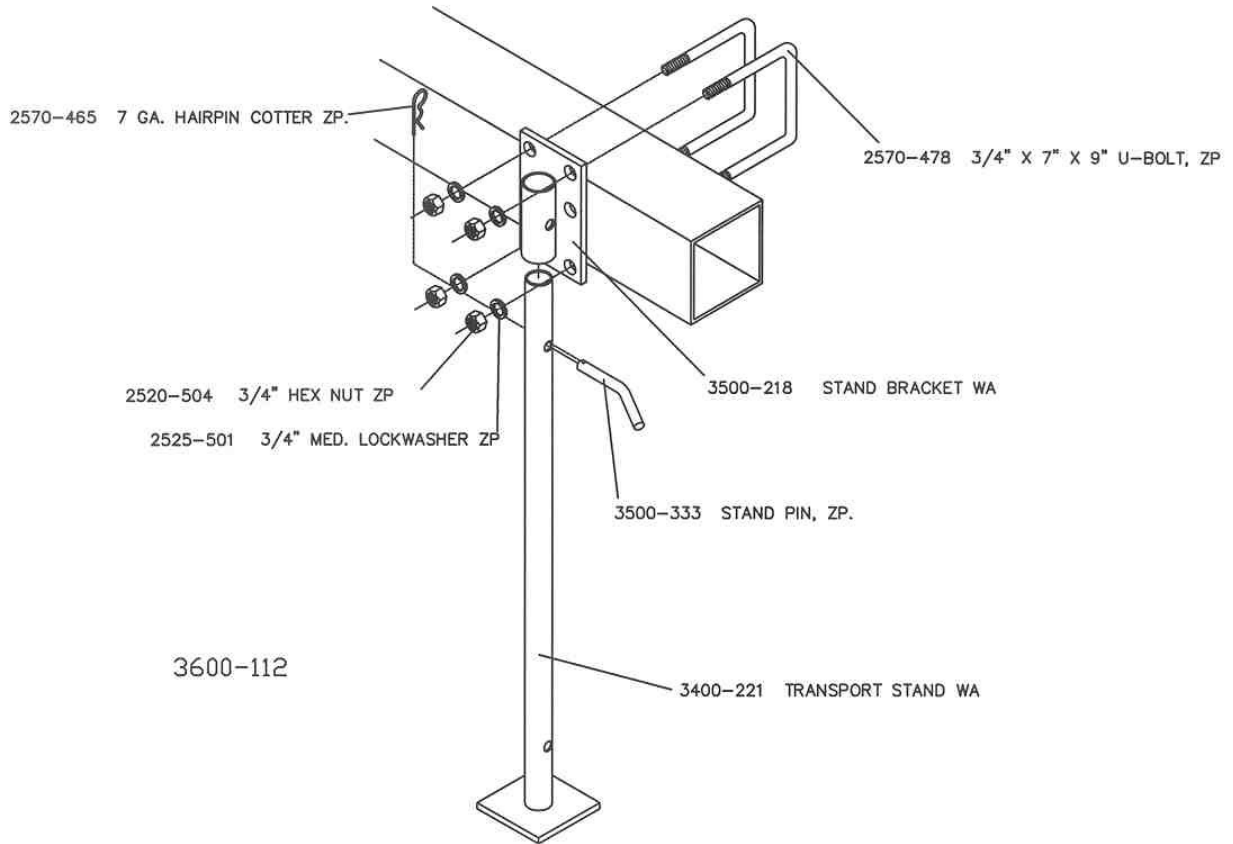
**STEP 17.** Attach the LEFT HAND coulters to the rear of the rear toolbar using (4)  $\frac{3}{4}$ " x 12" hex head bolts, 2986-306 strap,  $\frac{3}{4}$ " lock washers and  $\frac{3}{4}$ " hex nut. Once the coulters are mounted at the desired location and spacing, tighten the  $\frac{3}{4}$ " bolts to 300 ft/lbs. Also at this time the 1" u-bolt hardware that attaches the two toolbars together needs to be tightened securely.



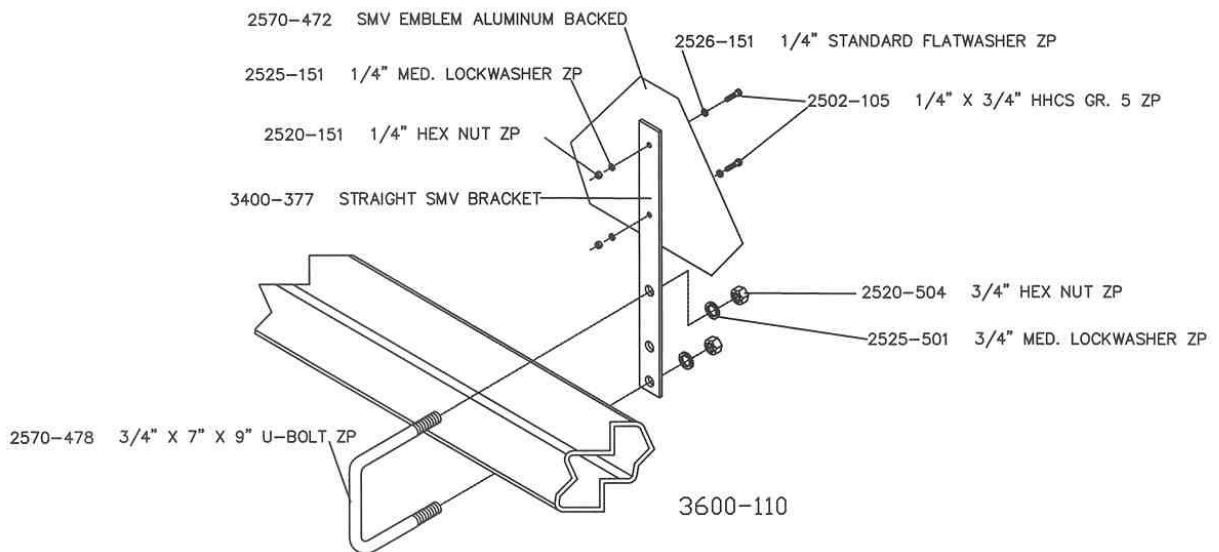
**RIGHT HAND COULTERS NOT SHOWN FOR ASSEMBLY CLARITY**

# ASSEMBLY INSTRUCTIONS

**STEP 18.** Attach the (2) 3600-112 Parking Stand Kits to the front of the front toolbar using the 3/4" x 7" x 9" u-bolts, 3/4" lock washers and 3/4" hex lock nuts.



**STEP 19.** Attach the 3600-110 SMV Warning Kit to the rear toolbar, centering on the toolbar or as close to the left of center as practical .



## OPERATION

Yetter Model 2986 30" coulters are designed to inject fumigant up to 12" deep. See your chemical dealer or manufacturer for recommended depth and row spacing for the chemical that is to be used for your particular application. A popular placement setting is 12" below the soil surface and 12" row spacing between coulters.

**IMPORTANT:** For proper operation, the toolbar frame must operate level (for and aft) and at the correct height, usually 22" – 25" while in operation.

**In hard no-till conditions the desired operating depth may not be possible. Tighten the spring pressure adjustment to obtain maximum depth if spring is flexing rather than lower the toolbar frame below the 22" minimum recommended setting.**

Toolbar weight may limit operating depth in hard soil conditions, particularly with tractor mounted toolbars. Add ballast to the toolbar frame. Example, 200 lb. per coulters has been added to get desired depth. The tractor may have to be equipped with a rear hitch hydraulic down force kit to obtain the optimum toolbar frame operating height of 22"-25". Blade operating depth is affected by spring tension, toolbar height, levelness of toolbar for and aft and soil conditions. As soil conditions change, toolbar settings and coulters adjustments will need to be changed as well.

Toolbar gauge wheel kits are optional, but recommended for use with the Avenger coulters because of toolbar frame height being very critical.

1. Set/mount coulters blades to run vertical to ground. Operation depth and blade wear can be affected if coulters are mounted crooked or if toolbar is not level side to side.
2. After a few hours use, check all bolts and setscrews for tightness and proper torque settings.
3. After a day of use (10-12 hours), check coulters hubs for loose bearings. There should be no end play in the hub bearings to allow it to wobble. If necessary, remove hub cap and cotter pin, adjust slotted nut to remove wobble, recommended torque of 13 ft/lbs, re-insert cotter pin and replace hub cap. If the wobble or looseness can not be corrected, the bearings, cups and seal will need to be replaced. **DO NOT RE-USE WORN OR DAMAGED PARTS.**
4. **KNIFE ADJUSTMENT IS CRITICAL.** Adjust knife-blade clearance regularly, see page 8 of this manual. Blade wear can affect operation in loose soil conditions. If knife adjustment does not stop plugging problems, it may be necessary to replace the 30" blade.



# OPERATION

## TOOLBAR FRAME HEIGHT ADJUSTMENT

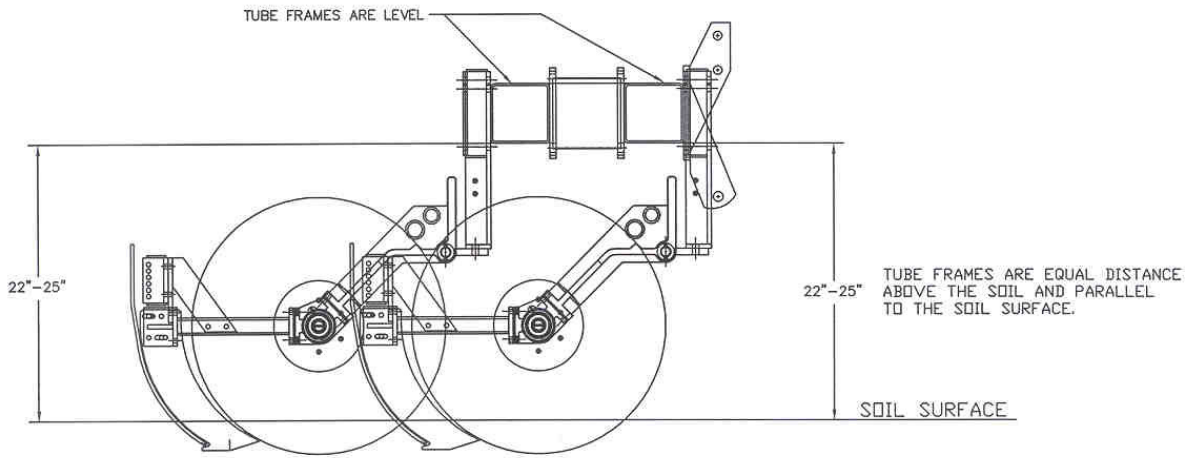


FIGURE A. (CORRECT)

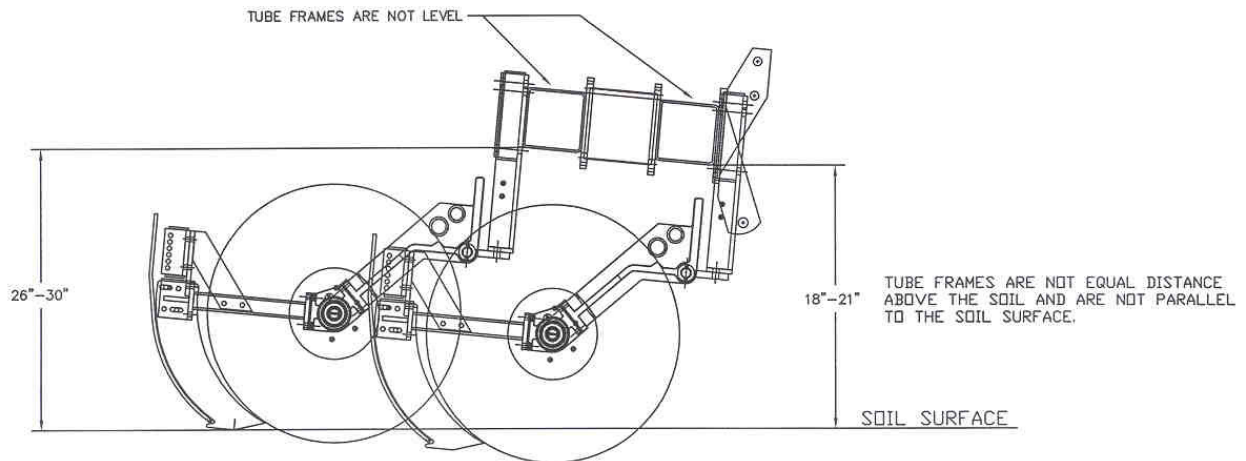


FIGURE B. (INCORRECT)

L374-1

**Figure A.** The toolbar frames are equally 22"-25" off the ground. To ensure that frame heights are equal, it is important that measurements are taken. The tube frames should be parallel with the soil surface.

**Figure B.** The hitch is set too low while the toolbar frames are not equal distance from the soil surface.

NOTE: The illustrations are intended to show that the settings are critical. **Tool frame levelness and height adjustment are very important settings for correct performance of the coulters.**

## OPERATION

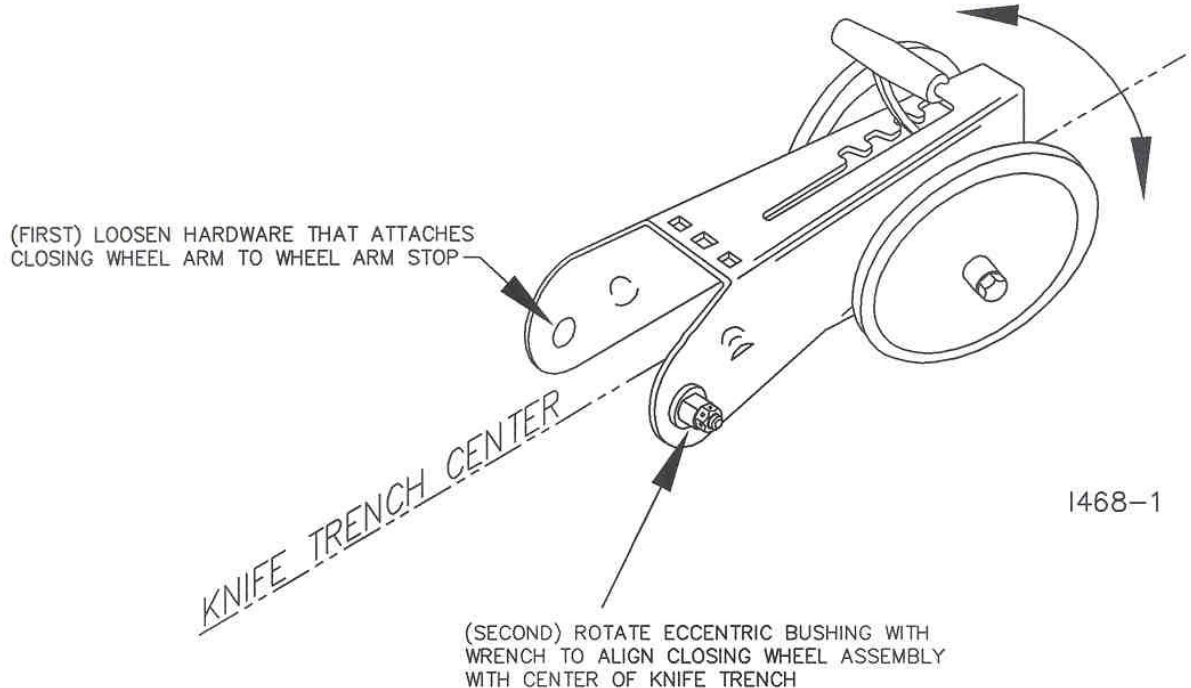


**CAUTION:** Raise toolbar to transport position and install all safety locks before adjusting the closing wheels.

**CLOSING WHEELS.** Angled closing wheels trail behind the opener to close the trench left by the blade. Adjustable spring pressure permits proper firming of soil beside the trench rather than directly above it. An eccentric bushing allows centering of the closing wheel on the row to properly apply pressure on both sides of the slot when closing the trench. When adjusted properly, the closing wheels are centered on the trench.

To adjust, loosen the bolt that attaches the closing wheel arm to wheel mount bracket. Rotate the eccentric bushing with wrench to align the closing wheel assembly with center of trench. Tighten bolt that attaches closing wheel arm to wheel mount bracket.

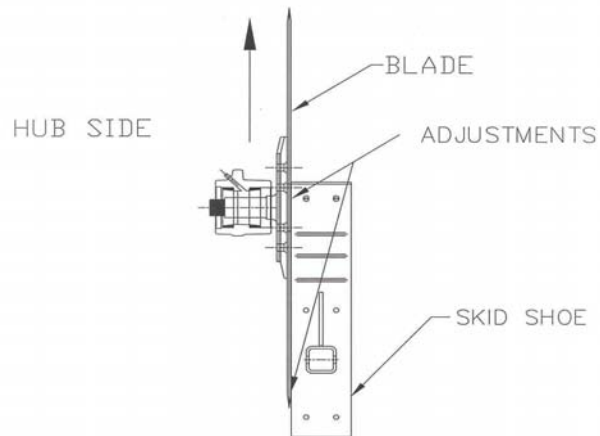
(CLOSING WHEEL ASSEMBLY SHOWN NOT ASSEMBLED TO COULTER FOR VISUAL CLARITY)



**NOTE:** After setting coulters to correct depth, check operation of closing wheels. The closing wheels must apply enough down pressure to close the trench and insure a good seal at the soil surface.

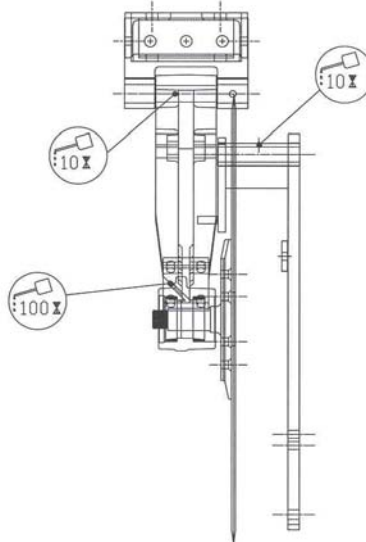
## OPERATION INSTRUCTIONS

### RIGHT HAND ASSEMBLY DIRECTION OF TRAVEL



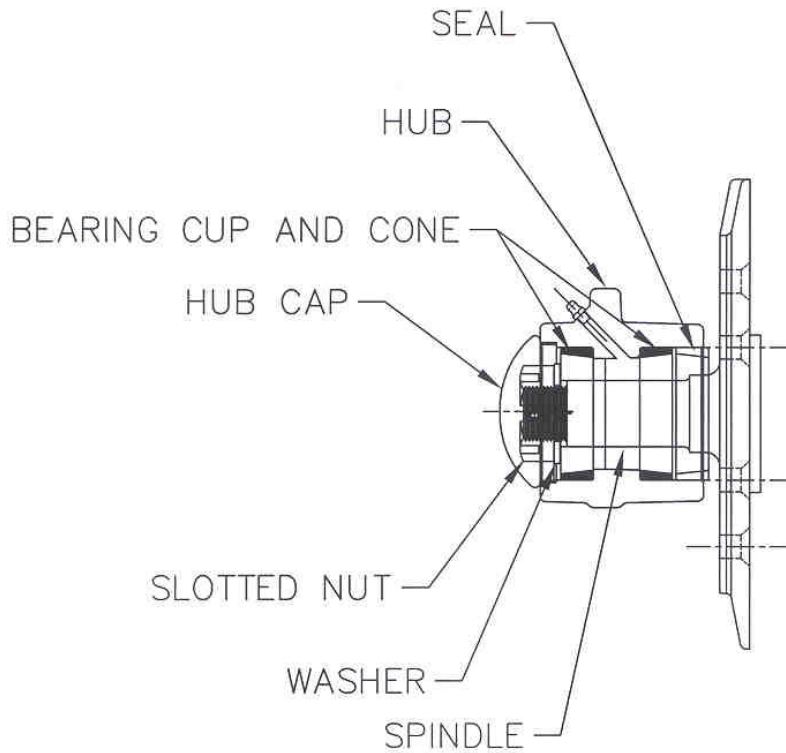
1. Adjust the shoe the same front and back.
2. Start with no gap between the blade and shoe.
3. Set the shoe just touching the blade.

### OPERATION MAINTENANCE



**LUBRICATION:** Each coulters is equipped with (3) grease zerks. To ensure longevity and reliability of the coulters, the recommended lubrication schedule should be followed using general purpose grease at hourly intervals indicated on symbol.

## OPERATION MAINTENANCE



### BEARING ADJUSTMENT:

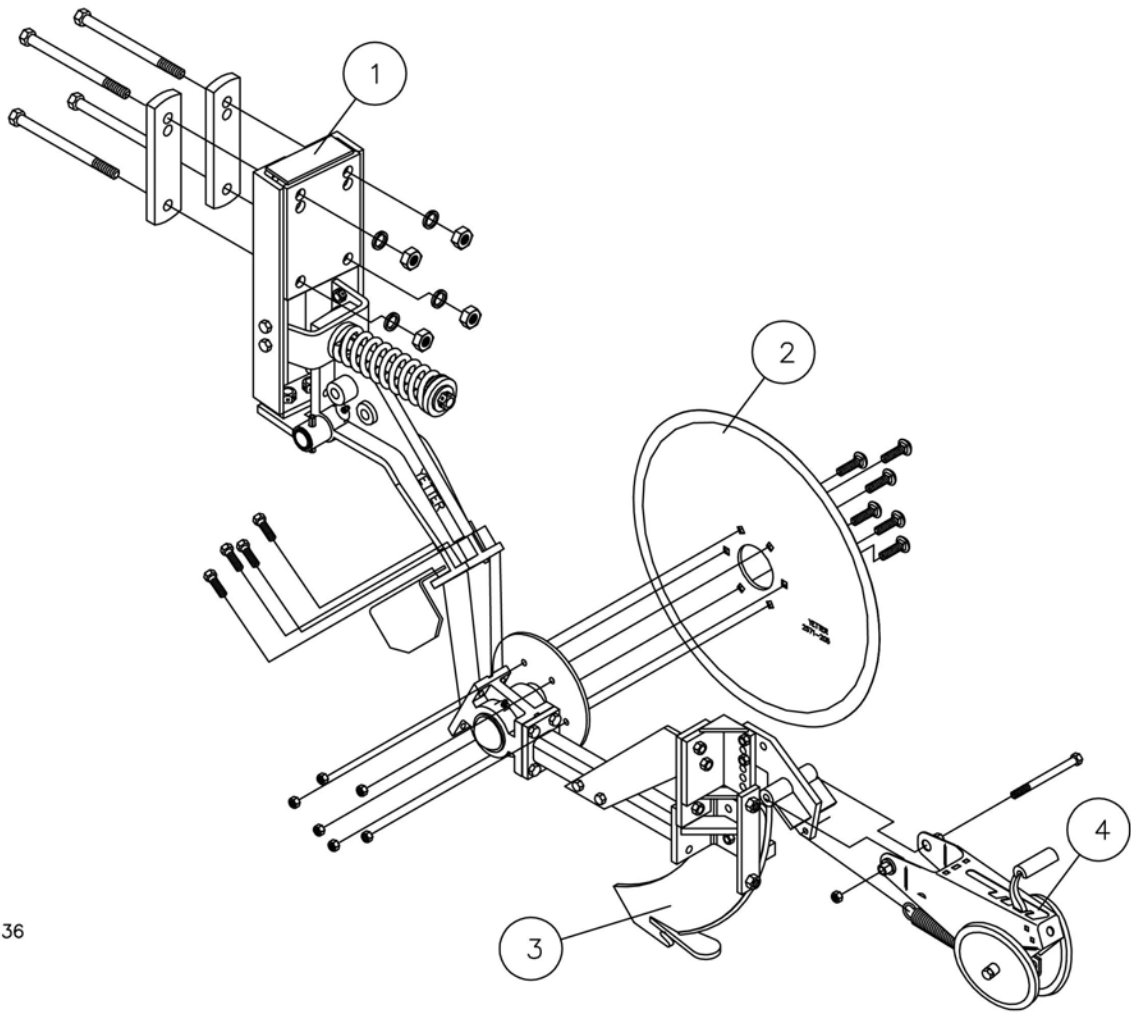
1. Raise the toolbar until the blade is clear of the ground. Place a safety stand under the toolbar. Remove the blade. Remove the hub cap, cotter pin, slotted nut, washer and spacer from the spindle shaft assembly.
2. Pull the coulter spindle shaft assembly from the hub. Remove bearing cones and seal.
3. Wash the old grease from the hub, bearing cups, coulter spindle shaft, seal and bearing cones. Inspect the condition of bearing cups, cones and seal. Replace if necessary.
4. Apply #2 multi-purpose lithium grease on each bearing. Make sure the space around each roller is filled. Lubricate the bearing cups.
5. Position the bearing in the cup and install the seal. Lubricate the seal lips and proceed with re-assembly of the removed parts including the blade. Blade bolt torque is 90 to 96 ft/lbs.
6. Tighten the slotted nut to 10 to 15 ft/lbs. or until a definite drag is felt when the blade is turned by hand. Back off the nut one slot position to line up the cotter pin hole with a slot. Secure the nut with a new cotter pin.

### KNIFE WEAR:

The lower portion of the knife and tube are subject to wear during operation. The rate of wear will depend on a variety of factors and in abrasive soil conditions the wear will be more rapid.

NOTE: In certain areas, replacement knives should be kept in stock, replacing worn knives as needed.

# PARTS IDENTIFICATION



1636

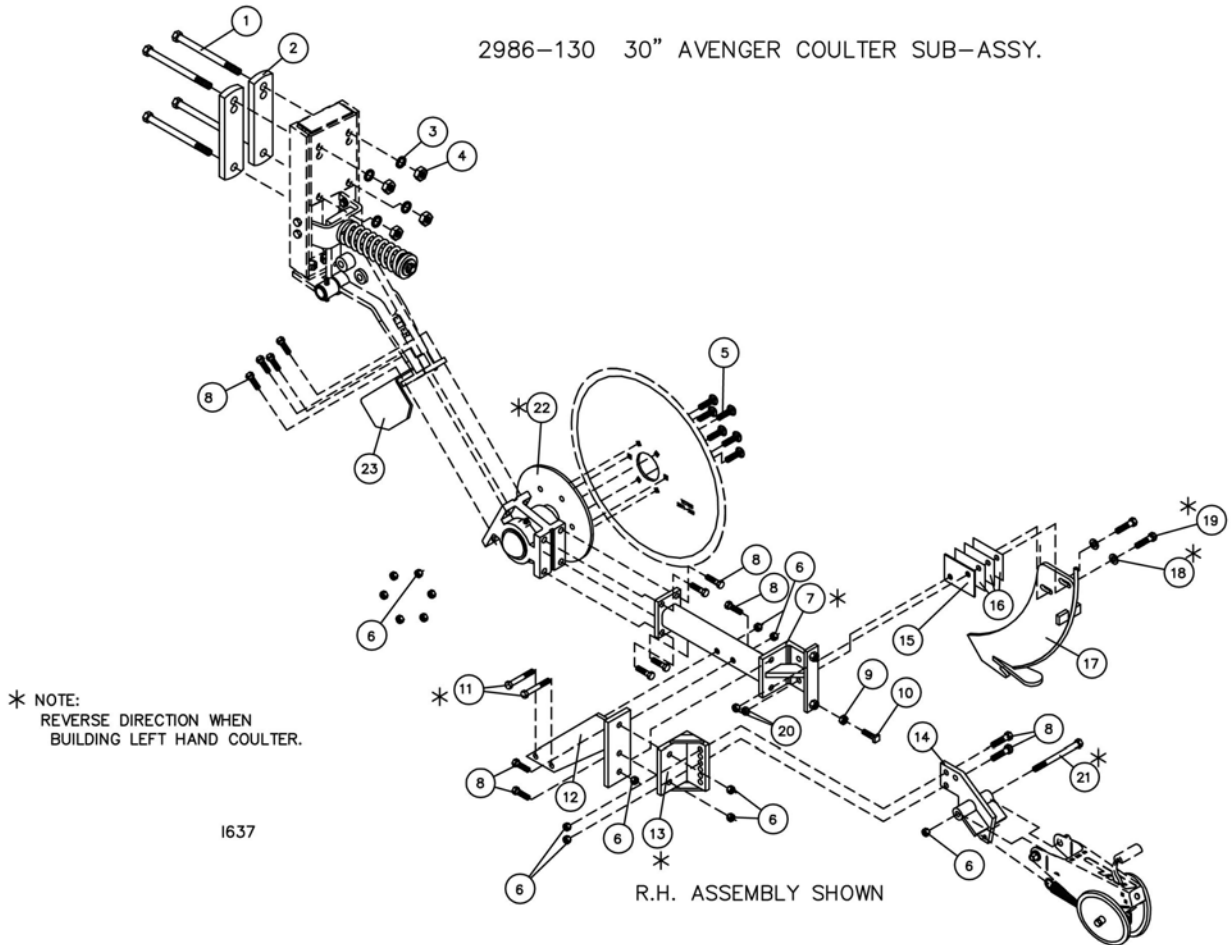
Right Hand Assembly Shown  
 All hardware shown is included in the 2986-130 bolt bag.

## 2986-030 – 30" AVENGER COULTER

| KEY | QTY. | PART NUMBER | DESCRIPTION                      |
|-----|------|-------------|----------------------------------|
| 1   | 1    | 2986-106    | MAIN ARM ASSEMBLY, STAIGHT MOUNT |
| 2   | 1    | 2571-205    | .355 X 30" COULTER BLADE         |
| 3   | 1    | 2986-130    | 30" AVENGER COULTER PARTS BUNDLE |
| 4   | 1    | 6000-002    | CLOSE WHEEL KIT                  |

# PARTS IDENTIFICATION

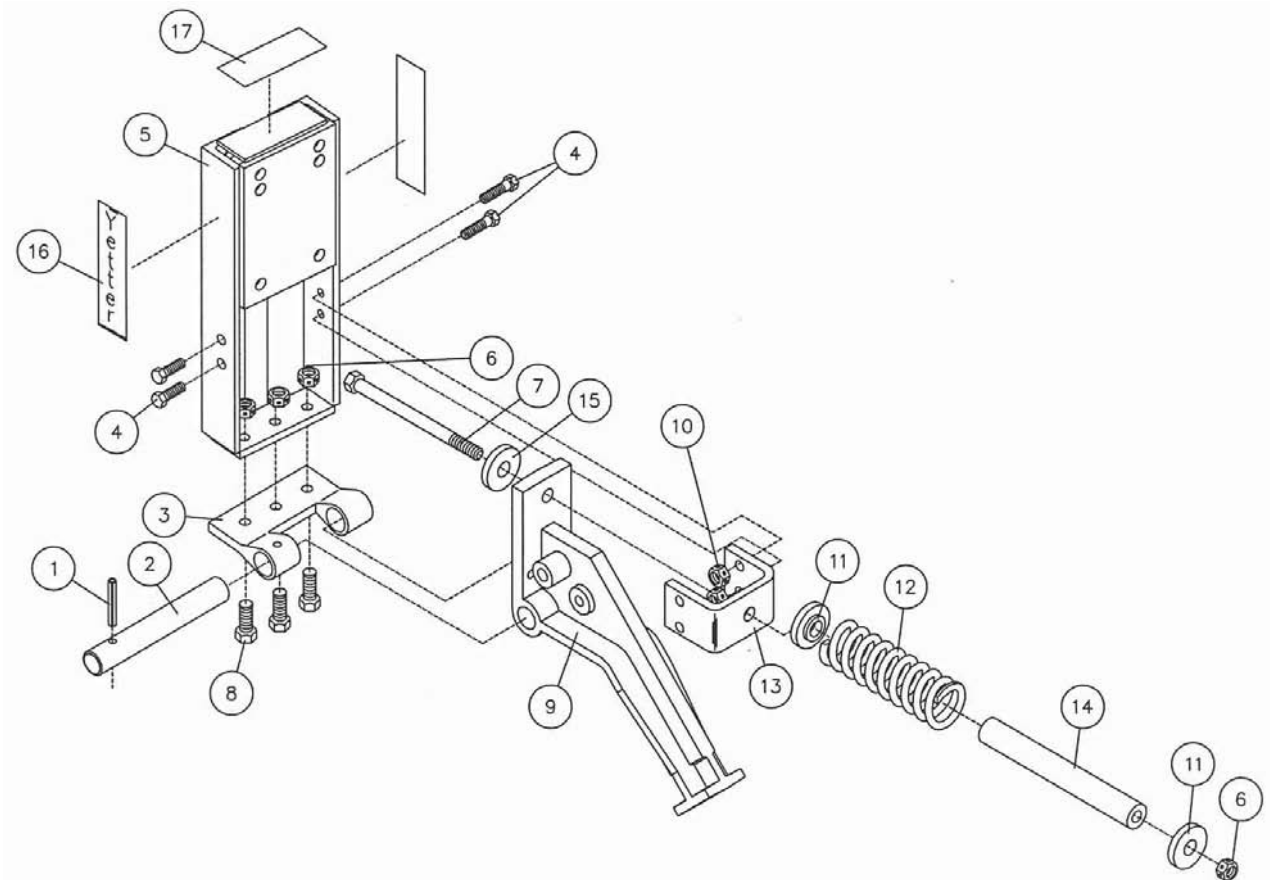
2986-130 30" AVENGER COULTER SUB-ASSY.



| KEY | QTY | PART NO. | DESCRIPTION                      |
|-----|-----|----------|----------------------------------|
| 1   | 4   | 2502-521 | 3/4-10 X 12 HHCS GR. 5 ZP        |
| 2   | 2   | 2986-306 | STRAP, AVENGER MOUNTING          |
| 3   | 4   | 2525-501 | 3/4 MED LOCKWASHER ZP            |
| 4   | 4   | 2520-504 | 3/4-10 HEX NUT ZP                |
| 5   | 6   | 2506-306 | 1/2-13 X 1-1/2 #3 PLOW BOLT      |
| 6   | 14  | 2520-357 | 1/2-13 LOCK HEX NUT ZP           |
| 7   | 1   | 2986-211 | REAR KNIFE ARM W.A.              |
| 8   | 13  | 2502-294 | 1/2-13 X 1-1/2 HHCS GR 5 ZP      |
| 9   | 1   | 2520-453 | 5/8-11 JAM HEX NUT ZP            |
| 10  | 1   | 2510-229 | 5/8-11 X 2-1/2 SQ. HCPSS GR 5 ZP |
| 11  | 2   | 2502-313 | 1/2-13 X 3 HHCS GR. 5 ZP         |
| 12  | 1   | 2986-213 | CLOSE SYSTEM MOUNT W.A.          |
| 13  | 1   | 2986-212 | CLOSE SYSTEM ADJUSTMENT W.A.     |
| 14  | 1   | 6200-201 | V-CLOSING WHL BRKT. W.A. 2995/96 |
| 15  | 1   | 2986-408 | 1/8" AVENGER KNIFE SHIM ZYD      |
| 16  | 3   | 2986-407 | 16 GA. AVENER KNIFE SHIM ZYD     |
| 17  | 1   | 2986-214 | 30" AVENGER KNIFE W.A.           |
| 18  | 2   | 2526-355 | 1/2 FLAT WASHER, HARD'ND, PC     |
| 19  | 2   | 2502-350 | 1/2-13 X 2 HHCS GR. 8 ZP         |
| 20  | 2   | 2520-362 | 1/2-13 HEX NIF-LOK NUT ZP        |
| 21  | 1   | 2502-372 | 1/2-13 X 6-1/2 HHCS GR. 5 ZP     |
| 22  | 1   | 2986-111 | HUB & SPINDLE ASSEMBLY           |
| 23  | 1   | 2986-318 | BRACKET, HUB CAP RETAINER        |

# PARTS IDENTIFICATION

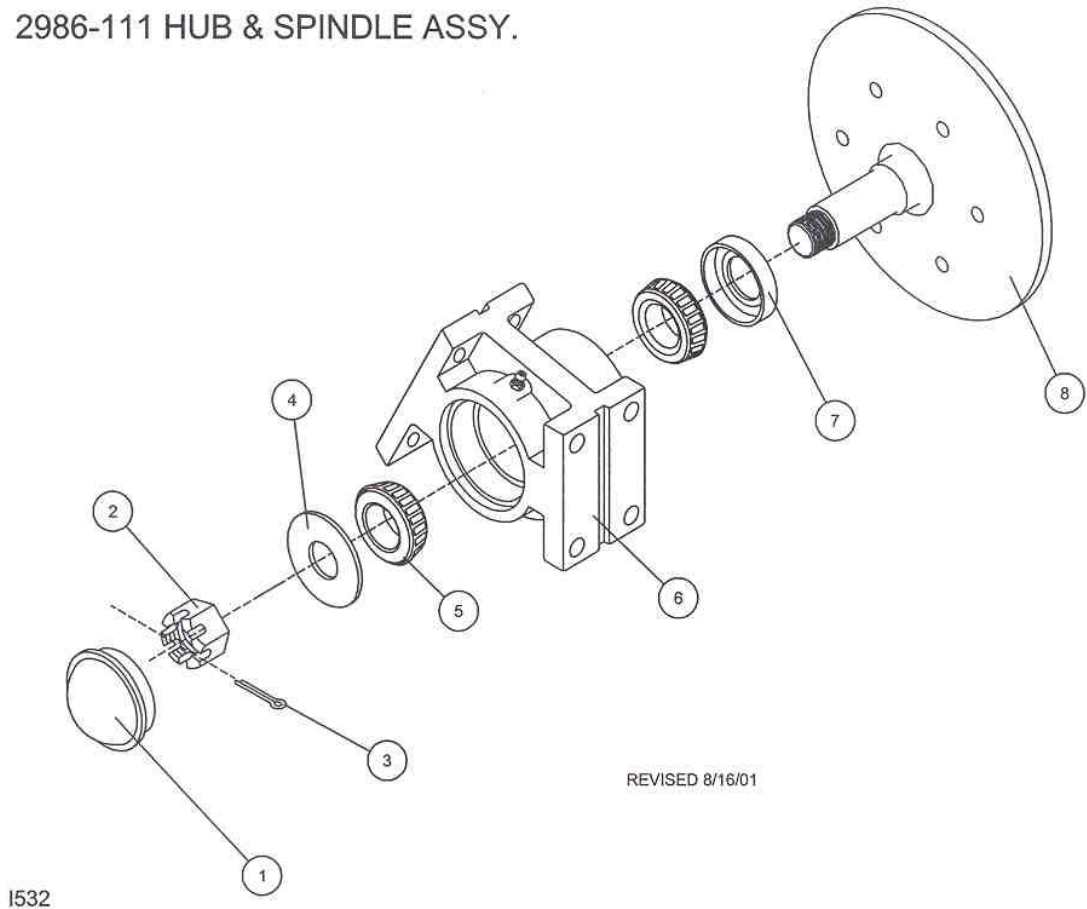
## 2986-106 - MAIN ARM ASSY., STRAIGHT MOUNT



| KEY | QTY. | PART NUMBER | DESCRIPTION                   |
|-----|------|-------------|-------------------------------|
| 1   | 1    | 2530-214    | 3/8 X 2 1/4 ROLL PIN.         |
| 2   | 1    | 2986-305    | PIN, MTG. BRACKET PIVOT       |
| 3   | 1    | 2986-210    | AVENGER MOUNT W.A., STRAIGHT  |
| 4   | 4    | 2502-351    | 1/2-13 X 2 HHCS GR 5 ZYD      |
| 5   | 1    | 2986-200    | MOUNTING BRACKET W.A.         |
| 6   | 4    | 2520-515    | 3/4-10 HEX LOCK NUT ZYD       |
| 7   | 1    | 2502-523    | 3/4-10 X 15 1/2 HHCS GR 5 ZYD |
| 8   | 3    | 2502-503    | 3/4-10 X 2 HHCS GR 5 ZYD      |
| 9   | 1    | 2986-401    | MOUNTING ARM                  |
|     | 1    | 2533-110    | 1/4-28 ZERK STRAIGHT SELF-TAP |
| 10  | 4    | 2520-357    | 1/2-13 HEX LOCK NUT ZYD       |
| 11  | 2    | 2986-405    | SPRING BUSHING                |
| 12  | 1    | 2986-342    | COMPRESSION SPRING, AVENGER   |
| 13  | 1    | 2986-423    | SPRING STOP                   |
| 14  | 1    | 2550-771    | 10" POLY HELPER SPRING        |
| 15  | 1    | 2526-501    | 3/4 STANDARD FLAT WASHER ZYD  |
| 16  | 2    | 2565-366    | AVENGER COULTER DECAL         |
| 17  | 1    | 2565-423    | AVENGER "IMPORTANT" DECAL     |

# PARTS IDENTIFICATION

## 2986-111 HUB & SPINDLE ASSY.



I532

| KEY | QTY. | PART NUMBER | DESCRIPTION                           |
|-----|------|-------------|---------------------------------------|
| 1   | 1    | 2550-065    | DUST CAP, #909912                     |
| 2   | 1    | 2986-329    | MACH. CASTLE NUT 1 1/4-12             |
| 3   | 1    | 2531-124    | 3/16 X 2 COTTER PIN                   |
| 4   | 1    | 2526-562    | 1 17/64 ID X 2 1/4 OD X 10 GA. MB BLK |
| 5   | 2    | 2550-057    | BEARING, KOYO #2788R                  |
| 6   | 1    | 2986-403    | MOUNTING HUB                          |
|     | 1    | 2533-110    | 1/4-28 ZERK STRAIGHT SELF-TAP         |
|     | 2    | 2550-056    | CUP, KOYO #2729                       |
| 7   | 1    | 2550-058    | SEAL, CR #17699                       |
| 8   | 1    | 2986-402    | 25" COULTER SPINDLE                   |

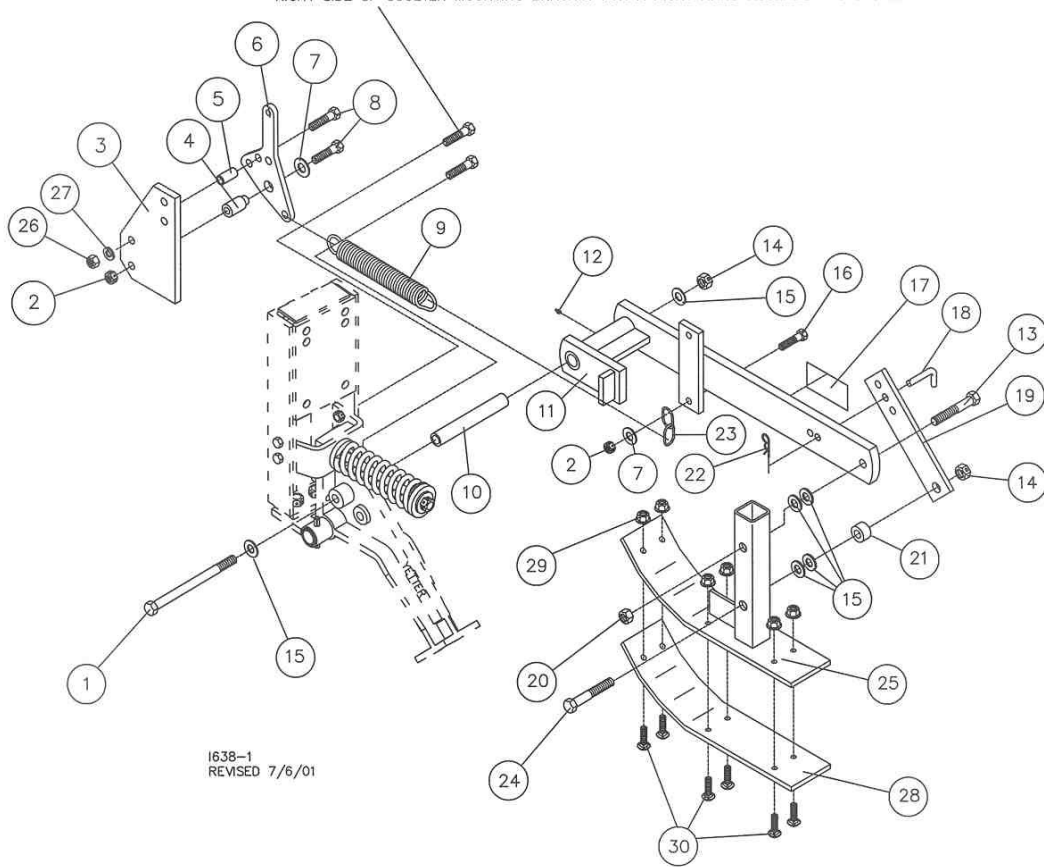
NOTE: Detail #2 is to be torqued to between 12 and 15 ft/lbs.



# PARTS IDENTIFICATION

## 2986-108 MAIN ARM & SKID SHOE ASSEMBLY

NOTE: REMOVE THE EXISTING 2" BOLTS OUT OF MOUNTING BRACKET AND INSTALL DETAIL #3 ON THE RIGHT SIDE OF COULTER MOUNTING BRACKET FOR A RIGHT HAND ASSEMBLY AS SHOWN.



1638-1  
REVISED 7/6/01

| KEY | QTY. | PART NUMBER | DESCRIPTION                     |
|-----|------|-------------|---------------------------------|
| 1   | 1    | 2502-348    | 5/8-11 X 11 HHCS GR 5 ZYD       |
| 2   | 2    | 2520-357    | 1/2-13 HEX LOCK NUT ZYD         |
| 3   | 1    | 2986-327    | LEVER MOUNTING PLATE            |
| 4   | 1    | 2986-324    | LEVER PIVOT BUSHING             |
| 5   | 1    | 2960-372    | SPRING STOP, ZYD.               |
| 6   | 1    | 2986-326    | SPRING ADJUSTING LEVER          |
| 7   | 2    | 2526-351    | 1/2 STANDARD FLAT WASHER ZYD    |
| 8   | 2    | 2502-296    | 1/2-13 X 2 1/2 HHCS GR 5 ZYD    |
| 9   | 1    | 6000-525    | CLOSE WHEEL SPRING, PAINTED     |
| 10  | 1    | 2986-422    | 5 13/32" INNER BUSHING          |
| 11  | 1    | 2986-209    | AVENGER STRAIGHT ARM W.A.       |
| 12  | 1    | 2533-110    | 1/4-28 ZERK, STRAIGHT SEFL-TAP  |
| 13  | 1    | 2502-324    | 5/8-11 X 3 1/2 HHCS GR 5 ZYD    |
| 14  | 2    | 2520-459    | 5/8-11 HEX LOCK NUT ZYD         |
| 15  | 6    | 2526-451    | 5/8 STANDARD FLAT WASHER ZYD    |
| 16  | 1    | 2502-294    | 1/2-13 X 1 1/2 HHCS GR 5 ZYD    |
| 17  | 1    | 2565-366    | AVENGER COULTER DECAL           |
| 18  | 1    | 2967-381    | COMBO ADJUSTMENT PIN ZYD        |
| 19  | 1    | 2986-337    | SKID SHOE ADJUSTMENT PLATE      |
| 20  | 1    | 2520-467    | 5/8-11 HEX LOCK JAM NUT ZYD     |
| 21  | 1    | 2967-302    | SPACER, 3/4 ZYD                 |
| 22  | 1    | 2570-448    | 1/8 STD. HAIRPIN COTTER ZYD     |
| 23  | 1    | 2986-332    | 5/16 CHAIN 2 LINKS              |
| 24  | 1    | 2502-336    | 5/8-11 X 4 HHCS GR 5 ZYD        |
| 25  | 1    | 2986-208    | AVENGER SKID SHOE W.A.          |
| 26  | 1    | 2520-352    | 1/2-13 HEX NUT ZYD              |
| 27  | 1    | 2525-352    | 1/2 MED. LOCK WASHER ZYD        |
| 28  | 1    | 2986-340    | 4 1/4" POLY SKID SHOE           |
| 29  | 6    | N10213      | 5/16-18 HEX FLANGE SERRATED NUT |
| 30  | 6    | 2505-206    | 5/16-16 X 1 CAR BOLT GR 5 ZYD   |

## TROUBLESHOOTING

**Problem**

Closing wheels are plugging

**Cause**

Mounting bracket height adjusted too low

**Solution**

Adjust the mounting bracket so that the wheel arm is parallel or running slightly uphill to soil surface.

Closing wheels are mounted side by side

Mount the closing wheels offset. One forward, one back.

Spring tension setting is too heavy

Adjust spring tension to a lighter-forward-position.

Fumigant too shallow

Blade not penetrating deep enough

Increase/Tighten coil spring tension.

Injection knife worn

Replace knife.

Hole worn in injection tube

Repair tube or replace knife/tube assembly.

Fumigant will not flow

Kinked/Crushed supply hose

Replace supply hose.

Injection tube is plugged

Check for obstruction in injection tube.

Blade not turning properly

Bearing seized in the hub assembly

Repair/replace worn cups, cones and seals.

Loose soil

Increase blade cutting action by adding a shim to the Avenger mount bracket at the toolbar on the side opposite the blade.

Residue/Plastic plugging-wedging between blade and knife

Excessive blade knife clearance

Knife adjustment should be as close as possible at tip but provide maximum opening at upper end.

Knife not correctly aligned behind blade

Use shims more/less to align knife directly behind the blade.

Blade not penetrating

Toolbar height too high

Adjust height of toolbar to 22"-25" above soil surface.

Insufficient coulter spring tension

Increase tension on coil spring – turn lock nut clockwise.

Too much spring tension on closing wheels

Adjust spring tension on closing wheel to lightest setting.

Lack of toolbar weight

Add additional ballast to the toolbar frame.  
Example: 200# per coulter.  
Refer to tractor O/M for hitch lift capacity.

## TROUBLESHOOTING

### ***Problem***

### ***Cause***

### ***Solution***

**Coulter blade not deflecting –  
spring not flexing**

**Excessive spring pressure**

**Decrease tension on coil  
spring – turn lock nut  
counterclockwise.**

**Remove poly helper spring  
from inside the coil spring.**

**Coulter damaged**

**Rocky conditions**

**Remove poly helper spring  
from inside the coil spring.**

**Toolbar height too low, limiting  
coulter travel**

**Adjust height of toolbar to 22”-  
25” above soil surface.**

**Closing wheels do not seal  
trench**

**Insufficient coulter spring  
tension**

**Increase tension on coil spring  
– turn lock nut clockwise.**

**Toolbar height is too low**

**Adjust height of toolbar to 22”-  
25” above soil surface.**

**Unable to seal in fumigants  
properly**

**Conditions, soil, adjustments  
and settings**

**Stop application and contact  
your fumigant supplier or  
Yetter Manufacturing Co. at  
1-800-447-5777**

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