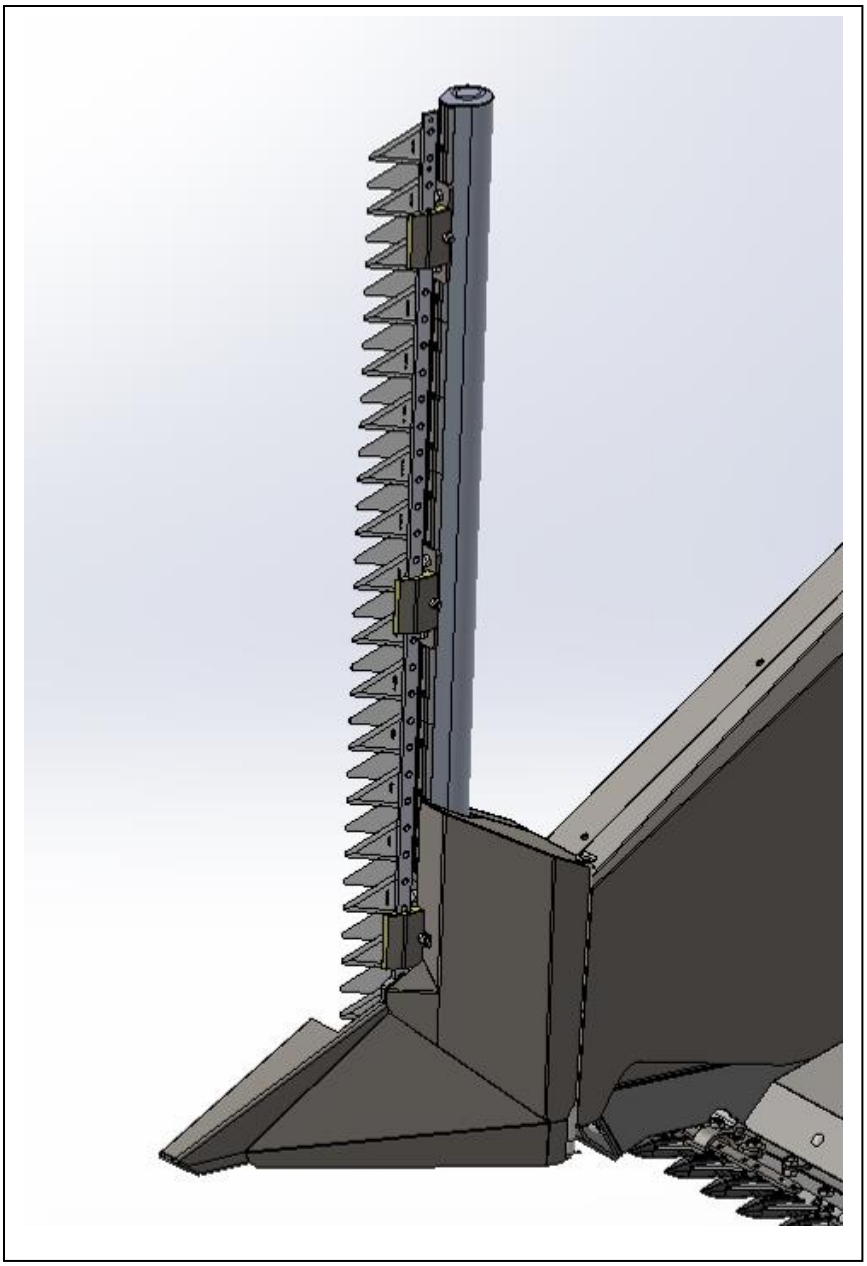
AirFLEX

AirFlex 200 Series

FLEX Header

HB#95163

Vertical Shear Installation and Operating Instructions



Honey Bee

This manual includes all necessary information to install the vertical shear assemblies on all model years of AirFlex headers. It also includes information on yearly maintenance on the vertical shears.

NOTE: Model year 2016 and older AirFlex headers will need to be made “Vertical Shear Ready” before the shear assembly can be installed. Please contact the HoneyBee Parts Department for more information and assistance on this “Vertical Shear Ready” kit for 2016 and older AirFlex headers.

NOTE: The vertical shears are heavy and have sharp knife sections on them. Please take care with lifting, handling and installing vertical shears on header. If header is attached to combine please make sure combine is shut off and all rotating elements have stopped before installing. Use cut resistant gloves when handling the shears and steel toe shoes/boots.

Installation:

Tools Required:

- M10 wrenches and sockets.
- 7/16” wrenches and sockets.
- 1/2" wrenches and sockets.
- 3/8” or 1/4” Ratchet.
- Small ball-peen hammer.
- 7/32” Allen Head wrench or socket.
- 3/4” socket or wrench.
- Red 271 Loctite or equivalent thread locking compound.

Step 1 – Collect all required parts

1 – M6 F/Lock Nuts (HB#61713) - 14

2 – M6 x 20mm Bolts (HB#26638) - 14

3 – ¼ UNC F/Lock Nuts (HB#19900) - 4

4 – ¼ x ¾ UNC GR5 Bolts (HB#19452) - 4

5 – Vertical Knife Stop Plates (HB#G200981) - 2

6 – Vertical Shear Cover Plate (HB#G or H202270, only required on 2017 and older headers, already installed from factory on 2018 and newer headers) - 2

7 – Vertical Shear Knife Head Assembly (HB#G202268) – 2

Left Hand Vertical Shear Assembly (HB#G201586) (Not Shown in picture below)

Right Hand Vertical Shear Assembly (HB#G200949) (Not shown in picture below)

½”x2-1/2” bolts (HB#19560) (Not shown in picture below) – 2

½” Flat Washers (HB#19924) (Not shown in picture below) – 2

½” UNC nuts (HB#19804) (Not shown in picture below) - 2

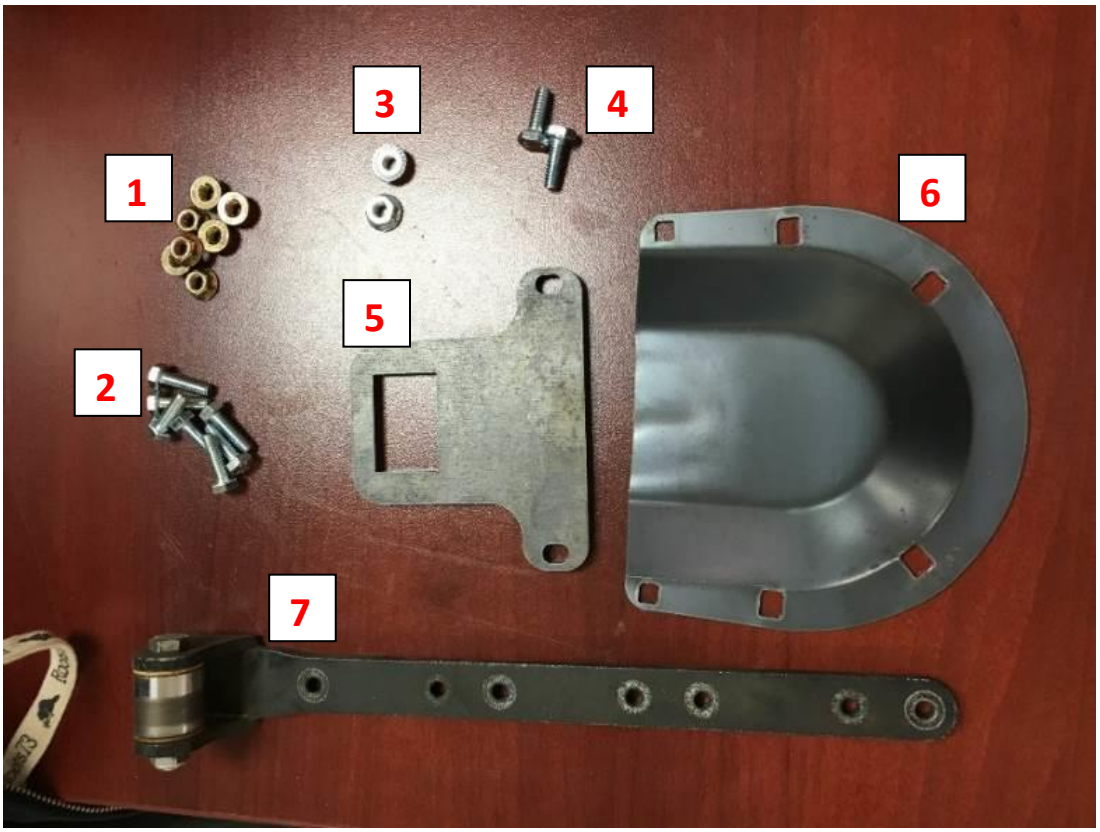


Figure 1: Parts Required (Parts Will Come Painted) (Displayed parts for one side only).

Step 2 – Remove the 8 - 3/16” button head bolts (7/32” Allen Head) in order to remove end tin (see figures 2 and 3).

Figure 2: Side of AirFLEX with end tin in place.

Figure 3: Side of AirFLEX with end tin removed.

Step 3 – Install vertical shear knife heads on both knife ends. Remove the 7 - M6 x 16mm closest to the end of the knife assembly (see figure 4), put vertical shear knife head on top of the knife assembly and bolt together using 7 - M6 x 20mm bolts applying Red 271 Loctite to threads and M6 F/lock nuts (see figure 5). May need to move knife assembly back and forth and remove guards to gain access to holes. Ensure that 5/16" bolt holding plastic bushing is tightened to 21 ft-lb (for other recommended bolt torques refer to end of HoneyBee AirFLEX Operators manual) so that the plastic bushing spins while the bolt does not (see figure 6).

Figure 4: Knife assembly without vert. shear knife head.

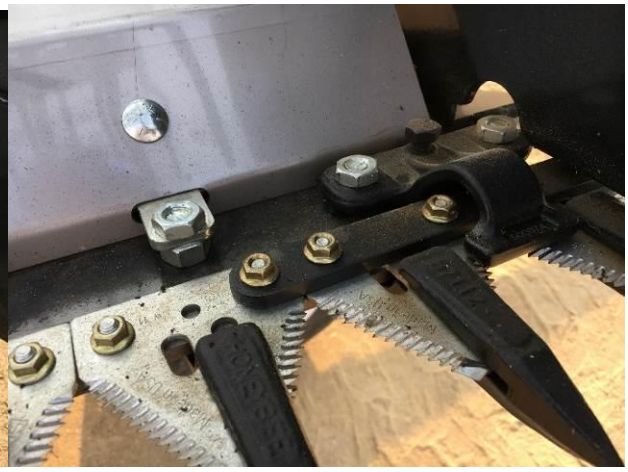


Figure 5: Knife assembly with vert. shear knife head.

Figure 6: Knife head showing bushing and bolt.

Step 4 – Install vertical knife stop plate. Using 2 – ¼ x ¾ bolts and 2 – ¼ F/Lock nuts secure stop plate to the top plate of the end paddle as seen in figures 7 and 8. Ensure it is on the top of the end paddle (not on the bottom).

Figure 7: Stop plate not installed.

Figure 8: Stop plate installed.

Step 5 – Install vertical shear cover plate while end tin is removed. Use a 7/16" socket or wrench and install the 1 x HB#G or H202270 cover plate while reusing the mounting hardware. See figures 9 and 10. This is only required on 2017 and older AirFlex as bubbled cover plate is installed on all 2018 and newer AirFlex directly from the factory.

Figure 9: Vert. shear cover plate not installed.

Figure 10: Vert. shear cover plate installed.

NOTE: The hex insert right above the bubbled shear cover plate may interfere with the travel of the vertical knife support plate (see figure 11).

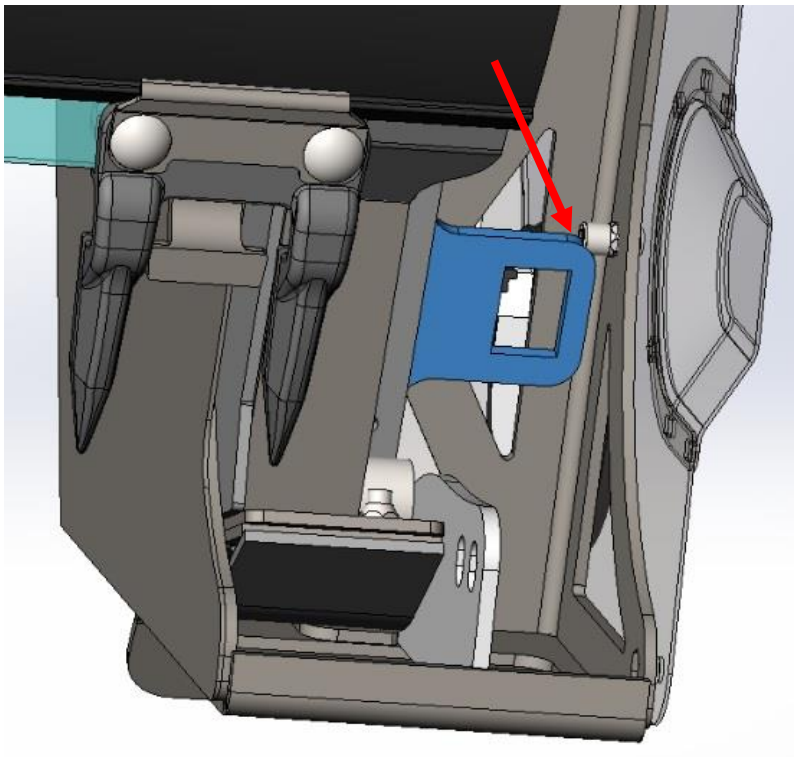


Figure 11: Image showing interference between hex insert nut and vertical knife support plate.

If the crop divider does not go through its full range of travel and catches on this insert, please remove insert and install a button head bolt (5/16" x 1" Button Head Bolt) with 5/16" flat washer pointing outward with a 5/16" Flange Lock on the outside (see figure 12 below).

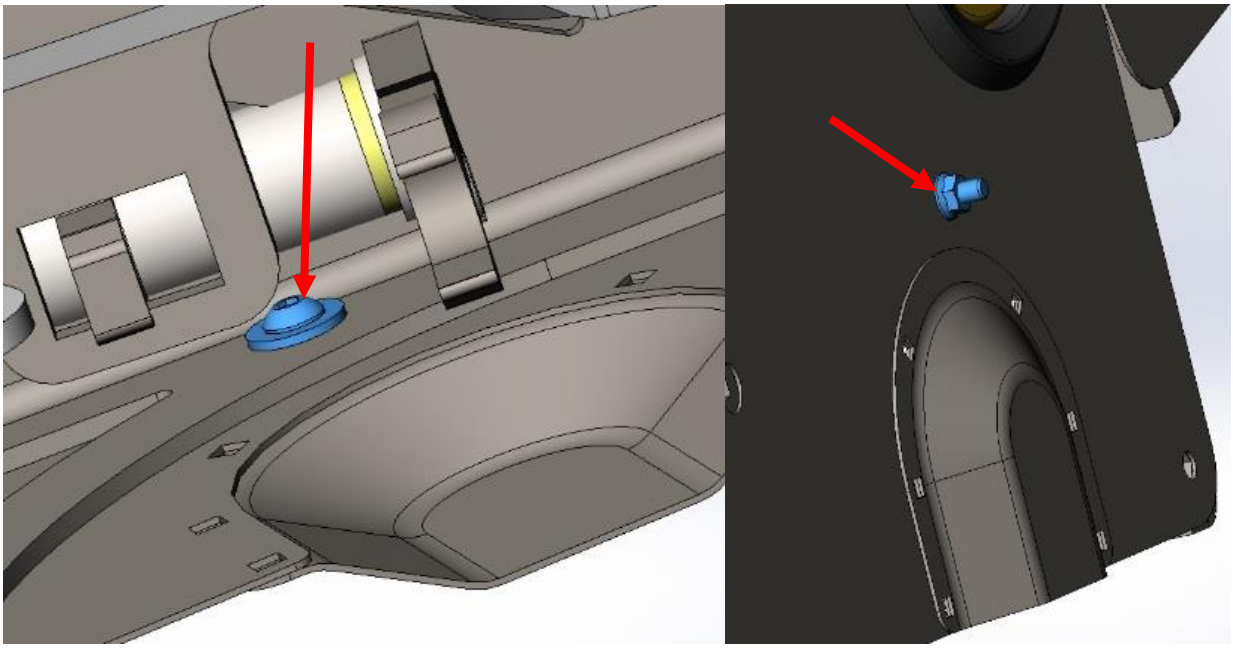


Figure 12: Image showing button head bolt installed to get rid of interference.

Step 6 – Re-Install end tin and repeat steps on the other side.

Step 7 – Locate 2 holes on the underside and front end of both the left hand and right hand side of the header as shown in figure 13 in order to lock up dividers. Make sure to use the lowest hole when locking up the dividers.

Figure 13: LH Divide

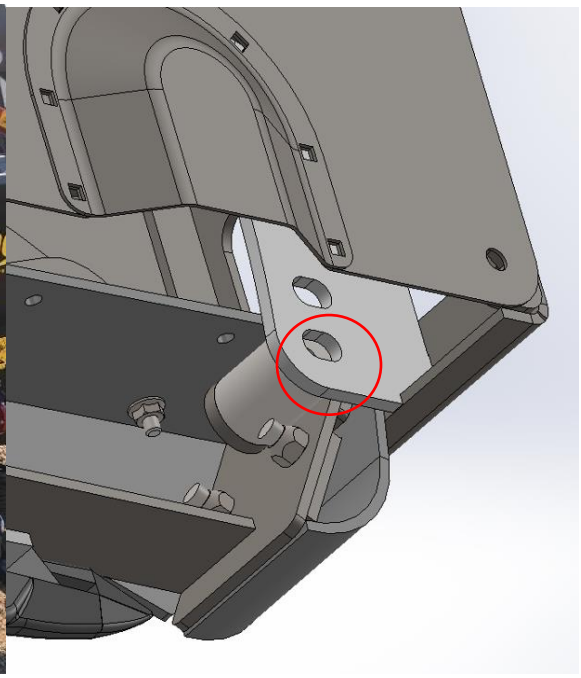


Figure 14: 2 Holes on Underside of Divider for Lockup

Step 8 - Ensure that the 2 holes in figure 12 are aligned and insert the 1/2” x 2-1/2” bolt through. There is a hex insert on the inside of the hole that will hold the nut in place while tightening with a 3/4” socket or wrench. When tight it should look the same as figure 15. Note do not use the red circled hole in figure 15.

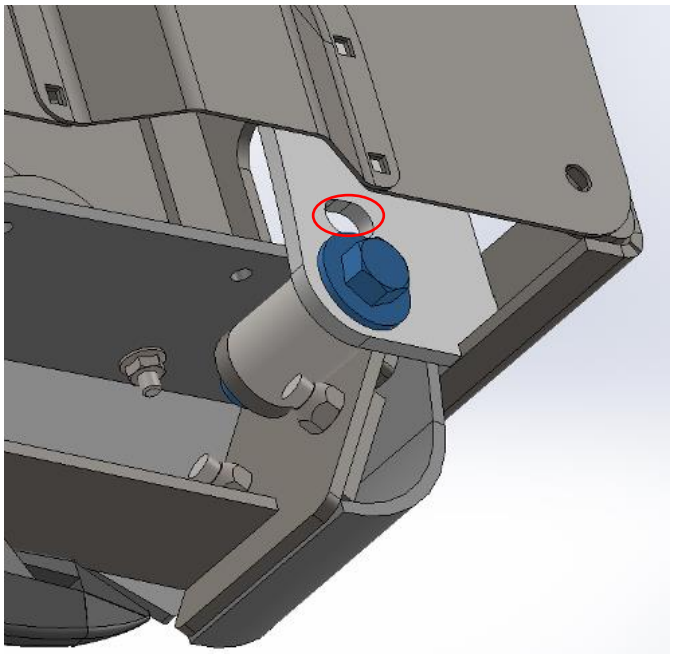


Figure 15: Locked Up Divider. Do not use red circled hole.

WARNING VERTICAL SHEAR KNIVES SHARP HANDLE WITH CARE, USE TWO PEOPLE FOR MOUNTING, AND WEAR CUT RESISTANT GLOVES

Step 9 – Mounting the vertical shears. Determine LH or RH: To determine whether you vertical shear is “left-handed” or “right handed” look to see which direction the door of the vertical shear swings. The door should always swing towards the center of the header.

Step 10 – Ensure that dividers are properly locked up.

Step 11 – Open the door of the vertical shear in order to gain access to locking handle by removing the bolt holding it in place. Reapply bolt (Red arrow below) so that door is locked open.

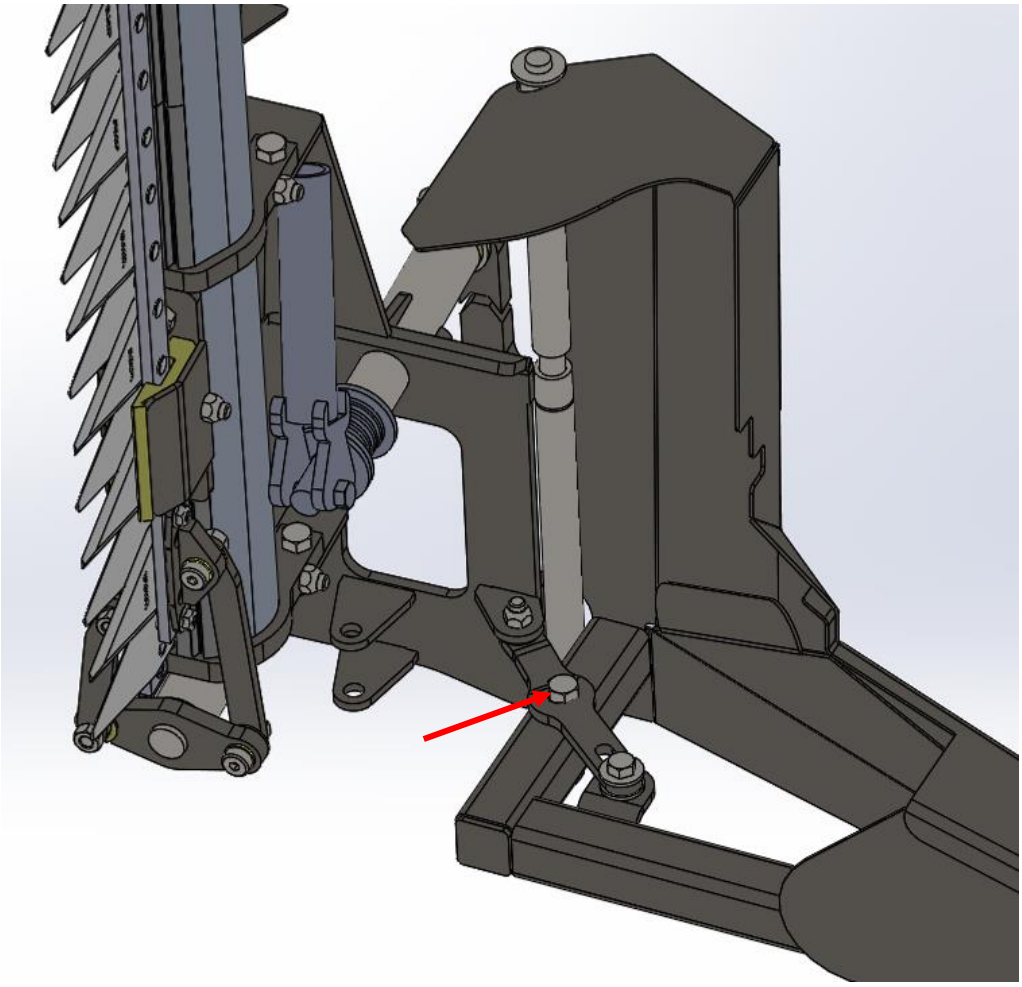


Figure 16: Vertical Shear door shown locked open.

Step 12 – With two people holding the vertical shear align tabs with square holes and handle tip with cut-out (see figure 17 and figure 18).

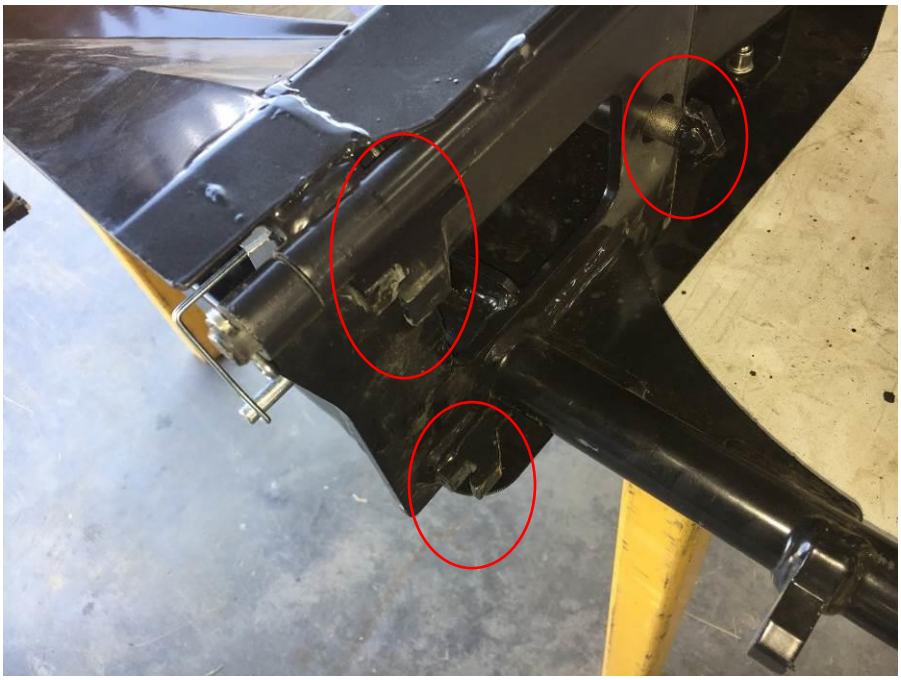


Figure 17: Vertical Shear Showing 2 tabs and divider tip.

Figure 18: Divider end showing 2 square holes and cut-out for handle tip.

Step 13 – Ensure that brace plate fits into vertical knife stop plate (figure 19, 20, and 21). May need to loosen bolts on stop plate in order to give it more play and be able to fit into the brace plate correctly and then re-tighten bolts after vertical shear has been mounted.

Figure 19: Stop Plate

Figure 20: Brace plate that will fit into stop plate.

Step 14 – Make sure that actuator arm fits over knife head bushing (see figure 21).

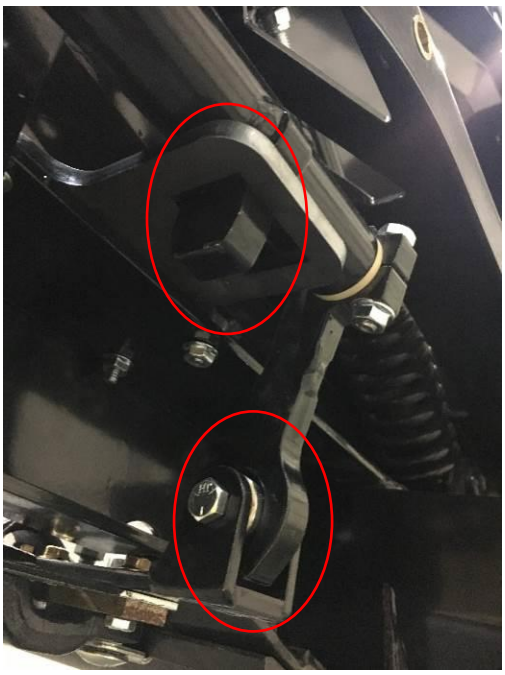


Figure 21: Actuator arm fitting over knife bearing and brace plate fitting into stop plate.

Step 15 – Give locking arm a 90 degree turn so that it is facing upwards and close handle so that it is in the locked position (see figure 22).

Figure 22: Handle closed in upwards position.

Step 16 – Close door and lock with supplied hardware (5/16” x 2-1/2” with 2 nuts) as shown in figure 23. Tighten the first nut till it just touches the bottom bracket then lock second nut up against it. **Note:** If you tighten the first nut too much it can bend the brackets together and make it hard to open up the door.

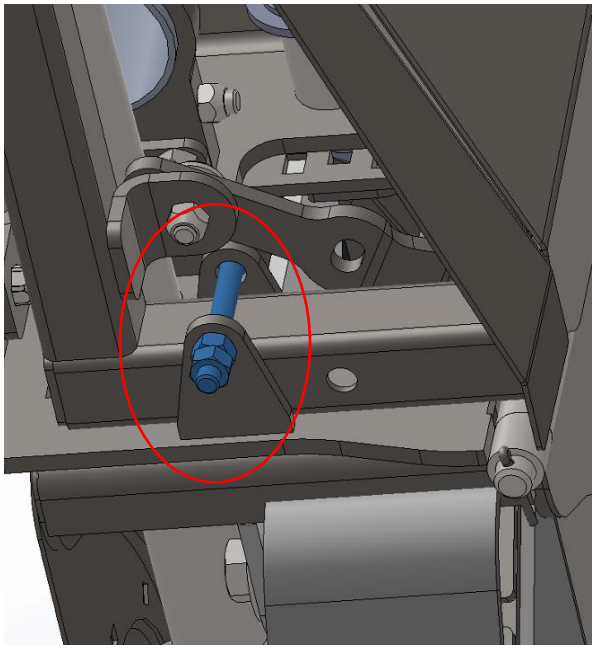


Figure 23: Closed door with bolt facing down.

Step 17 – Repeat Process on other side.

Figure 24: Mounted vertical shear.

IMPORTANT:

- Only operate the vertical shears while cutting in RIGID mode off the ground. If the vertical shears are used while in FLEX mode or cutting on or close to the ground damage can occur to the vertical shears and or the header.
- When not using the vertical shears, please remove the drive heads (see figure 25 below). Leaving the vertical shear drive heads installed while operating in FLEX mode and cutting on the ground can result in damage to the drive heads.

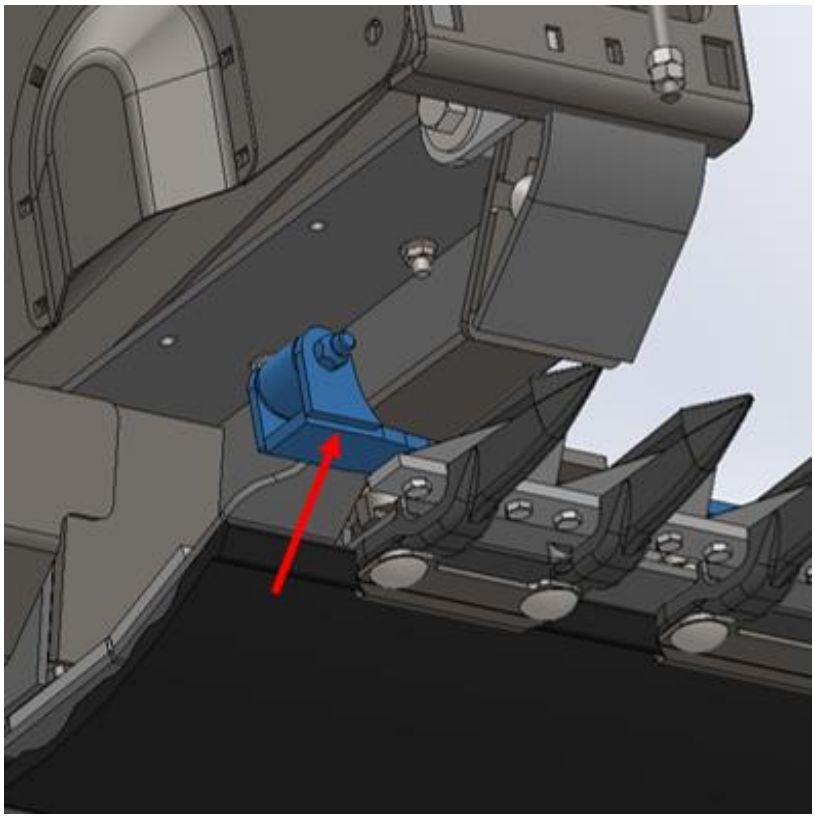


Figure 25: Image showing drive heads that must be removed if not using the vertical shears. Damage can occur to the drive heads if left on while operating in FLEX mode.

15.7 - Recommended Torque Values (ft-lb)

Use the values listed below unless otherwise stated in this operator manual.

Torque Values when using UNC nuts.					
Bolt Size	Grade 5		Grade 8		Wrench Size
	Loctite	No Loctite	Loctite	No Loctite	
1/4	6	8	9	12	7/16
5/16	13	17	18	25	1/2
3/8	23	31	35	44	9/16
7/16	35	49	55	70	5/8
1/2	55	75	80	107	3/4
9/16	80	109	110	154	13/16
5/8	110	150	170	212	15/16
3/4	200	266	280	376	1-1/8
7/8	320	429	460	606	1-3/8
1	480	644	680	909	1-1/2
1-1/8	600	794	960	1287	1-11/16
1-1/4	840	1120	1360	1875	1-7/8
1-3/8	1100	1469	1780	2382	2-1/16
1-1/2	1460	1950	2360	3161	2-1/4

Torque Values when using C Lock Nuts					
Bolt Size	Grade 5		Grade 8		Wrench Size
	Loctite	No Loctite	Loctite	No Loctite	
1/4	7.6	11.1	10	14.7	7/16
5/16	14.1	21.1	15.2	22.3	1/2
3/8	23	37	28	39	9/16
7/16	39	59	44	60	11/16
1/2	53	80	63	88	3/4
9/16	77	120	98	134	7/8
5/8	106	158	127	172	15/16
3/4	190	274	218	295	1 1/8
7/8	n/a	n/a	317	440	1 5/16
1	n/a	n/a	506	651	1 1/2

Figure 26: Recommended torque value (ft-lb) taken out of the Honey Bee AirFLEX Operators manual.

Maintenance:

Yearly inspection and maintenance should be done to ensure the vertical shears will work properly and unnecessary damage/wear does not occur.

Please refer to parts books for part numbers when contacting your dealer on ordering parts. Parts books can be found online at https://www.honeybee.ca/manuals.php

Yearly Items to check:

1. **Vertical Shear Guide Blocks**

- The vertical shear guide blocks are made of high wear plastic (UHMW) and are used as a hold down and guide block. Adequate pressure is needed to keep the knives from separating while cutting.
- If the guide blocks are adjusted so they are too loose and do not have slight pressure pushing the knives together then the knives will not cut efficiently and will increase the load on the shears.
- If the guide blocks are adjusted too tight, then unnecessary pressure and heat on the knives and guides blocks will occur and the guide blocks will wear out quickly. Also it will increase the load on the vertical shears which may result in premature wear and or failure.
- Adjust the guide blocks hold down pressure on the knives by adjusting the main adjustment bolt. There should be light pressure pushing the two knives together.
- Inspect the guide blocks yearly for wear and replace if the tip of the guide block is worn down excessively.

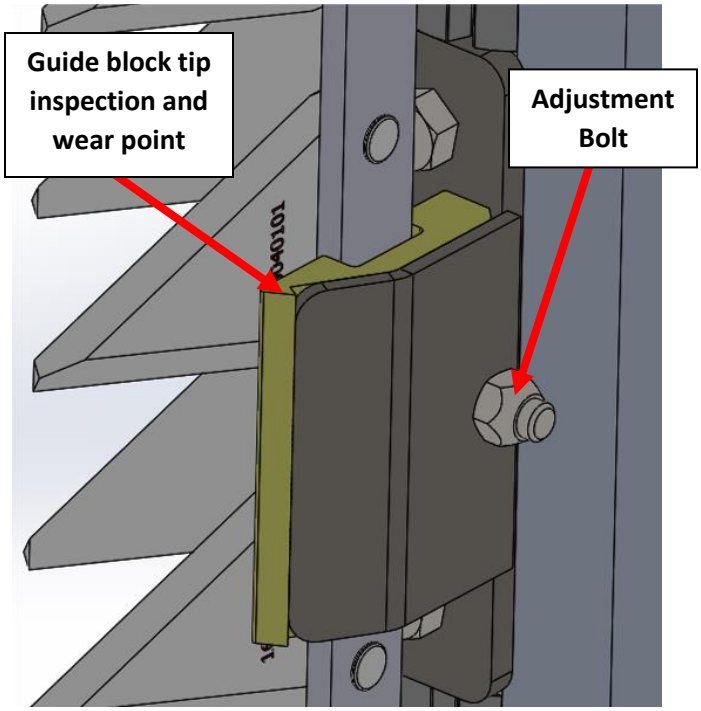


Figure 27: Inspection and adjustment of guide blocks.

2. Drive Bushings

- Yearly inspection of all drive bushings is critical.
- Inspection all drive bushings to make sure they rotate freely and are not worn out.
- Replace any bushings that have play or looseness.

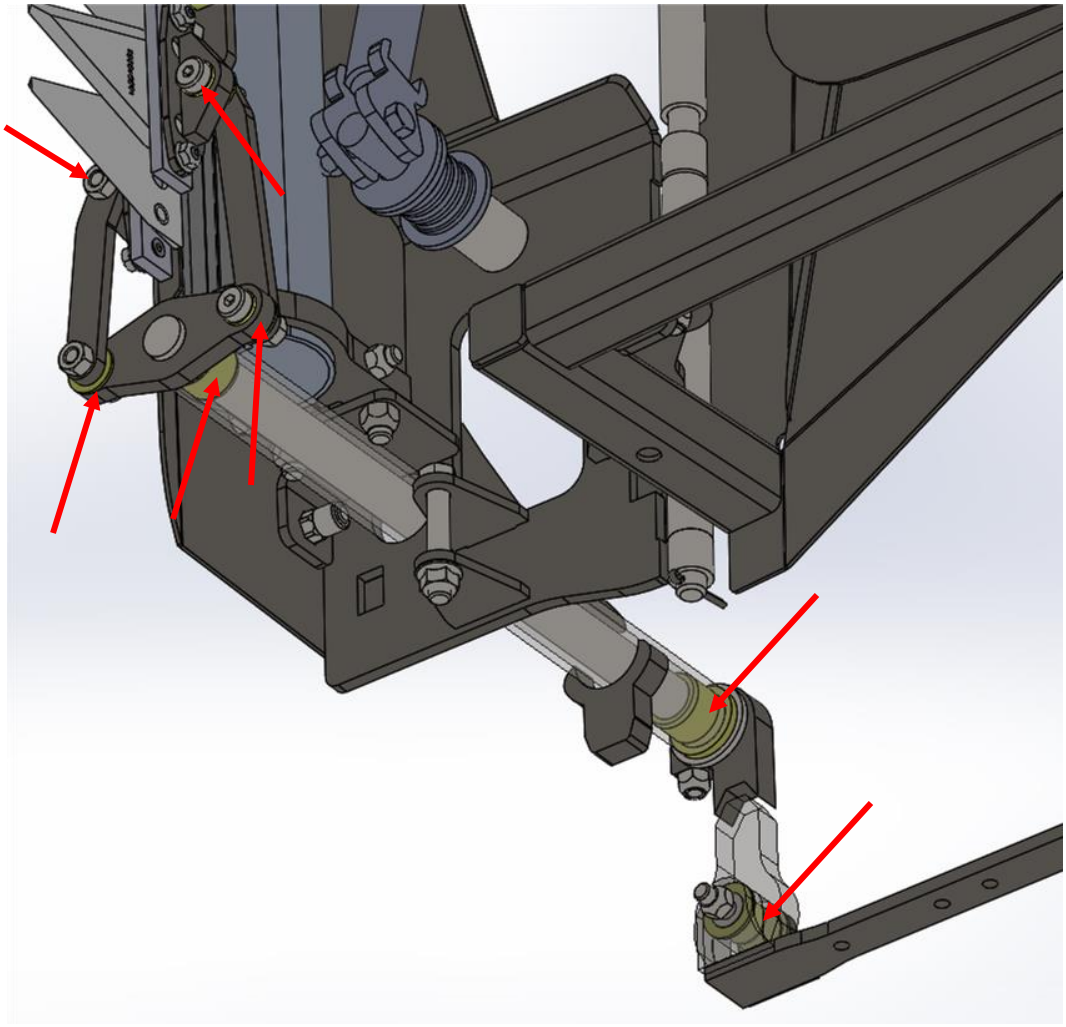


Figure 28: Inspection of all vertical shear drive bushings (bushing locations indicated by Red arrow).

3. Sickle Sections (Individual Knives)

- Inspect sickle sections (individual knives) regularly for damage or wear. Replace if needed.
- Dull sickle sections (individual knives) can contribute to increase load on the vertical shear and header knife drive system.

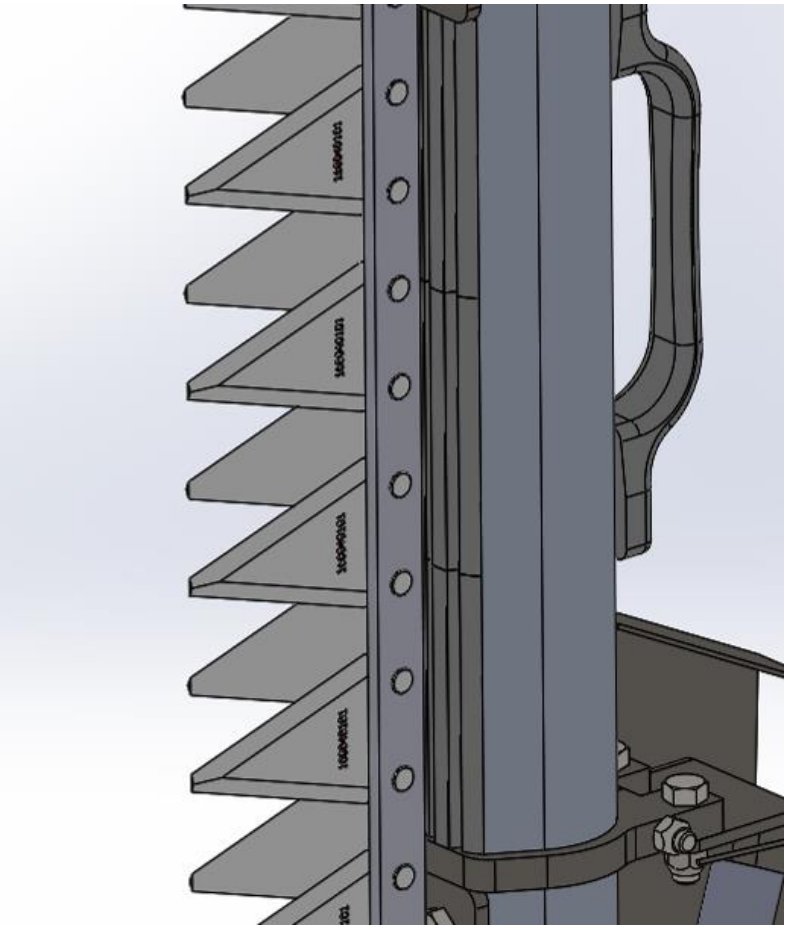


Figure 29: Image of vertical shear sickle sections (individual knives)