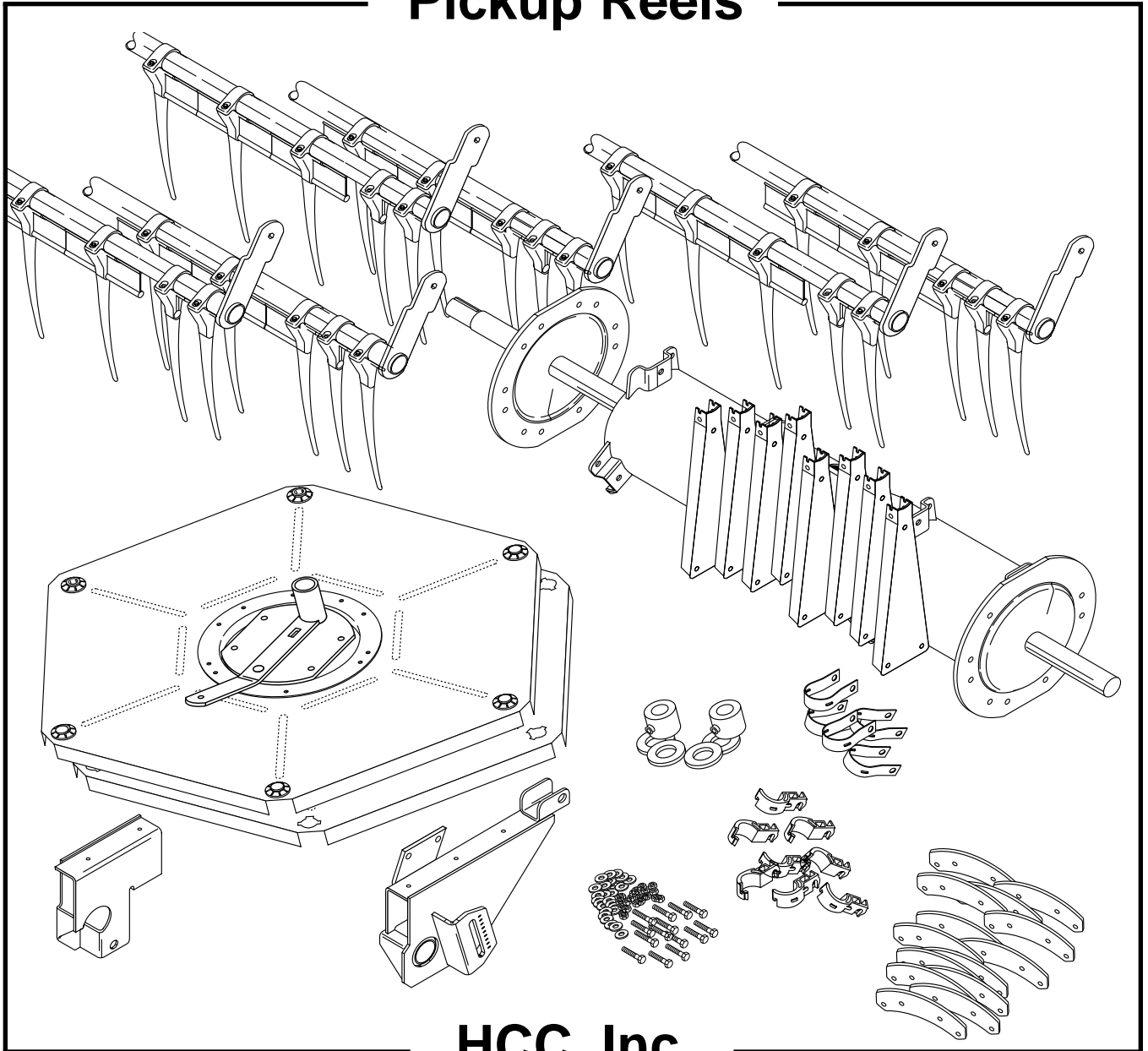


# Assembly, Set-up, Operation, and Adjustment Instructions For Level 2

## Pickup Reels



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## Introduction

This manual covers the assembly, operation, and adjustment of the HCC, Inc. pickup reels. This manual shows a typical pickup reel which can be used in several different heads of various combines.

**Note:** Replacing a Bat Reel with a Pickup Reel may require additional parts, such as drive and fore/aft components, from the dealer. Check with the dealer or refer to the OEM Parts Manual.

### What is the Function of a Pickup Reel?

1. Lifts crop ahead of the cutterbar.
2. Holds crop while delivering it over the cutterbar.
3. Deposits cut crop evenly onto the platform.

### What Makes a Pickup Reel Work?

1. Correct placement on the machine.
2. Correct pitch (angle) on the tines (fingers).
3. Correct reel speed in relation to ground speed.

## Assembly Procedure

1. Unpackage reel bundles and remove hardware package containing the nuts, bolts, etc. required to assemble the reel.
2. Support center tube (10) on each end. There are two examples of end supports shown in Illustration 1, but any type of support can be used.



**The end support must be capable of supporting the weight of the totally assembled pickup reel which can weigh up to 1000 lbs. (454 kg) for the longer reels. The end supports should be rated for at least 500 lbs. (227 kg) each. Using unstable or undersized supports could cause the pickup reel to fall, resulting in serious bodily injury or death.**



Illustration 1. Two examples of center tube end supports.

**Note:** Make sure the centerline of the center tube is at least 30 inches (76 cm) above the ground, as shown in Illustration 2.

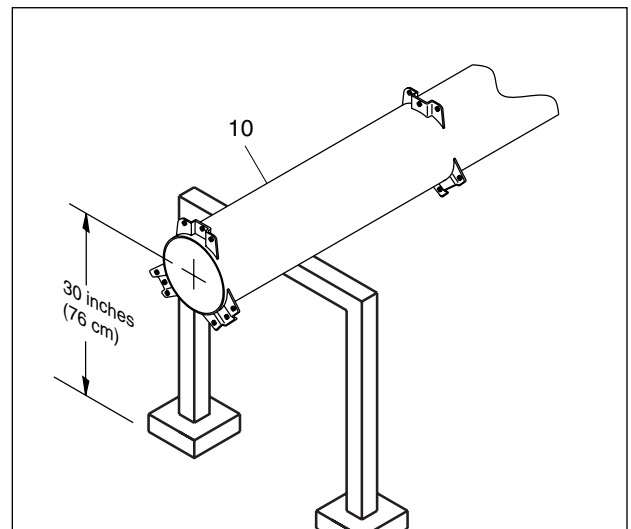


Illustration 2. The centerline of the tube must be a minimum of 30 inches (76 cm) above the ground.

3. Position center tube (10) in relation to the right and left-hand ends. This will make assembly of the reel into the head much easier. Refer to Steps 3a, 3b, or 3c the right or left-hand end of the tube.

**a.** If the center tube has three, four, or five anchors, the measurement between the anchors of the right-hand end is 2 inches (50 mm) longer than the left-hand end. See Illustration 3.

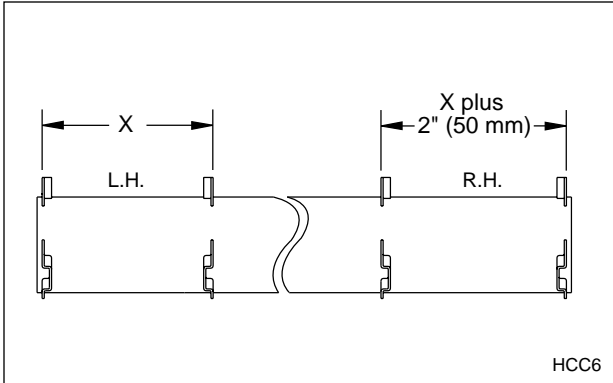


Illustration 3. Determining right and left-hand ends on three, four, and five anchor center tubes.

**b.** Some six-anchor center tubes [22 feet (6.7 m)] have a 2 inch (50 mm) measurement difference between ends (X) and (Y), as shown in Illustration 4. Most six-anchor center tubes have the same (X) and (Y) measurement between the anchors on the right and left-hand ends. If the end measurements are the same, the center tube can be installed in either direction.

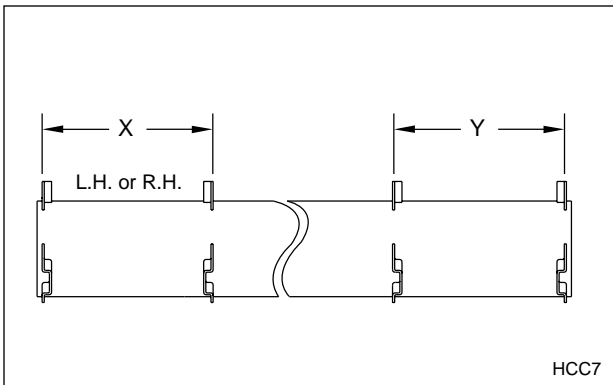


Illustration 4. Six-anchor center tube with the same (X) and (Y) end measurements.

**c.** Seven-anchor center tubes can have the same measurement between center anchors [57 inch (1447.8 mm)]. If measurements (X) and (Y) are different, the side with the [57 inch (1447.8 mm)] measurement is the right-hand end.

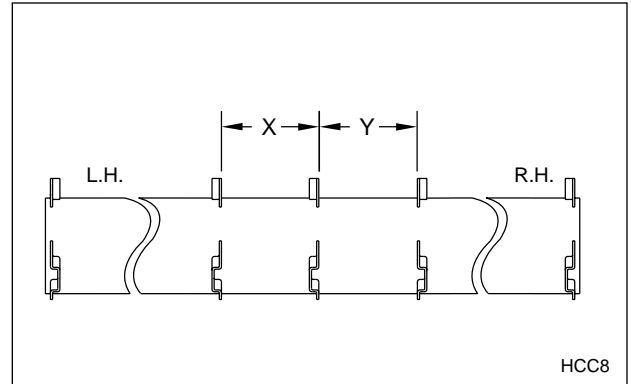


Illustration 5. Seven-anchor center tube with the same (X) and (Y) measurements.

**4.** Snap the two-piece plastic reel arm bearings (23) in place on bat tube assemblies (26). The bearings are positioned in the opening between the tines (plastic fingers). Snap bearing straps (22) over the bearings.

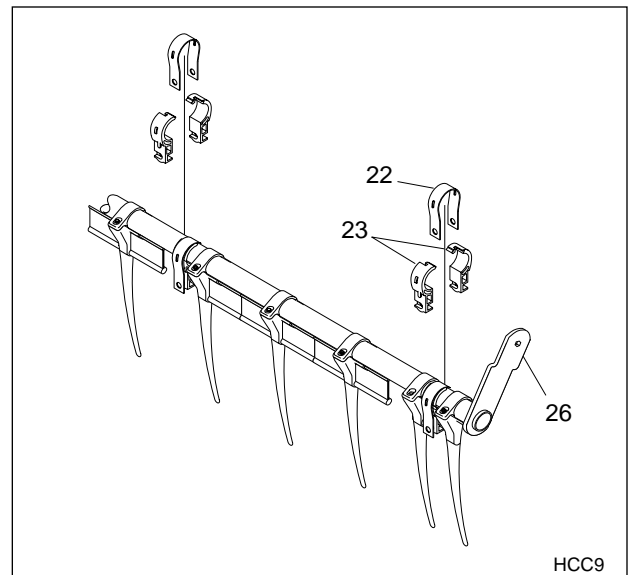


Illustration 6. Assemble two-piece bearings (23) and bearing straps (22) onto bat tube assembly (26).

**5.** Install end shafts (9 and 19). When assembling the end shaft, keep it at an angle to the center tube as shown in Illustration 8. Align the holes as closely as possible before raising the end shaft into place. Also, make sure the driving end shaft (usually has a keyway or hole) is positioned on the proper end of the center tube. The shaft will fit tightly into the center tube and a punch or round metal rod may be needed to align the holes in the end shaft with the tabs on the center tube. Refer to Illustration 8 for additional information on assembly of the end shaft.

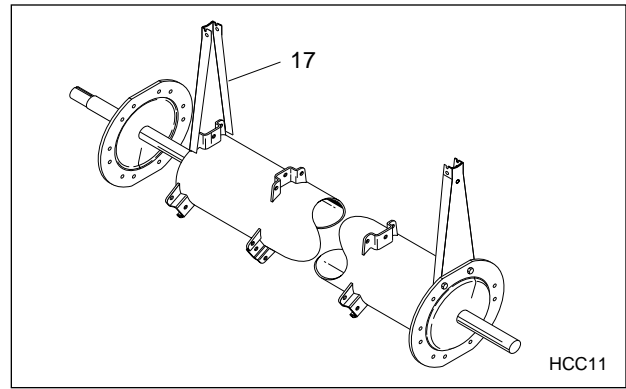


Illustration 9. Make sure three reel arms (17) are in position before bolting end shaft onto center tube.

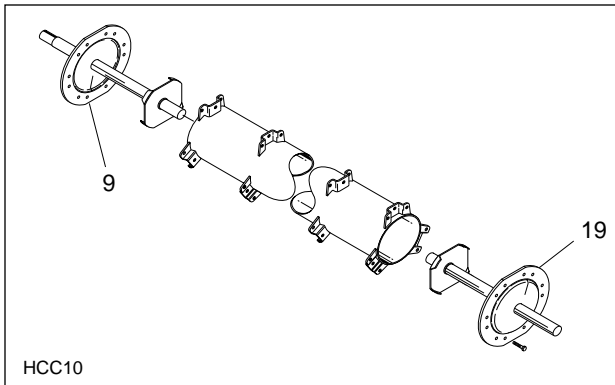


Illustration 7. Install end shafts (9 and 19). Also refer to Illustration 8.

**6.** Three reel arms (17) must be assembled between the end shaft and the tabs on the center tube before the end shaft is bolted to the center tube.

**7.** Loosely assemble the remaining three reel arms (17) to each end shaft.

**8.** Loosely assemble reel arms (17) and center anchor plates (18) to the remaining tabs on the center tube as shown in Illustration 10. Use bolts (16), washers (15), and nuts (14) to attach the reel arms. (Leaving hardware loose makes it easier to attach bat tube assemblies in Step 10).

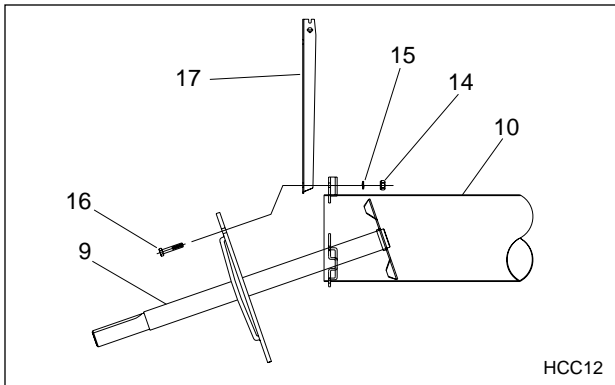


Illustration 8. Angle the end shaft to make installation easier.  
 9. End shaft. 10. Center tube. 14. Nut. 15. Washer. 16. Bolt (M10 x 30) 17. Reel arm.

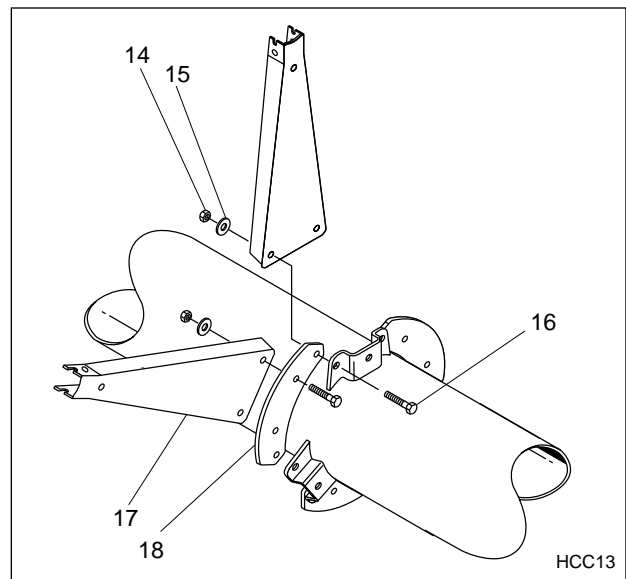


Illustration 10. Assemble remaining reel arms and anchor assembly plates.

14. Nut. 15. Washer. 16. Bolt (M10 x 30). 17. Reel arm. 18. Center anchor plate.

9. Layout the assembled bat tubes in the order of assembly. Make sure the tine spacing alternates from one bat assembly to the next. Assemble one bat assembly that has the spacing, as shown in Illustration 11. Next, assemble the bat assembly, as shown in Illustration 12.



Illustration 11. Bat assembly (the end shields shown in this photo should not be assembled at this time).



Illustration 12. Bat assembly with alternate tine spacing to bat assembly shown in Illustration 11 (the end shields shown in this photo should not be assembled at this time).

10. Attach bat tube assemblies (26) to the reel arms, as shown in Illustration 13. Make sure bolts (13) are assembled in the direction shown to reduce the possibility of crop snagging. Initial lubrication of the plastic reel arm bearings with a light film of 10W-30 motor oil will improve break-in and service life of the bearings. (Tighten all loose hardware from Step 8).

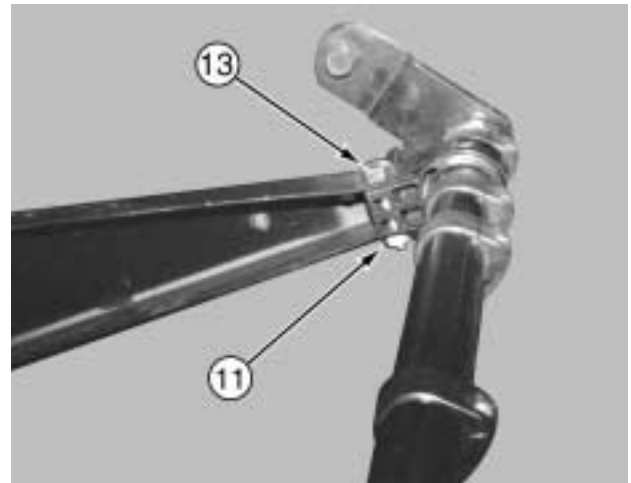


Illustration 13. Attach bat tube assemblies to reel arm. The nut (11) should be on the bottom side as shown in the photo.

## IMPORTANT NOTICE

**Overtightening the bat tube bearing bolts (13) can cause bearings (23) to break.**

11. After all the bat tube assemblies are installed, make sure the tine spacing is staggered, as shown in Illustration 14. Make sure all the tines curve in the proper direction. From the combine, the driving end is on the right and the tine curve towards the cab side.

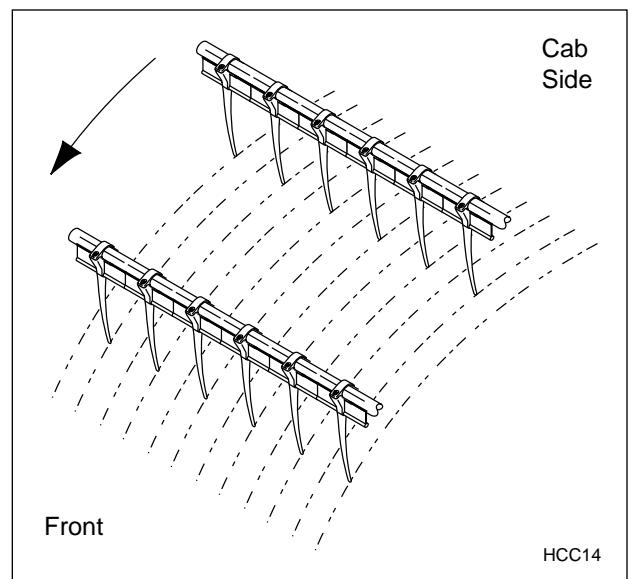


Illustration 14. Make sure the tine spacing is staggered and the tines are curved toward the cab of the combine.

**12.** Place washer (2) on each end shaft (9 and 19) as shown in Illustration 15.

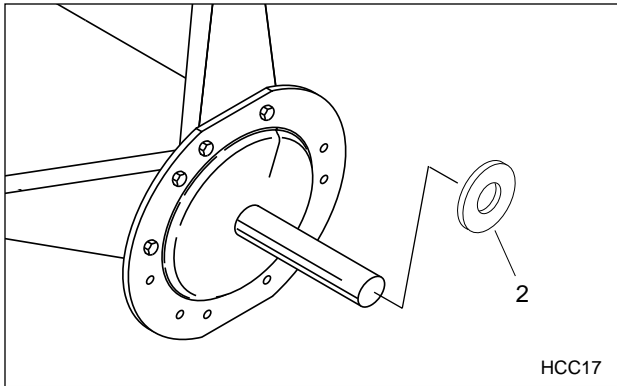


Illustration 15. Assemble washer (2) onto the end shaft.

**13.** Install end shields (37). On models that have only one eccentric end shield assembly, assemble six end shield panels (44).

**14.** Install shoulder bolts (36) through the end shield and into the bat tube assembly with nut (25).

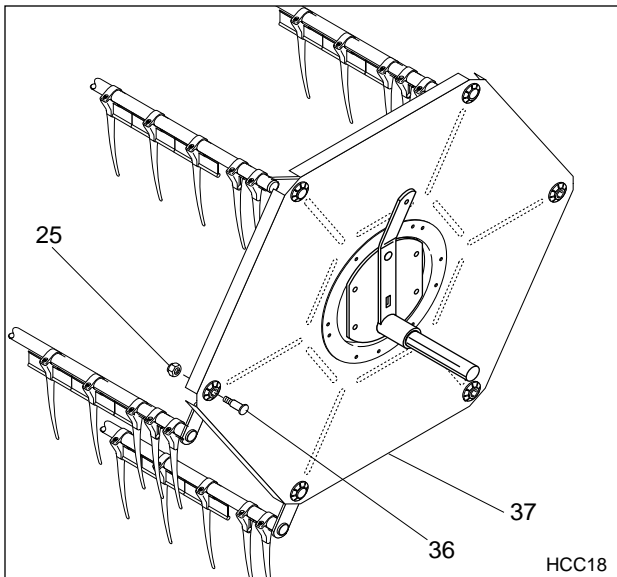


Illustration 16. Bolt the bat tube assemblies onto the end shields using a shoulder bolt (36) and nut (25).



Illustration 17. Properly installed bat tube assembly.

**15.** Install left-hand end bracket (20). Place flat washer (2) and lock collar (1) onto the shaft. Push the bracket and end shield snugly against the end shaft hub and tighten both set screws in the lock collar.

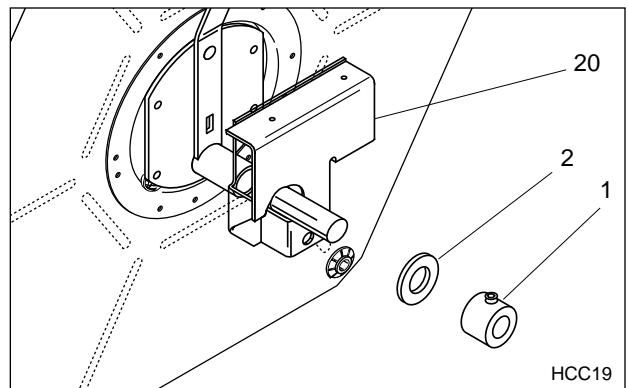


Illustration 18. Install end bracket (20), washer (2), and stop collar (1).

**16.** If the end bracket has an adjustable plate attached to it, install carriage bolt (31) from inside the eccentric through the slot in the numbered plate on back of the bracket. Secure with a belleville (cupped) washer (32), cup down, and hex nut (33), as shown in Illustration 19.

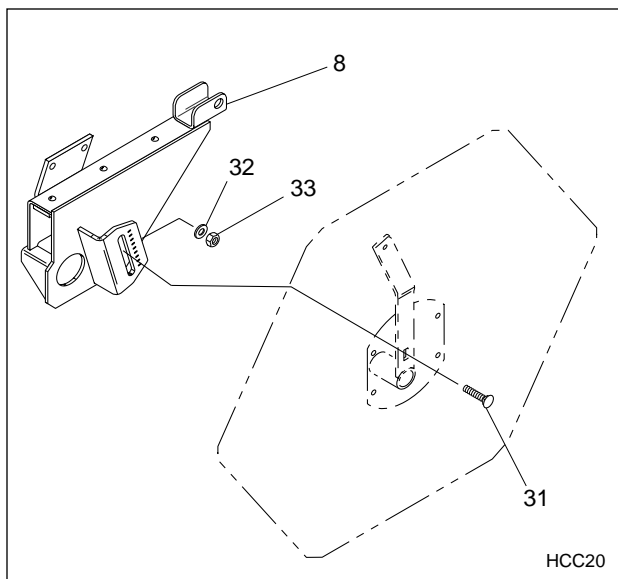


Illustration 19. Assemble carriage bolt (31), belleville washer (32), and nut (33) through eccentric adjustment plate.

**17.** Assemble right-hand end bracket (4) or (8), washer (2), lock collar (1). Also assemble carriage bolt (31), washer (32), and nut (33), if required.

**18.** Tighten all bolts.

**19.** Attach the assembled pickup reel onto the head assembly.

**Note:** For double eccentric reels, make sure the reel pitch adjustment position is the same at both ends of the reel. The pitch adjustment carriage bolt (31) should be in the same location in the slots of both right and left-hand end brackets. See Illustration 20.

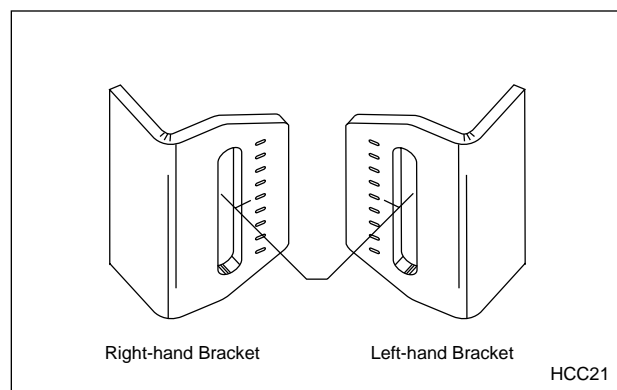


Illustration 20. Make sure both eccentric adjustment are the same.

## Placing the Reel on the Machine

- 1.** The center of the pickup reel should be 12 to 20 inches (30.5 to 51 cm) forward of the cutter bar.
  - a.** Normally the more “down” the crop, the farther ahead the reel must be set.
  - b.** Do not set the reel ahead more than 20 inches (51 cm) because the reel will not hold the crop while it is being cut or deliver it onto the platform.
  - c.** Set the reel center forward the same amount on both ends.
  - d.** For hay crops, the reel center should normally be over the cutterbar.
- 2.** Tine tips should be set to miss the guards and sickle bar by 1 to 5 inches (2.5 to 13 cm).
  - a.** Normally the more “down” the crop, the closer the tines should be placed to the cutterbar.
  - b.** With an auger type header, the tines must clear the auger at least 1 inch (2.5 cm).
  - c.** Vertically set the pickup reel center the same on both ends.
  - d.** For hay crops, the tines should have minimum clearance with the cutterbar.

## Lubrication

1. If equipped, grease the fitting on the side shields (37) and end brackets (4, 8, or 20).
2. Oiling the plastic bat tube bearings (23) is not required, but oil will not harm them, if used.

## Check Points Before Operation



Always engage the platform and reel hydraulic safety stops before working under or on a raised combine platform or pickup reel. Do not rely on the combines' hydraulic system for support. A rupture or leak in any part of this system will allow the platform to lower if the proper stops are not in place, resulting in serious personal injury or death.

For your own safety, shut off the combine engine when working on or around the combine.

Be sure all shielding is properly installed before operating the combine.

1. Be sure all bolts are in place and tight.
2. Manually rotate the pickup reel.
  - a. Check the tine clearance with the sickle bar.
  - b. Check the auxiliary finger clearance with side shields.
  - c. Make sure the reel arms are properly aligned and there is no bow in the bat assemblies.
  - d. Make sure the reel turns freely, without binding.

3. Make sure the pitch adjustment bolts are in the same location on both sides (for double eccentric machines only).

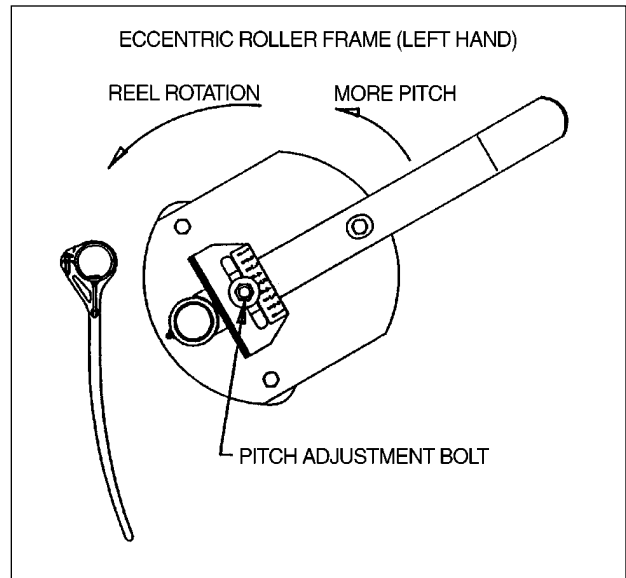


Illustration 21. Left-hand eccentric roller frame adjustment.

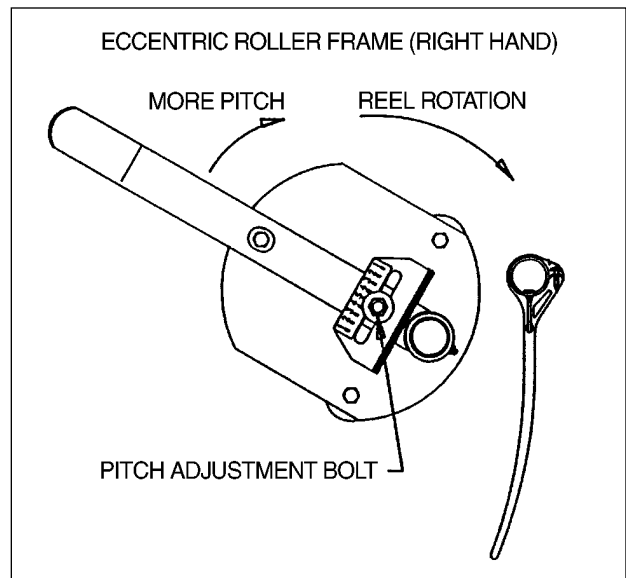


Illustration 22. Right-hand eccentric roller frame adjustment.



## Crop Control at Ends of Header

1. It is very important that the crop is completely divided before it contacts the cutterbar, otherwise the cut crop will lodge on the ends of the header and eventually be wound up on the ends of the pickup reel. If not already present, install crop dividers at the ends of the head. Long, short, and loop divider packages are available for most machine models.
2. If not already present, auxiliary end fingers are available and will control crop lodging and wrapping at the ends of the pickup reel.

## Speed of the Reel

1. The pickup reel speed for a 42 inch (107 cm) diameter pickup reel should be between 10 and 12 RPM for every mile per hour of machine ground speed. A 52 inch (132 cm) diameter pickup reel should rotate at 8 to 10 RPM for every mile per hour of machine ground speed. The reel speed should be somewhat higher for crops down on the ground versus standing crops.
2. Too much reel speed causes the cut crop to wind around the pickup reel because the tines do not release the crop. High reel speeds also causes stripping and shelling of uncut crop.

3. Too slow a reel speed can also cause the cut crop to wrap around the reel. Also, cut grain can fall forward instead of onto the platform.
4. Using a larger sprocket or sheave on the reel slows down the reel speed. Reel speed changing sprockets or sheaves are usually available from OEM machine manufacturer.
5. For hay crops, the reel speed should be increased.

## Tine Pitch Adjustment

1. Start the pickup reel with a pitch adjustment of about 5 degrees as shown in Illustration 23.
2. Too much pitch causes the cut crop to wind around the pickup reel because the tines do not release the crop.
3. For hay crops, the tines should be perpendicular to the cutterbar.

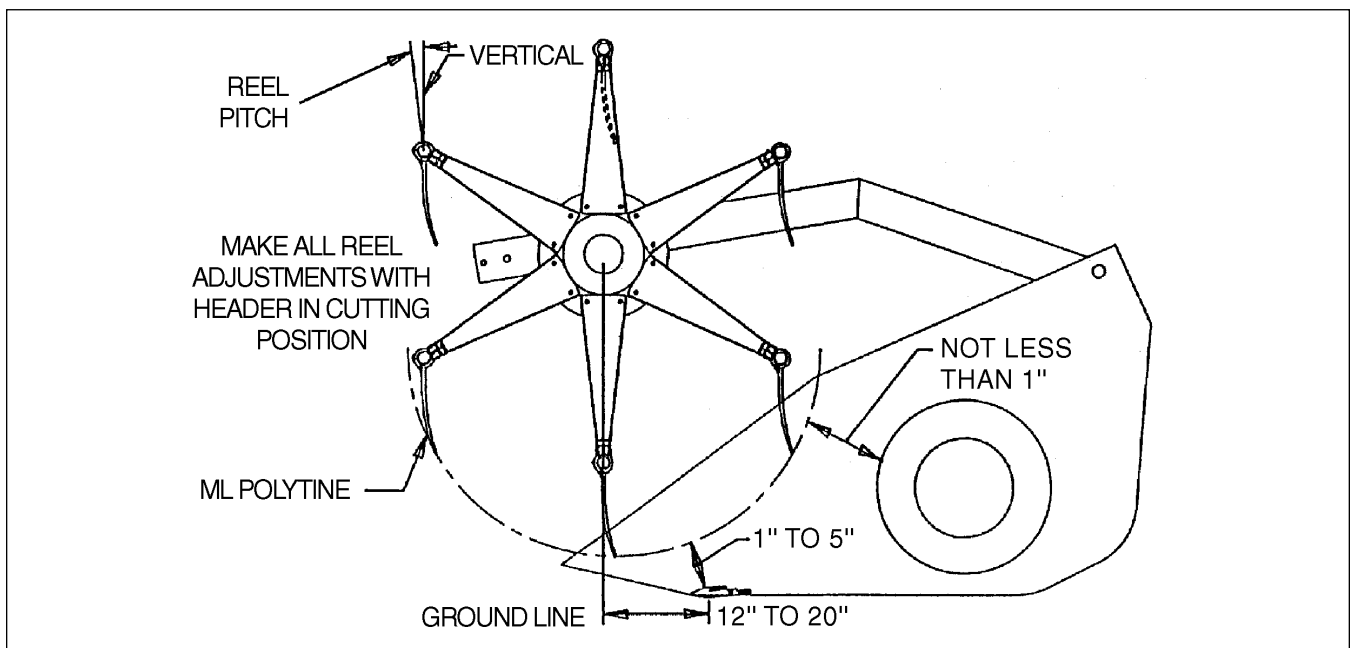
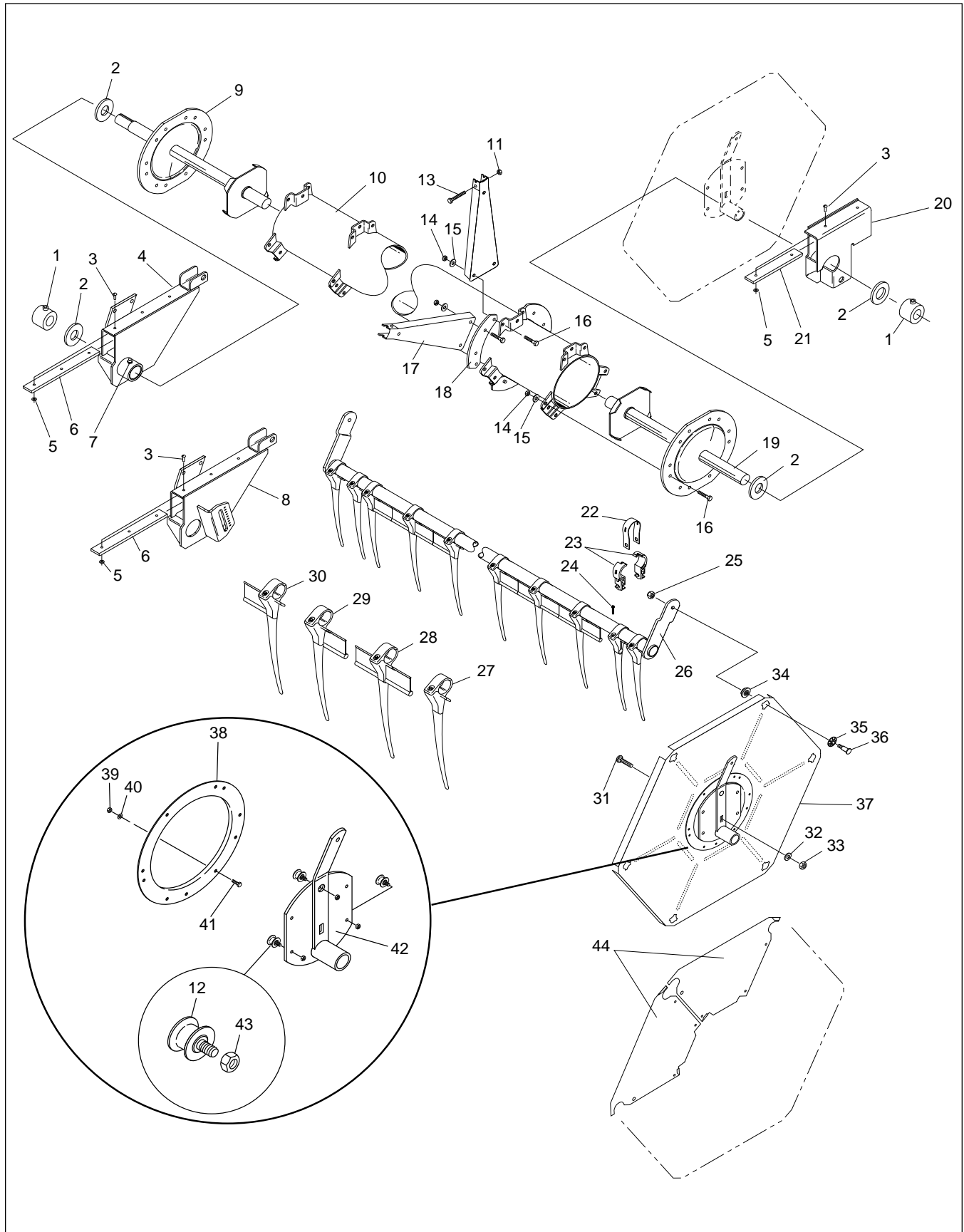


Illustration 23. Tine pitch adjustment.

# Parts Listing



<b>Item</b>	<b>Description</b>	<b>Part No.</b>
1	Lock Collar Assembly with Set Screws	782217
2	Flat Washer	214430
3	Rivet	213131 (specific brackets only)
4	R.H. End Bracket	Varies Per Customer
5	Washer	214242 (specific brackets only)
6	Wear Strip	482128 (specific brackets only)
7	Grease Zerk	218110
8	R.H. End Bracket	Varies Per Customer
9	Shaft, Driving End	Varies Per Customer
10	Center Tube	Varies Per Customer
11	Lock Nut	212412
12	Roller Ball Bearing	243719
13	Hex Head Bolt	202812
14	Lock Nut	212412
15	Lock Washer	214233
16	Hex Head Bolt	202808
17	Reel Arm	481775
18	Anchor Assembly Plate	482681
19	Shaft, Driven End	Varies Per Customer
20	L.H. End Bracket	Varies Per Customer
21	Wear Strip	482129 (specific brackets only)
22	Bearing Strap	481776
23	Reel Arm Bearing	243714
24	Slotted, Hex Washer-Head Tap Screw	208065
25	Lock Nut	212413
26	Welded Bat Tube	Varies Per Customer
27	Plastic Finger (no bat)	224050
28	Plastic Finger (full bat)	224047
29	Plastic Finger (right-hand bat)	224049
30	Plastic Finger (left-hand bat)	224048
31	Carriage Bolt	201145
32	Belleville Washer	214244
33	Hex Nut	212404
34	Bearing (nut)	243721
35	Bearing (thread)	243720
36	Metric Socket Head Shoulder Screw	204800
37	Eccentric End Shield	482398
38	Control Ring	480750
39	Nut	212402
40	Lock Washer	214232
41	Bolt	202861
42	Eccentric Roller Frame	Varies Per Customer
43	Lock Nut	212412
44	End Shield (closed)	482399 or 481997

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