

SmartDepth™

SmartDepth Installation Instructions for John Deere XP and ME5 Row Units



Parts List

Part Number	Description	Quantity
734100	Control Module, Gearbox	1
Hardware		
734060	John Deere Hardware Kit	1
734190	CAN Expansion Hub Bracket (optional)	1

Required Tools

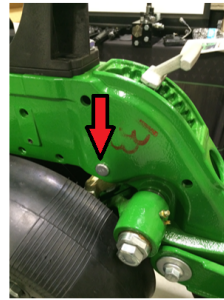
Snap Ring Pliers (external)	19 mm Socket and Wrench
13 mm Socket and Wrench	15/16" Wrench or Socket
10 mm Wrench	
Provided in the Essentials Kit 734100	

5 mm Allen Wrench	4 mm Allen Wrench
5 mm Allen – 3/8” Drive x 6” Long	
Only Required if drilling insecticide holes on XP Shank (734105)	
1/2” Drill bit (provided)	4.6 mm Drill bit (provided)
24 mm Socket and Wrench	

Step 1:

Begin by removing the depth control arm from the row unit.

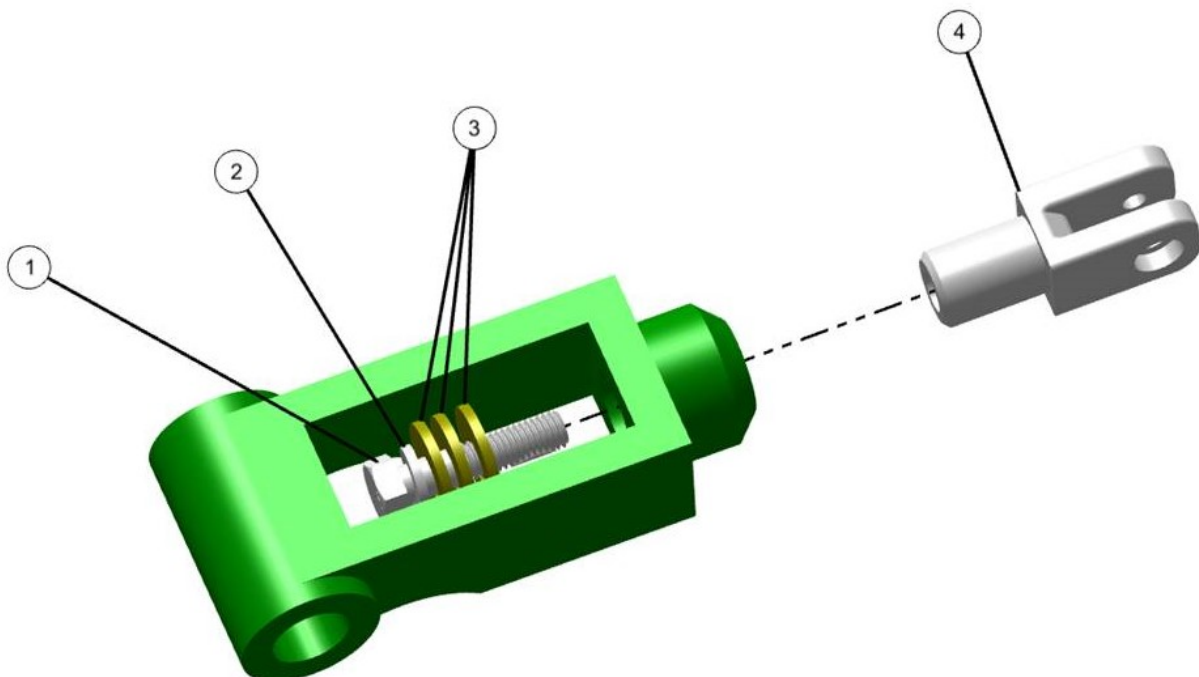
- a: Remove one of the gauge wheels to make it easier to get the depth control arm out.



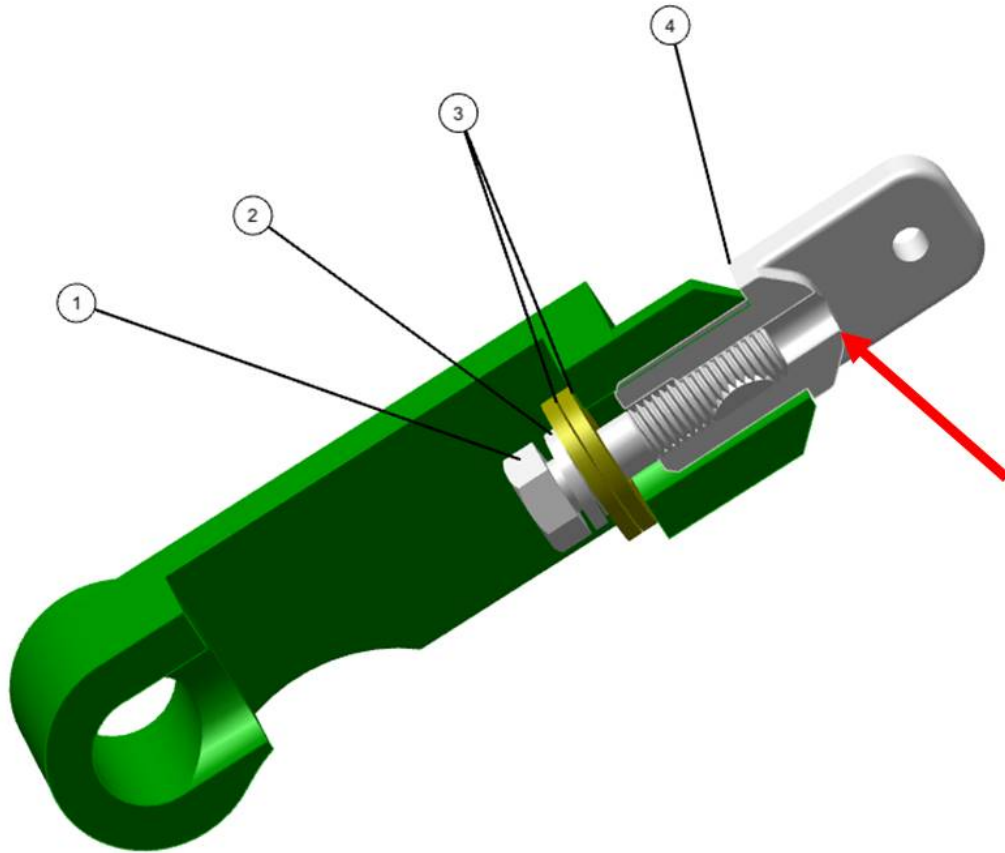
- b: Remove the snap ring and pin from the depth adjustment mechanism. If a load cell is installed, remove the load cell.
- c: The depth control arm and handle will now come out the bottom of the shank.
- d: Next, remove the “T” handle and spring from the depth control arm by removing the snap ring.



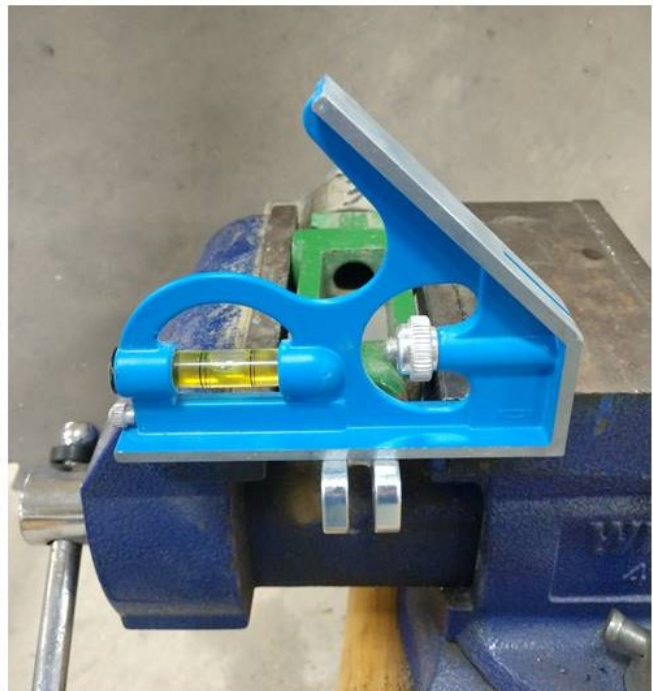
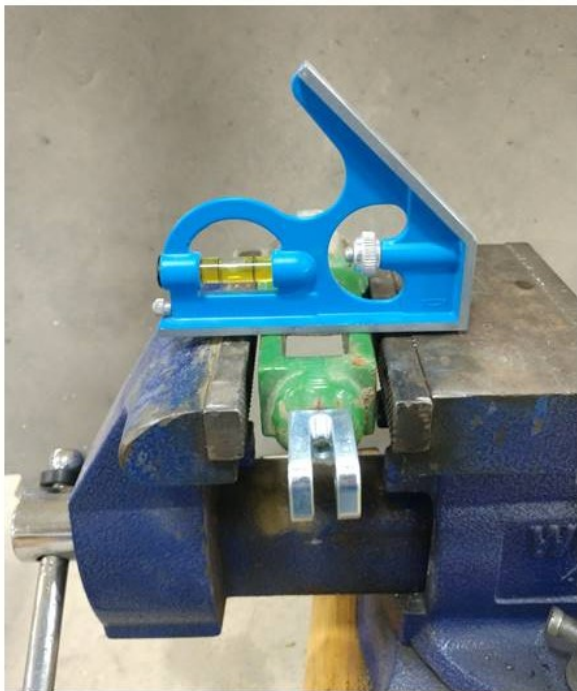
- e: Install the connecting rod (4) to the depth control arm using the M8 Bolt (1), 5/16 Split Washer (2), and 5/16” Flat Washers (3) found in the hardware bag. Refer to the next step to determine how many 5/16” flat washers (3) are required.



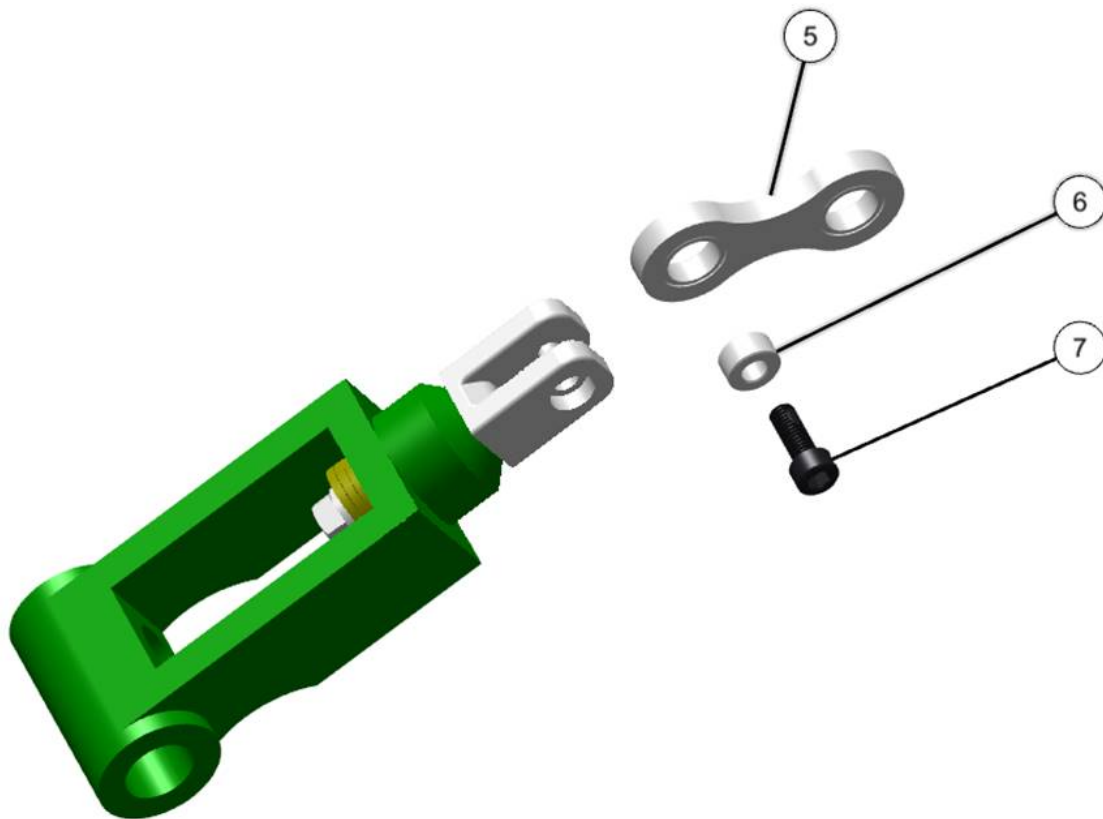
- f: The number of 5/16” flat washers varies based on depth arm variability. Use enough washers so M8 bolt (1) does not protrude past the threaded portion of connecting rod (4) (red arrow). If the bolt sticks out past the red arrow then add more washers. Use a minimum of one flat washer.



- g: Put the depth arm in a vise and attach the connecting rod (4). Use a 13 mm wrench to tighten M8 bolt (1).
- h: Before the bolt is tight make sure the two faces are parallel to each other. In this example you can use a small level to guarantee they are on the same plane.



- i: With the depth arm still mounted in the vise, connect the wishbone link (5) to the connecting rod. Insert bushing (6) into wishbone link (5).



- j: Use the M6 allen head bolt (7) to secure the wishbone link (5) to the connecting rod.
- k: Next, reinstall the Depth Control arm in the row unit using the load pin. If using the Me5 style weight pin it may be helpful to wait until the gear box support brackets are installed and tightened before you reinstall the snap ring. Refer to step 4.



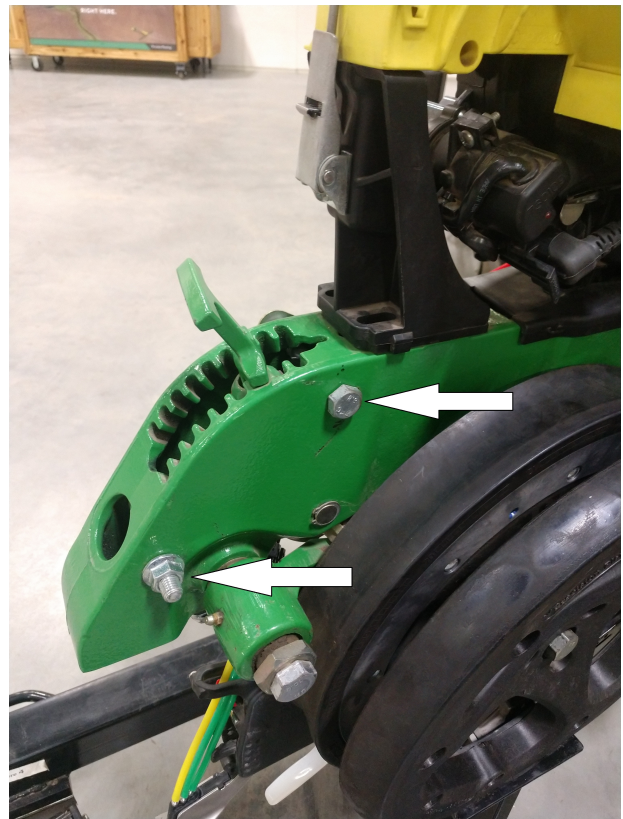
Note: On XP shanks without insecticide holes DO NOT install the depth arm yet. Refer to Step 2.

Note: The load cell harness can not be routed through the T handle portion of the shank or the harness will get damaged during calibration. Use the clips to route the harness along the left side of the shank under the seed boot.



Step 2:

On XP shanks it may be necessary to drill the insecticide mounting holes in order to install the gear box support brackets. The image with black arrows does not have the insecticide holes and therefore will need to be drilled. The image with white arrows already has insecticide holes and therefore you will not have to drill them.

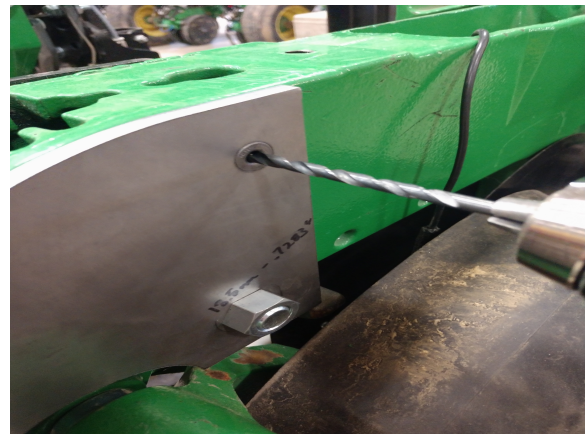
Drilling Insecticide Mounting Holes (XP Shanks ONLY)

- a: Begin by removing the load cell (if not already removed) and place the drill guides on either side of the shank.

- b: The bolt in the kit will go through the load cell hole on the shank. Before tightening the bolt, the bottom rear portion of the drill guide should set down against the closing tail bracket as shown in the Illustration.



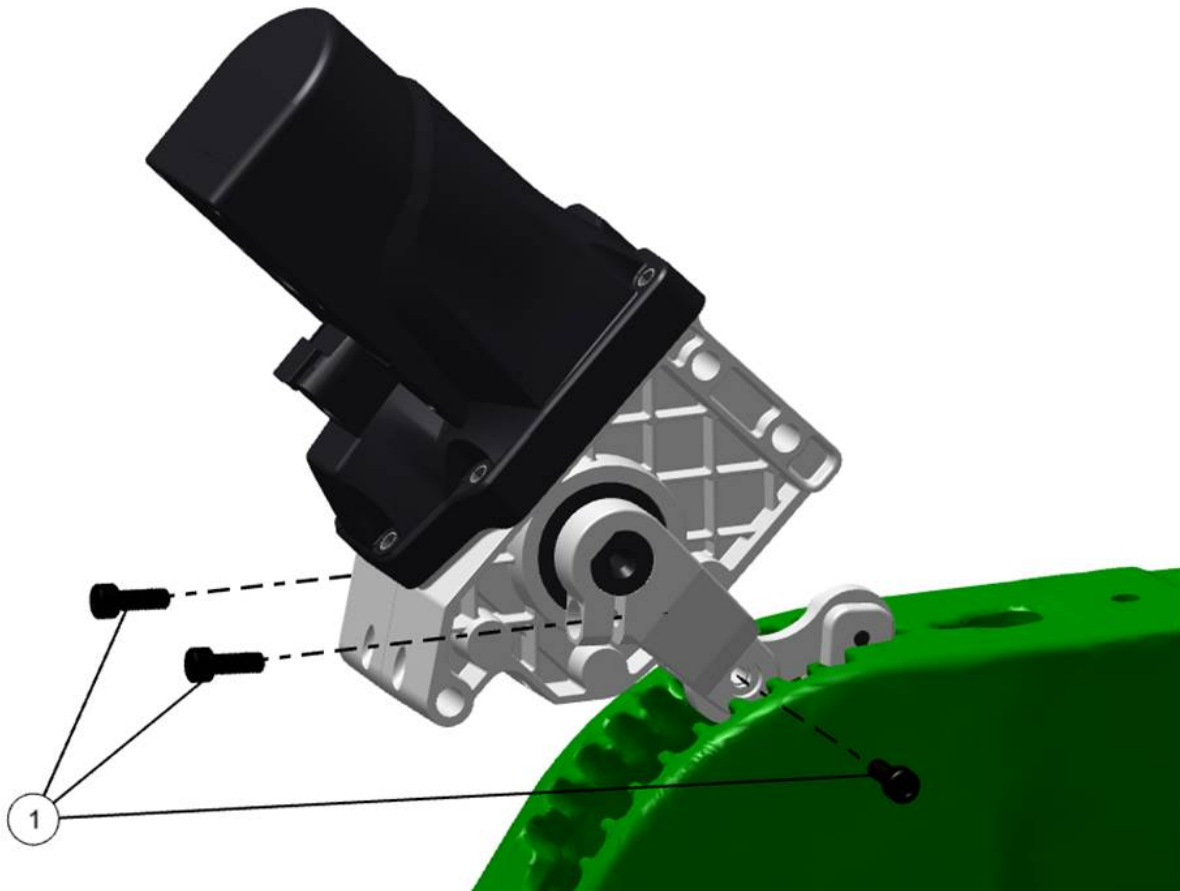
- c: Tighten the bolt securing the two drill guides against the shank. Make sure the standoff point still rest on the closing tail bracket after tightening the bolt.
- d: Drill all 4 pilot holes using the 4.6 mm drill bit provided in the kit.



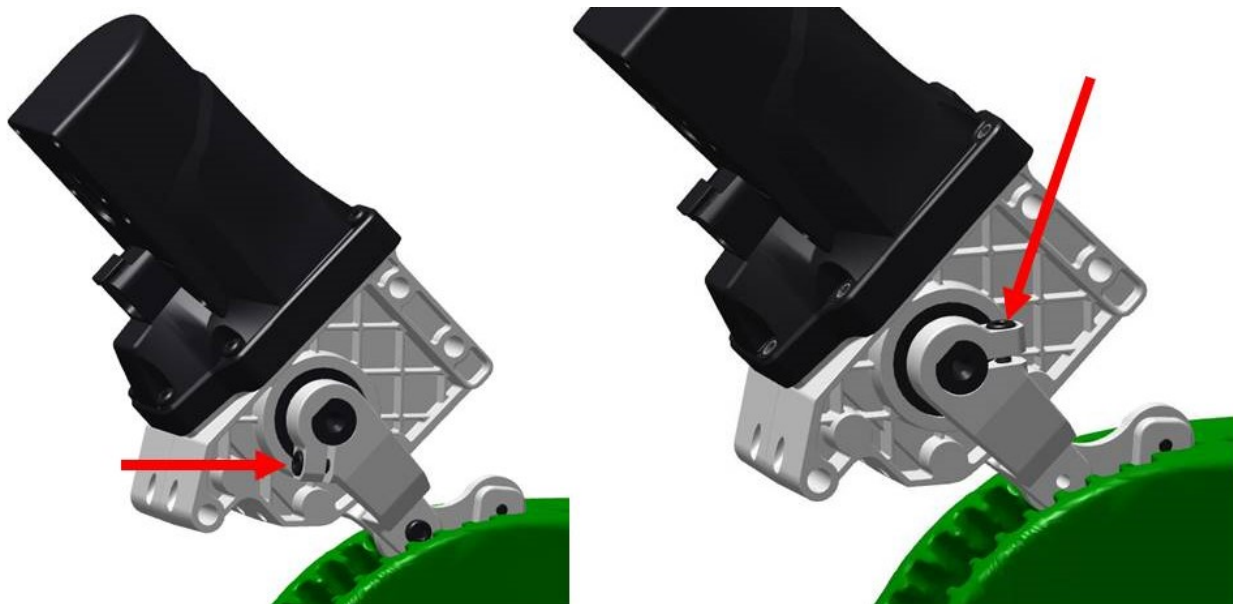
- e: Once the pilot holes are drilled, remove the drill guides and drill the 4 holes with a 1/2" drill bit.

Step 3:

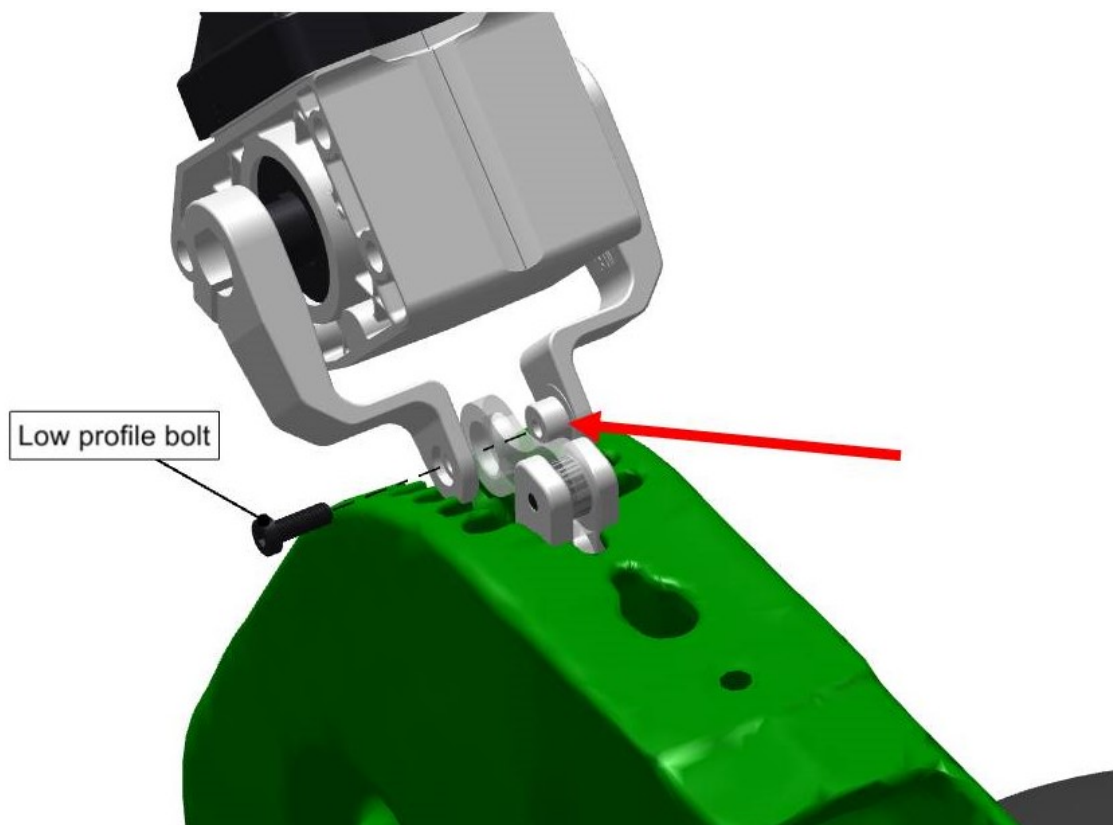
Install the SmartDepth actuator and gear box to the depth arm on the row unit.

Mounting the Actuator and Gear Box to the Row Unit

Note: The drive arms can be installed on either side of the gear box. The orientation of the arms changes the location of the M6 allen head bolt (red arrows). The arms can be installed with the bolt orientated towards the rear of the row unit or flipped side to side so the bolt faces up. You may find it easier to get an allen wrench on the bolt with the M6 bolt facing the rear.



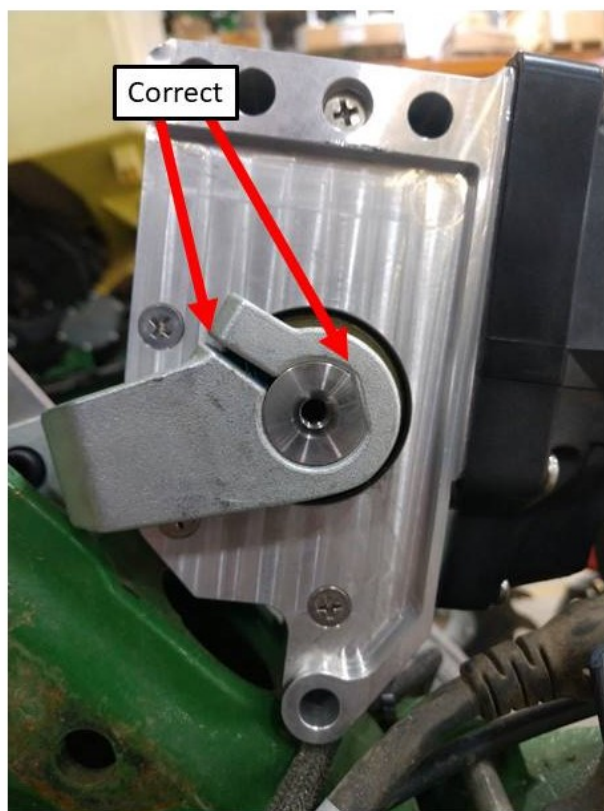
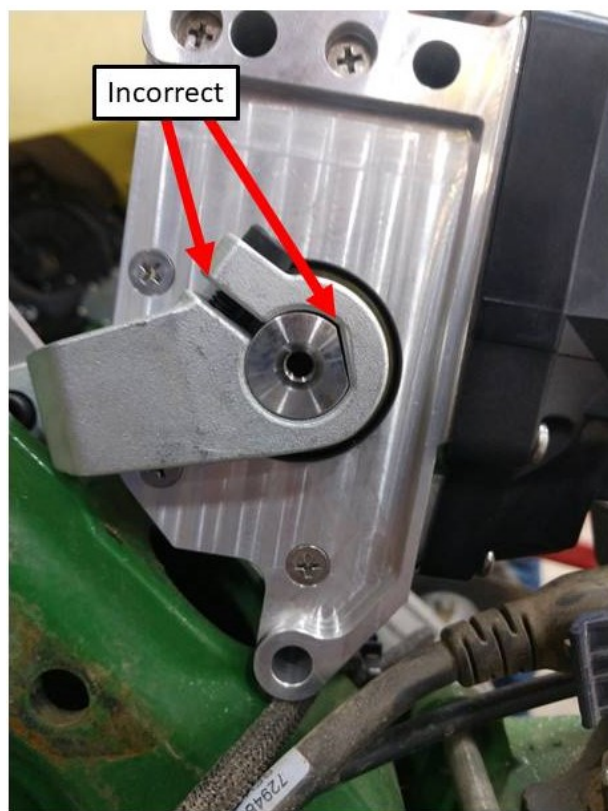
- a: Install the left drive arm which includes the link bushing (red arrow) first. With the bushing through the link then install the right output drive arm. Note the flat spot on the output shaft for alignment. Use the low profile M6 allen head bolt found in the hardware kit. The low profile bolt eliminates the risk of the bolt head hitting the shank.



Note: Tighten the M6 allen head bolt at the wish bone link before tightening the drive arm clamping joint.

- b: Use the M6 allen head hardware (1) for all three joints. Tighten the drive arm bolts until the drive arm clamps tight to the output shaft. Refer to the image. Also, ensure that the drive arms are

flush to the outer surface of the gear box output shaft. If needed, you can use a hammer and lightly tap on the drive arm until it is flush.



Step 4:

Install the gear box support brackets.

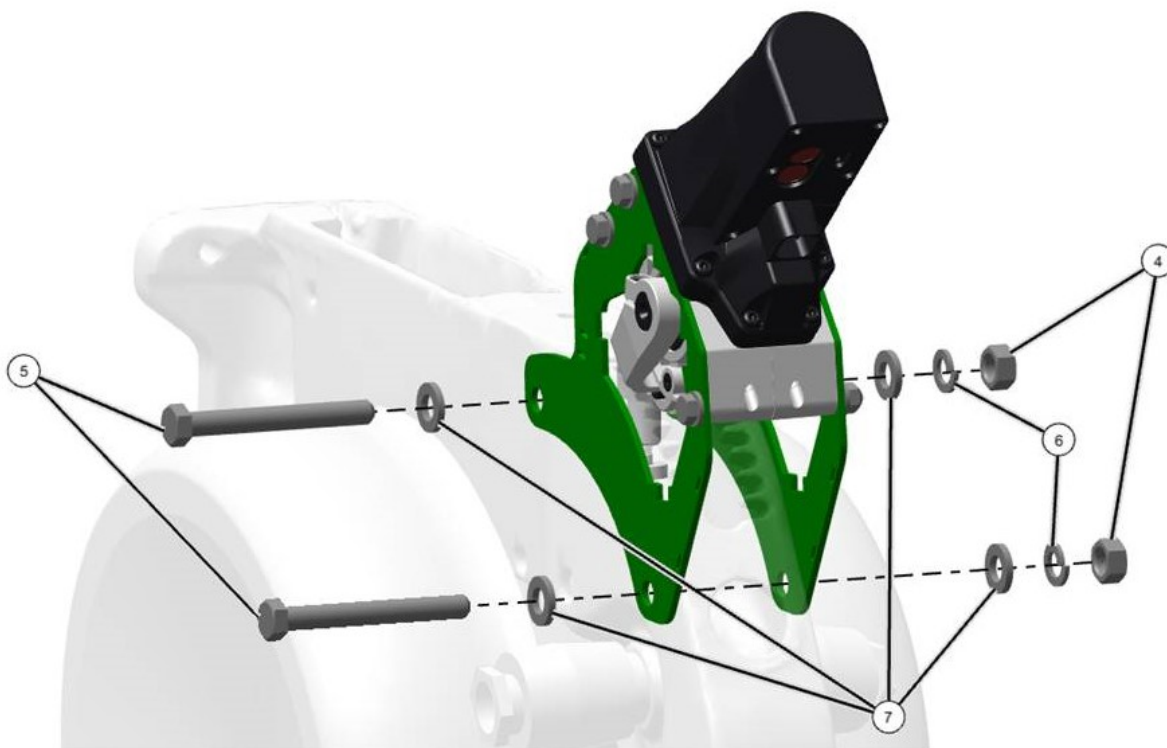
- a: Bolt the two gear box support brackets to the gear box as shown in Figure 3 using M8 x 90 bolts (1), M8 flat washers (2) and M8 lock nuts (3). DO NOT tighten the bolts yet.



Figure 1.

Gear Box Support Bracket Install

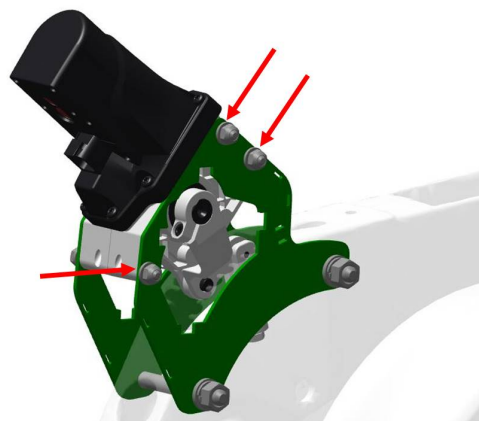
- b: Next, bolt the support brackets to the shank. Use the M12 bolts (5), M12 flat washers (7), M12 lock washers (6) and M12 nuts (4) to secure the support brackets to the shank. DO NOT tighten the bolts yet.



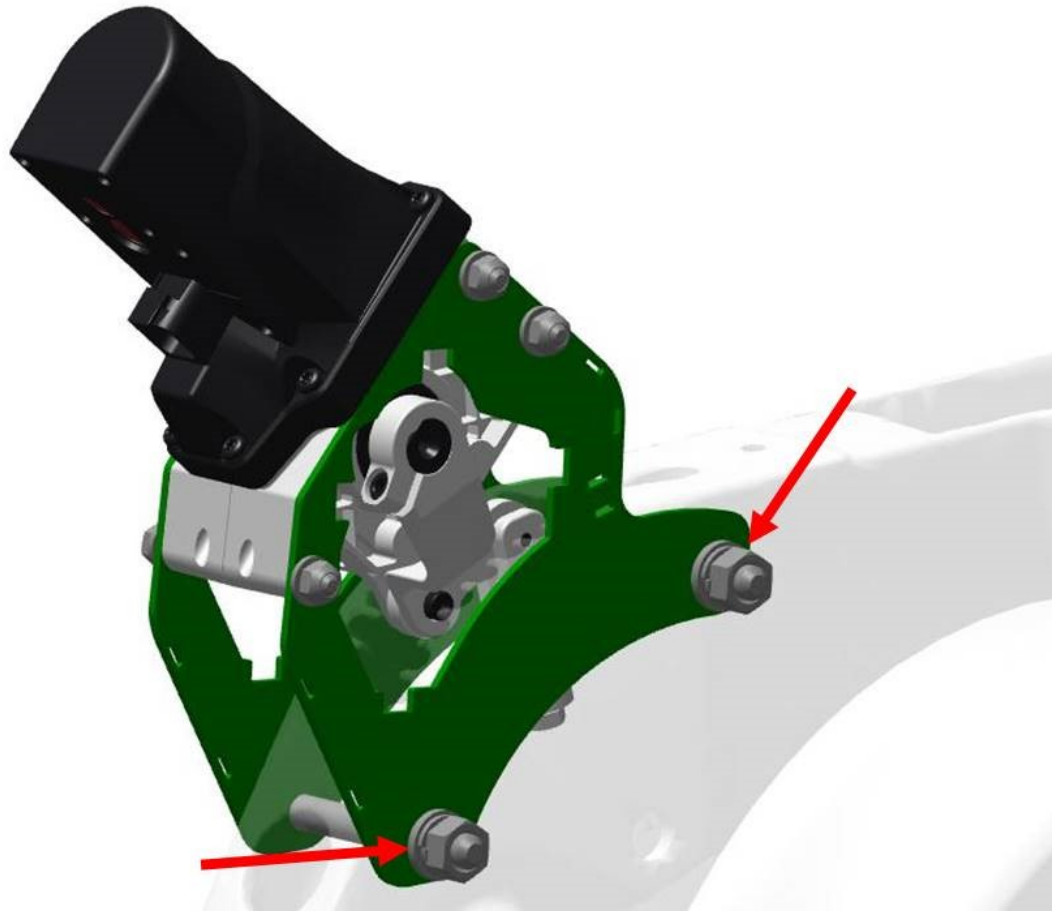
Note: The hardware bag includes four M12 bolts (5). The shorter 100 mm bolts are used without insecticides brackets. If insecticide brackets are installed, use the longer 110 mm length bolts.

c: Tighten the M8 bolts and nuts holding the gear box to the support brackets that were previously left loose to secure the gear box.

Note: On Me5 style load cells, make sure there are enough washers or a bushing on the head of bolt (2) to prevent the weight pin from rotating.



- d: Finally, with everything aligned you can tighten down the two M12 bolts and M12 nuts which secure the bottom of the bracket to the shank.



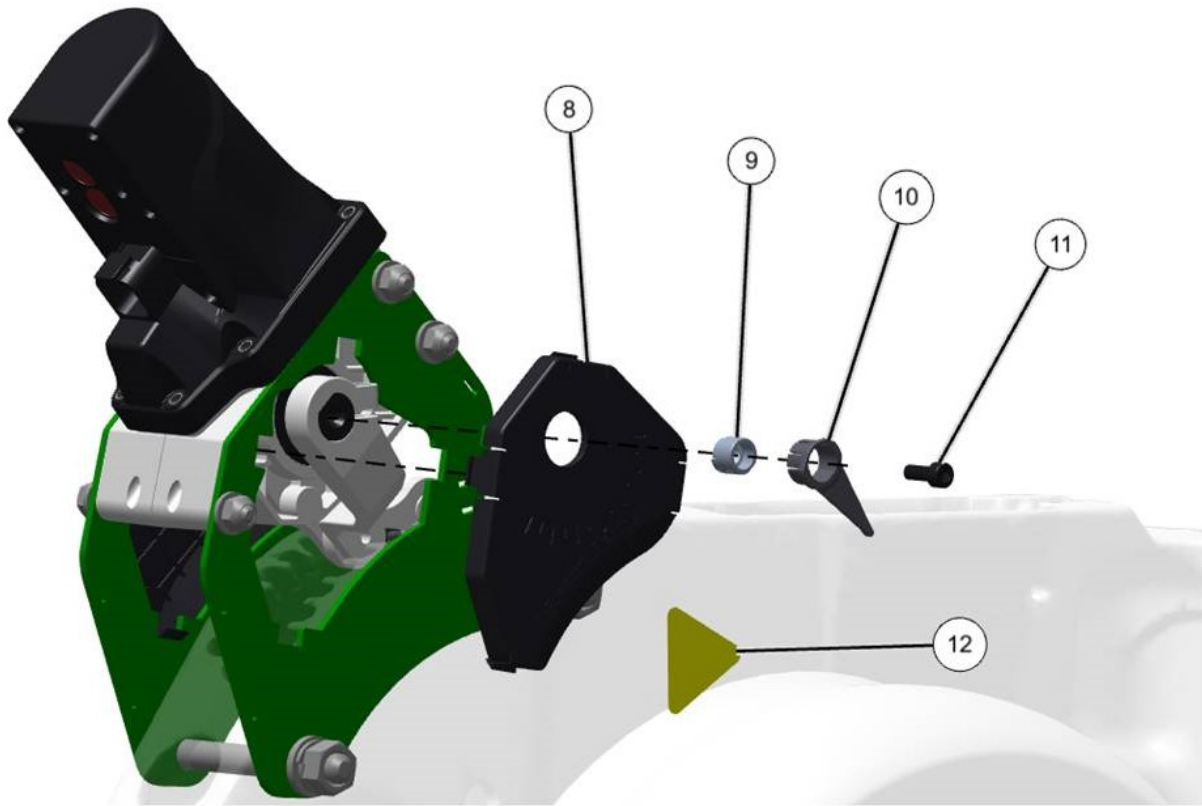
Note: XP style load pins will be secured behind the support back bolt and washer as shown.



Step 5:

Install the left and right hand guards.

Guard Installation

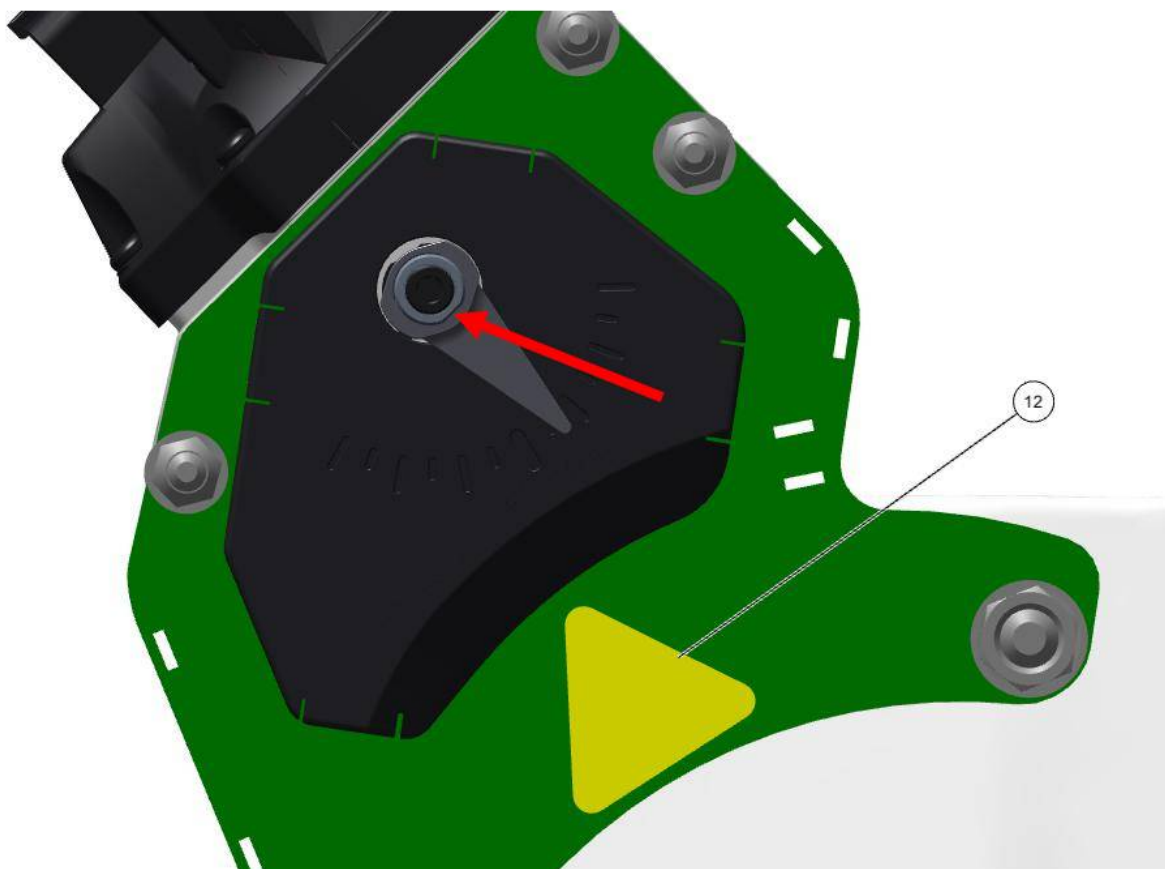


- a: Begin by snapping guard (8) into the support bracket. Notice there is a right hand and left hand guard which are not reversible.
- b: Next, install bushing insert (9) so that the insert (13) is facing inward against the drive shaft. Use the M6 allen head bolt (11) from the hardware kit to hold the bushing insert but DO NOT tighten the bolt.

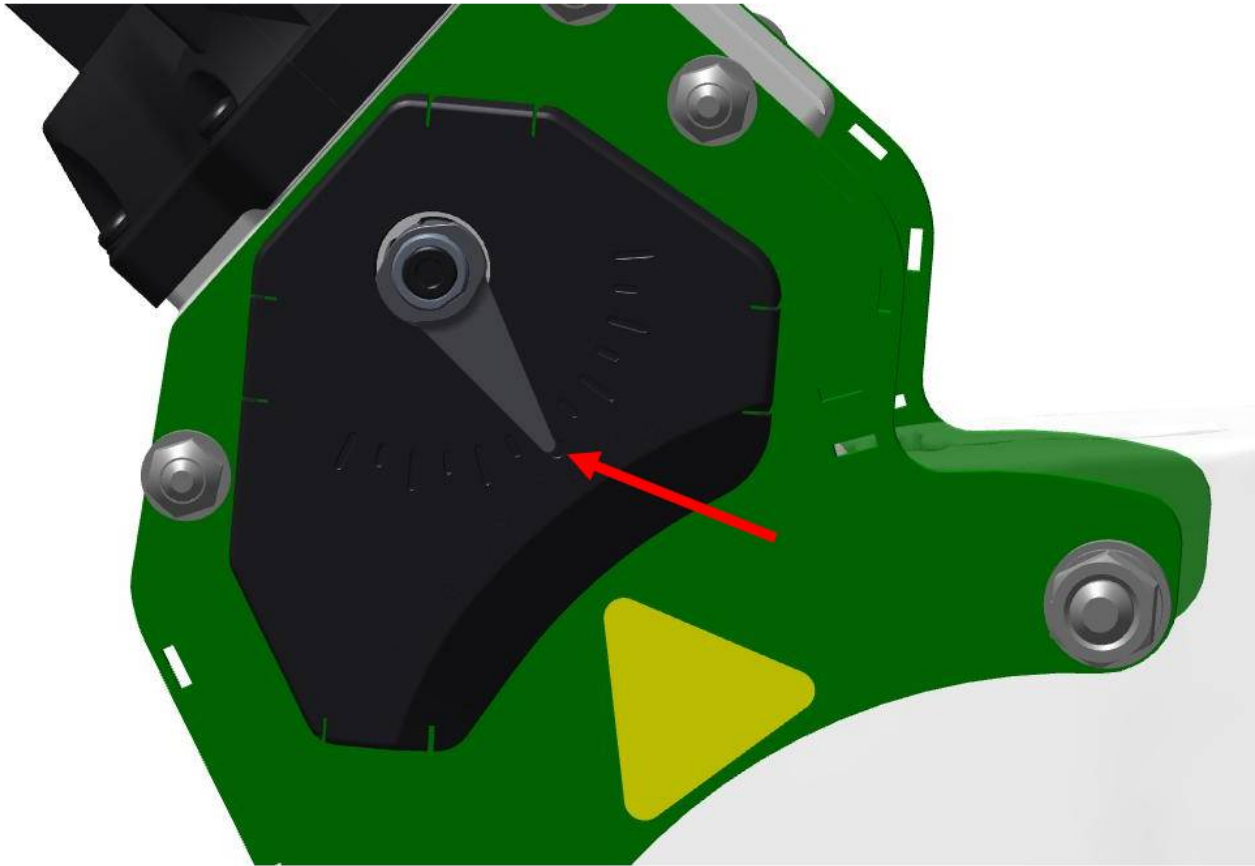


- c: Install depth indicator (10) by aligning the two flat spots and sliding the depth indicator over bushing (9) until it snaps into place.

Note: SmartDepth has dangerous pinch points that can cause injury. Install safety sticker (12) as a reminder to the danger of pinch points.



- d: Wait until the install is complete to set the depth indicator final location. Once the installation is complete, the 2020 is setup, and the depth calibration is completed, command the depth to 2" as an example (any depth can be chosen). With all of the SmartDepth modules at their commanded depth align the depth indicator with the center notch on the guard and tighten the M6 allen head bolt (11). Notice that you can depress the flag into the center notch to help hold it in place as you tighten the bolt.

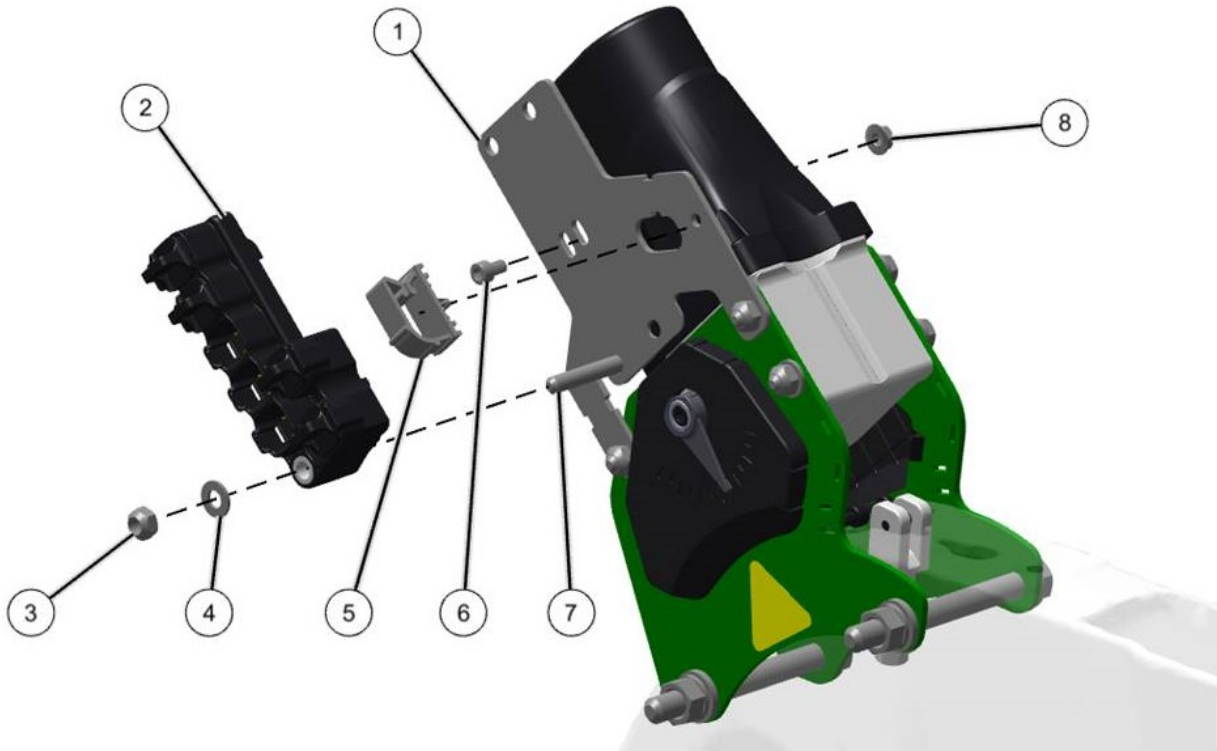


Step 6:

Finally, route the CAN jumper from the actuator up the shank to the CAN expansion hub. Zip tie the harness so it does not interfere with any moving parts. Use the zip tie holes on the bracket and do not over tighten.

Step 7:

Install the SmartDepth CAN expansion Hub bracket (optional).



The CAN expansion hub bracket is designed to be flexible in its mounting location and orientation. It allows for the CAN hub to be installed on either the right or left hand side of the SmartDepth assembly and provides zip tie points as well as clips to help secure the harnessing in place.

- a: Use M8 bolt (7), M8 nut (3), and flat washer (4) to bolt the CAN expansion hub to bracket (1). The CAN hub can be mounted with the bolt on the bottom (as shown) or on top depending on preference.
- b: Use M6 bolt (6) and M6 flange nut (8) in one of the center slotted holes. The purpose on Bolt (6) is to help keep the CAN expansion hub located in the correct spot and prevent it from rotating.
- c: Next, mount bracket (1) to the top two bolts of the SmartDepth support bracket as shown.
- d: Finally, snap clip (5) in the bracket which can be used to help secure harnesses as desired.