

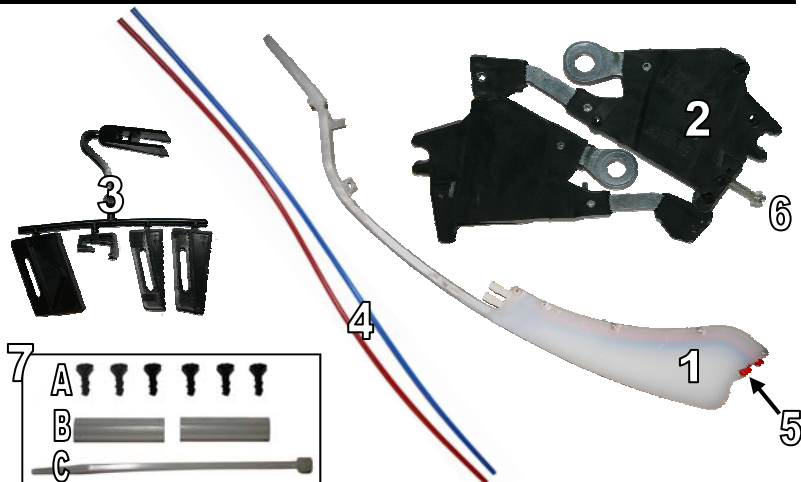
Mounting Instructions for Universal Bracket

Parts List

1. Firmer Tail, (100P202) See Page 4
2. Universal Mounting Bracket (150020)
3. Shim Tree, (150029)
4. 3' Liquid Tubing, (900TUBER3)
5. Liquid Splitter, (170125006)
6. Tension Screw
7. Hardware Kit, (160010)

Hardware Kit Includes

- A) 1/2" screws (6)
- B) 2" splice pieces (2)
- C) Zip tie (1)



- Fits all Kinze (except EdgeVac), all John Deere, White 6000 Series and White 8000 Series Planters. (will not fit White 5000 series planters)
- Mounts onto the seed disk opener shafts and around the front of the row unit shank.
- Will receive dry tail, dual tube tail, short low profile tail, or long low profile tail.

Shim Tree Directions

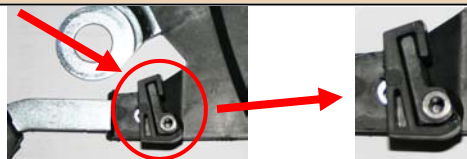
Before beginning installation, review the parts on the shim tree.
Some of these parts will be used depending what planter model you have

1. Filler Block for Deere XP 2007-
2. Shim for Kinze 3000
3. Filler Block for Kinze 3000
4. Shim for Deere 7000, 7200, 1700, & Kinze 2000
5. Shim for all Deere XP row units



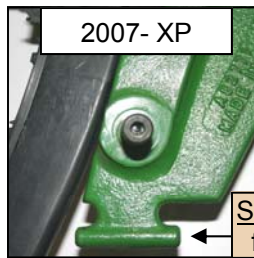
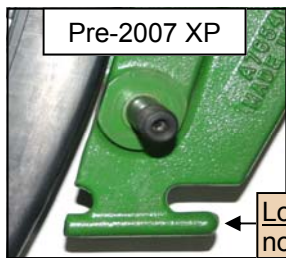
Kinze 3000 Instructions:

Remove #3 the filler block from the shim strip and clip it into position as shown in the photo.



John Deere XP 2007-08 Instruction:

2007- row units may have a short bayonet style mount for the seed-tube protector. If so, you will use an additional filler block from the shim tree included with the Firmer. It is marked, XP2007-. Simply remove this filler from the tree and slide it in front of the bayonet mount as shown in the picture. Once in place, follow the instructions for inserting the XP shim as described on the back of this page.



Use #1 Filler Block from the shim strip.



Deere & Kinze Installation Instructions

Bracket installation: The process for mounting the bracket is similar for all Deere and Kinze row units. Instructions for White planters are on the bottom of this page.

Step 1

Prepare the row unit: Remove both gauge wheels and both of the disc openers from the row unit. Inspect the seed tube protector and seed tube. If these are worn, replace them now while you have easy access to the shank.



Step 2

Locate your brackets, screws and shim kit from the firmer box. Cut the zip ties that hold the brackets together for shipping. Slide the left and right side of the brackets over the opening disk shafts.

Note: for JD XP Row Units & Kinze 3000 refer to page 1 for filler blocks from plastic tree.



Step 3

On Kinze 3000 units, reinstall one disk opener, in order to hold the bracket assembly in position.

Secure the two brackets together with five screws.

Note: Over tightening will strip out the hole.



Step 4

Locate the shim for your planter model and remove it from the plastic tree. Be sure to locate the "up" marking on the shim for proper installation. Slide the shim down between the shank and the front of bracket. Install the screw into the front shim. You should feel the notches ratcheting against each other as it tightens. Firmly tighten all six screws.

Continue to Step 5 on page 3

Note: On some planters, excess weld on the front of the shank may need to be ground off for the shim to fit properly

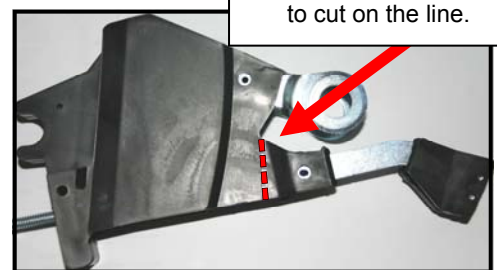
Instructions for White 6000 & 8000 Planters

Step 1

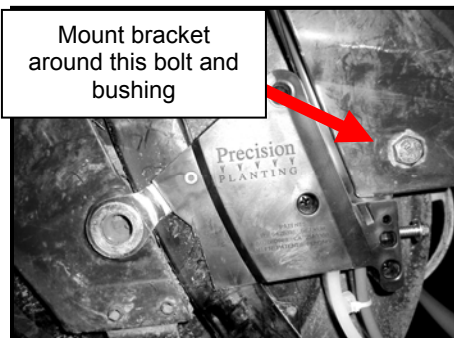
Remove gauge wheels, scrapers, disc openers, and the seed tube support bracket from the row unit. *The seed tube support bracket will not be used during reassembly, as the firmer bracket replaces this.* Locate your firmer brackets, screws and shim kit from the firmer box.

Step 2

You will now need to modify the bracket to fit your White row unit. You will notice the "cut" lines under the steel eyelets. This is marked in red in this photo. Using a utility knife score the plastic, then bend and snap off the "cut" lines on the brackets.



(The front piece will be discarded.)



Step 3

Assemble the two brackets together by installing the five screws.

Step 4

You are now ready to install the bracket onto the row unit. Install the back of the bracket, sliding it around the bolt and bushing, then slide the eyelets up to line up with the opening disc hole. Reinstall one disc opener. Your bracket will now be held in position. Next, reinstall the other disc opener, scraper and gauge wheels. The seed tube support bracket will not be reinstalled.

Questions? Check the website: www.precisionplanting.com or call us at 309-925-5050.

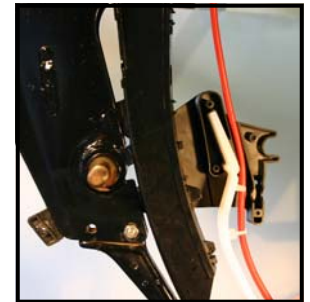
Step 5

Liquid Firmer Tubing Connections: Liquid Firmers include 1/4" tubes and splicers. The tubes mount directly onto the hose barbs on the firmer — do not use the 2" splices to mount the tube to the hose barb. These splicers are provided so you can splice the provided tubes into the supply line from your manifold. The tubes are a tight fit over the barbs. A little soap will make the job easy. Just dip the end of the tube into "Dawn Liquid Soap" and then push onto the hose barb. Don't use any type of petroleum-based lubricant. Once the tubing is in place, route the white tie strap through the small loop located in the middle of the firmer tail. Pull the tie strap together and tighten it, until it is snug against the tubes. Do not over-tighten or it will cause the tubing to kink.



Step 6

Route the tubes through the hose channel: It is easier to route the tubes before you slide the firmer into position. Make sure that the tubes are clear of the tension screw. Generally, the safest place to route the tubes is through the depth adjustment slot then around the hopper box to the manifold.



Step 7

Tail Installation: Once the bracket is mounted, the firmer tail can be installed. Push the clip end of the firmer tail into the mounting base, until you feel it click into position. Tighten the tension screw leaving a 1/2" space between the bracket and the head of the tension screw. See "Adjusting" below.

Step 8

Reinstall disk openers: The Keeton bracket replaces shims on your disk openers. Check your planter manual for proper shimming and contact of your double disk openers. Replace the disks and gauge wheels and tighten all bolts.

Setting the Contact Between the Disk Openers: The best way to check how much contact you have is to take two pieces of paper. Slide one piece in from the top of the disk openers and one from the bottom, then slide them in toward each other, until they pinch between the disk openers. Then measure between the two pieces of paper. If the gap is too wide then you will need to remove a shim from the disk opener. If the gap is too tight you will need to add a shim. Adjust shims as needed to get the correct contact length you need.



Note: To improve the seed trench "vee", make sure the opener blades are not worn. Check this chart, if diameter is less replace them.

- Deere — 14 1/2"
- Kinze — 14 1/2"
- White 5000 — 12 1/2"
- White 6000 & 8000 — 14"

Correct Contact Between Disk Openers

1 1/2" - 2 1/2"	Deere & White
1" - 1 1/2"	3000 Kinze

Step 9

Adjusting Firmer tension: Ideal firmer tension is 12-20 ounces of force when set on a hard level surface. Start by tightening the tension screw till only 1/2" of thread is showing. To determine if the tension is correct, lower the planter to the ground. Attach a small hanging scale (i.e. fish scale) to the firmer near the end. Lift until the firmer just comes off the ground. Tighten the tension screw until it takes 20 ounces or 1 1/4 lbs to raise the firmer. Tension should be checked before every season and if tension is weak, tighten screw. A quick check for down pressure is to lift the firmer tail 1" off the ground and release. If the firmer does not "smack" the ground it needs to be tightened or replaced.

Backing Up tractor while drill is not fully raised can result in damage to the Keeton Seed Firmers.

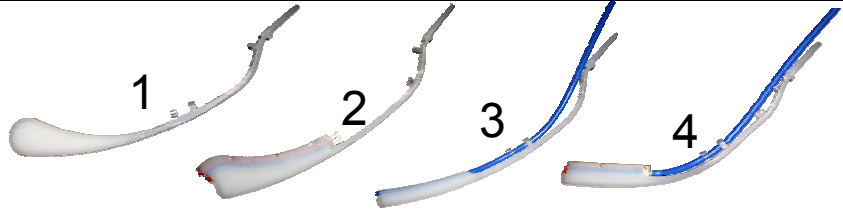
Storage: Installed Firmers should not be stored touching the ground between planting seasons.

Questions? Check the website: www.precisionplanting.com or call us at 309-925-5050.

Firmer Choices

Replacement Tails

1. Dry , (100P215)
2. Dual Tube, (100P202)
3. Long Low-Profile, (100P120)
4. Short Low-Profile, (100P300)



Maximum Liquid Capacity

Method	PSI At Firmer	GPM	GPA for 20" Rows				GPA for 30" Rows				GPA for 36" Rows			
			4 mph	5 mph	6 mph	7 mph	4 mph	5 mph	6 mph	7 mph	4 mph	5 mph	6 mph	7 mph
On Seed	5 psi	.47	35	28	23	20	23	19	16	13	19	16	13	11
	10 psi	.73	54	43	36	31	36	29	24	21	30	24	20	17
	Squeeze Pump	.5	37	30	25	21	25	20	16	14	21	16	14	12
Splitter	5 psi	.30	22	18	15	13	15	12	10	9	12	10	8	7
	10 psi	.46	34	27	23	20	23	18	15	13	19	15	13	11
	Squeeze Pump	.33	24	20	16	14	16	13	11	9	14	11	9	8

- ▶ This chart is for reference to maximum flow rates using starter fertilizer (11 lb. per gallon).
- ▶ It is recommended that flow be distributed through an orifice system to ensure equal flow to each row.
- ▶ Pump pressure can be run higher if an orifice is used to regulate flow.

Troubleshooting Guide

Problem	Solution
Firmer not centered in trench.	1 ▶ Check to see if row unit is trailing straight. 2 ▶ Verify that mounting bracket is installed correctly.
Groove worn on side of firmer.	3 ▶ Check to see that disc openers are shimmed equally. 4 ▶ Check to see if firmer is bent or damaged.
Starter leaking on closing wheel or firmer.	1 ▶ Make sure hose is connected directly to barb on firmer. 2 ▶ Check hose for splits at barb or damage from pinching or rubbing.
Uneven starter flow.	1 ▶ Check tubes for kinks or plugs. 2 ▶ Use manifold with orifice to ensure even distribution.
Dirt builds up on firmers.	1 ▶ Some build-up on firmers is acceptable as long as it is on the sides and top of the firmer, and does not get wider than the V-trench sidewalls. 2 ▶ If build-up happens on the bottom of the firmer, check for proper tension. 3 ▶ Check for damage or rough spots on the bottom of the firmer. 4 ▶ Change to one of the low-profile firmer tails.
Uneven wear on bottom.	1 ▶ Check seed disk contact and shim if necessary. (Look ↑ Above) 2 ▶ Check liquid starter shoe for interference with firmer. 3 ▶ Make sure firmer tail is trailing down center of trench.

Warranty: Precision Planting, Inc. warrants this product to be free from defects in material or workmanship during the first year of service. Our obligation under this warranty shall be limited to repairing or replacing, free of charge to the original purchaser, any part that in our judgment shall show evidence of such defect, provided further that such part shall be returned within thirty (30) days from the date of failure – routed through the dealer from whom the purchase was made. Shipping charges prepaid.

Precision Planting shall have no obligation or liability of any kind on account of any of its equipment and shall not be liable for special or consequential damages. This warranty does not extend to loss of crops, loss because of planting delays or any expense or loss incurred for labor, supplies, substitute machinery, rental or for any other reason. Precision Planting makes no other warranty, express or implied.

Thank You For Purchasing The Keeton[®] Seed Firmer

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