

Mounting Instructions for a 100101 & 100104

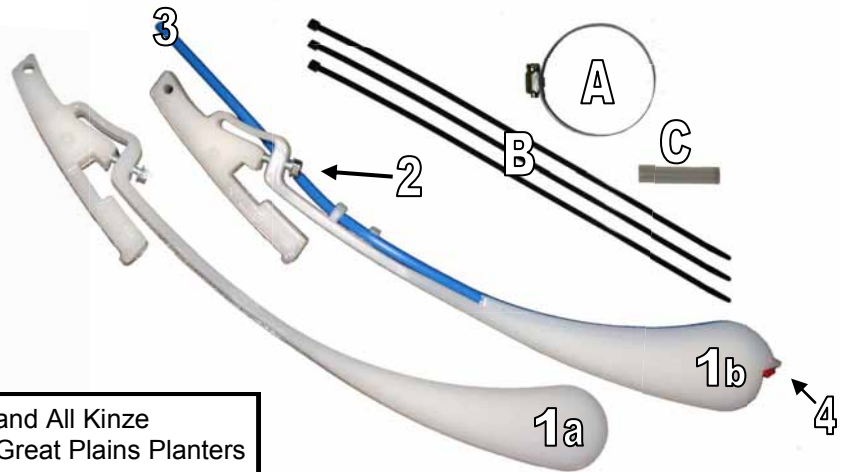
Parts List

1. Firmer Tail, 1a(100P100) 1b(100P100T)
2. Tension Screw (32410)
3. Liquid Tube, (900110)
4. Liquid Splitter, (125006)

Hardware Kit Includes

- A) 2 ¼" - Metal Hose Clamp, (1) (900115A)
- B) 14" - Zip Ties, (3) (900116A)
- C) 2" Splice Tube (1) (900107)

- Fits White 5100, 6000 & 8000 Series Planters and All Kinze (except EdgeVac), John Deere, Monosem and Great Plains Planters
- Mounts onto the seed tube
- Liquid tube.
- Will not work with WaveVision Sensor.



Installation Instructions

Step 1

Remove gauge wheel and one side of disc opener from the row unit. Position seed tube in row unit.

For White 5100 instructions see page 3.



Step 2

Place the Firmer base on the back of the seed tube and slide the Firmer up until the lip on the base of the Firmer is next to the opening of the seed tube. The base of the Firmer should cover the bottom two fins on the tube. Slide a tie through the hole at the top of the Firmer and secure it around the seed tube above the tube's hook.

The Firmer Base will sit on locking tabs on the Bullseye seed tube creating a gap between the tube and firmer.



Step 3

Next place the stainless steel clamp around the seed tube and the Firmer. Make sure the clamp is at the bottom of the notch and its head is centered under the Firmer so it cannot rub on the rolling opening disc. Tighten the clamp snugly and trim off the excess.

Do Not overtighten the metal hose clamp as this can deform seed tube



Step 4

Next place two tie straps above the clamp at the top of the notch. Tighten snugly around the Firmer, seed tube, and metal seed tube protector. The knot of the tie straps should be positioned in front of the metal seed tube protector. These ties will provide additional support to the seed tube when the Firmer is engaged in the ground.

Step 5

Liquid Firmer Tubing Connections: Liquid Firmers include 1/4" tubes and splicers. These splicers are provided so you can splice the provided tubes into the supply line from your manifold.

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

Continued Installation Instructions

Step 6

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 $\frac{1}{2}$ " 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 2" off the ground and release. If the firmer does not "smack" the ground it needs to be tightened or replaced.

Step 7

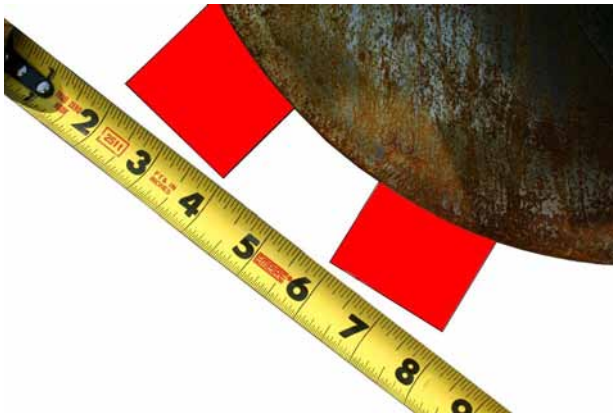
Make sure the disc opener does not contact the two black ties. To improve the seed trench "vee", make sure the opener blades are not worn. Check this chart, if diameter is less, replace them:

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 — 14.5"
- Kinze — 14.5"
- White 5000 — 12½"
- White 6000 & 8000 — 14"

Step 8

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.



Correct Contact Between Disk Openers

1 ½" - 2 ½" Deere & White
1" - 1 ½" 3000 Kinze

Step 9

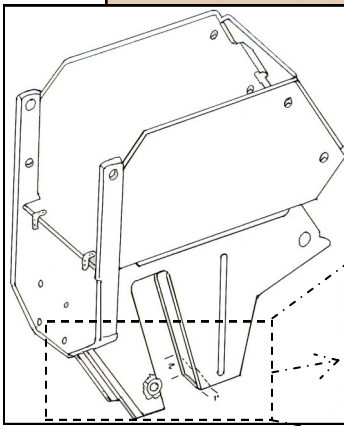
Replace disc opener and gauge wheel and tighten all bolts. Repeat these steps for all rows. Lower planter to ground level. For best results and accuracy, make sure planter units are level to the ground. Engage planter into the ground. Run 10 feet and check to see that the seed is at the desired depth. Readjust the depth of the row unit if necessary. The firmer is provided with preset tension which we recommend using the first year. The tension screw can be tightened in subsequent years according to your needs.

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

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

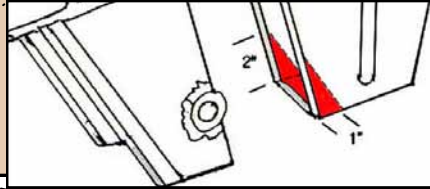
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Additional Instructions for a White 5100 Series Planters



Owners of White 5100 planters will need to make a frame modification to accommodate the Firmer. After removing the gauge wheel and disk opener, you must remove a portion of the row unit's shank frame.

Refer to the illustration at left. Mark the frame two inches up and one inch back as shown. Draw an angled line between the two marks on the side of the frame and a straight line across the bottom. Cut the frame as marked along the sides and bottom of the frame.



Once this is complete, you can mount the Firmer to the seed tube following the instructions on the front of this sheet. Repeat this procedure for each row unit.

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.

Annual Maintenance

- Adjust tension—see step 6 for details.
- Check for uneven wear on firmers.
- **Checking Firmer tension**

Ideal firmer tension is 12-20 ounces of force when set on a hard level surface. 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 2" off the ground and release. If the firmer does not "smack" the ground it needs to be tightened or replaced.

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Troubleshooting Guide

Problem	Solution
Firmer not centered in trench.	1 ► Check to see if row unit is trailing straight. 2 ► Check to see that disc openers are shimmed equally. 3 ► Check to see if firmer is bent or damaged.
Groove worn on side of firmer.	
Starter leaking on closing wheel or firmer.	1 ► 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.
Uneven wear on bottom.	1 ► Check opener 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.

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