

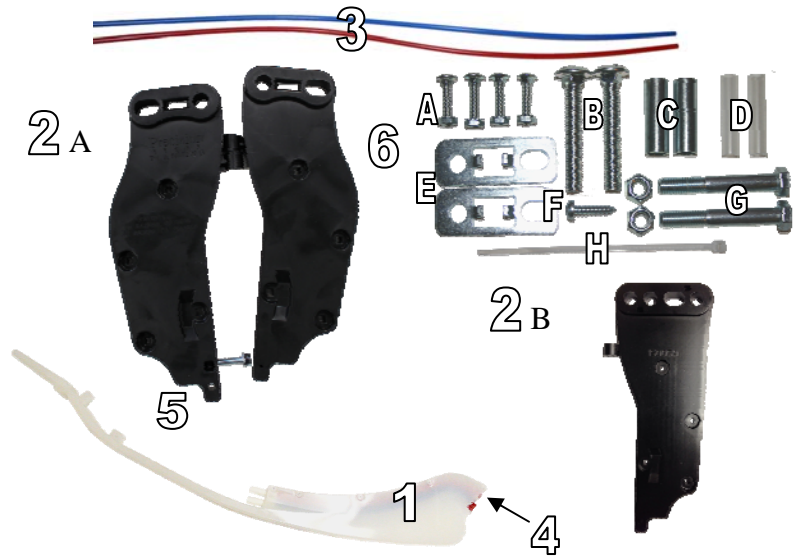
Mounting Instructions for Kinze Bracket

Parts List

1. Firmer Tail, (115010) see page 4
- 2a. Kinze Mounting Bracket, (150034)
OR
- 2b. New Kinze Mounting Bracket (150058)
3. Tubing, (900110)
4. Liquid Splitter, (125006)
5. Tension Screw, (31882)
6. Hardware Kit, (160004)

Hardware Kit Includes

- A) 10-24x1" Carriage Bolts (21055) & 10-24 Locking Nuts (37407), (4)
- B) $\frac{3}{8}$ x 2 $\frac{1}{2}$ Carriage Bolts (21363), (2)
- C) Pipe Spacers (150007), (2)
- D) 2" Splice Pieces (900107), (2)
- E) $\frac{1}{8}$ " Metal Spacers (150006), (2)
- F) 1" Sheet Metal Screw (31418), (1)
- G) $\frac{3}{8}$ x 2 $\frac{3}{4}$ Hex Bolts (13114), (2)
- $\frac{3}{8}$ - 16 Lock Nuts (37264), (2)



- Fits all Kinze Planters, compatible with both WaveVision and standard seed tube sensors
- New bracket (running change) has re-designed holes at top so that you no longer need to drill holes to fit on larger Kinze seed tube.

Kinze 2000 Installation Instructions

Step 1

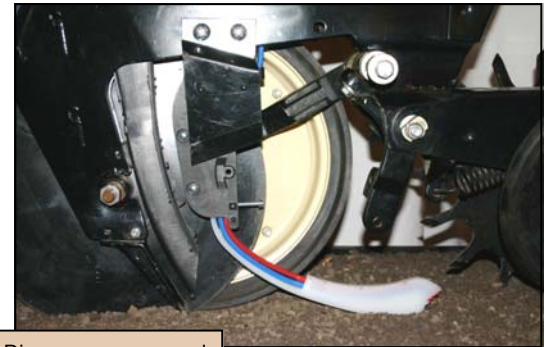
Prepare the row unit: Remove one gauge wheel and the disc scrapers from the row unit. Inspect the seed tube protector and seed tube. Replace if worn. Measure the disc opener diameter and replace the disc if it measures 14 $\frac{1}{2}$ " or less.


Step 2

Cut the zip ties that hold the brackets together for shipping. Secure the two pieces of each bracket together with four 10-24 x 1" carriage bolts and locking nuts and one 1" machine screw. Install the pipe spacers into the bracket.


Step 3

Slide the bracket up inside the row unit frame. Align the top two holes of the bracket with the inside of the scraper bracket holes on the planter frame.



Disc opener removed for illustration

Step 4

Position the scrapers over the same holes on the outside of the planter frame. Secure scrapers, firmer bracket, and planter frame together using the $\frac{3}{8}$ x 2 $\frac{1}{2}$ carriage bolts. Tighten firmly.

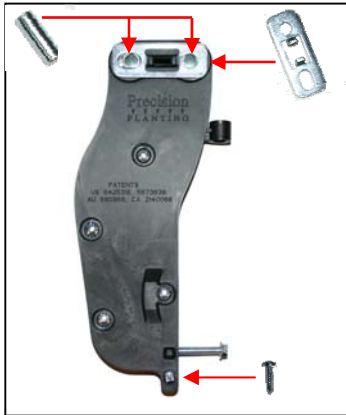
Questions? Check the website: www.precisionplanting.com or call us at 309-925-5050.

KEETON SEED FIRMER

Kinze 3000: Non-EdgeVac (Old Bracket) and All Planters (New Bracket)

Step 1

Prepare the row unit: Remove one gauge wheel and the disc scrapers from the row unit. Inspect the seed tube protector and seed tube. Replace if worn. Measure the disc opener diameter and replace the disc if it measures 14½" or less.



Step 2

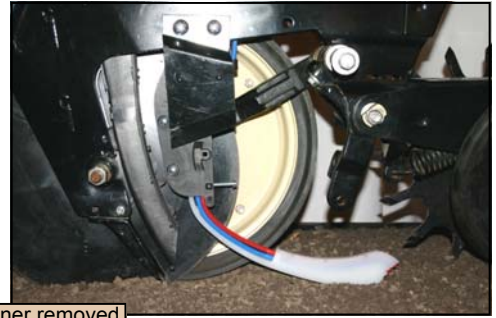
Cut the zip ties that hold the brackets together for shipping. Secure the two pieces of each bracket together with four 10-24 x 1" carriage bolts and locking nuts and one 1" sheet metal screw. Install the pipe spacers inside each hole of the bracket. Then install the ⅛" metal spacers on the outside of the bracket. The spacer tabs should lock into the bracket. See next page if installing with OEM large seed tubes and scrapers.



Step 3

Slide the bracket assembly up inside the row unit frame. Align the top two holes of the bracket with the inside of the scraper bracket holes on the planter frame.

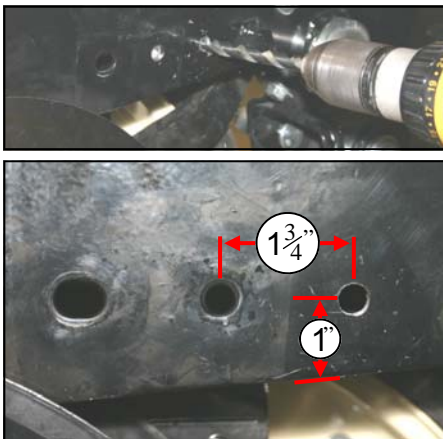
If assembly is too wide to fit between sides of shank remove one 1/8" metal spacer or replace them with thin washers.



Step 4

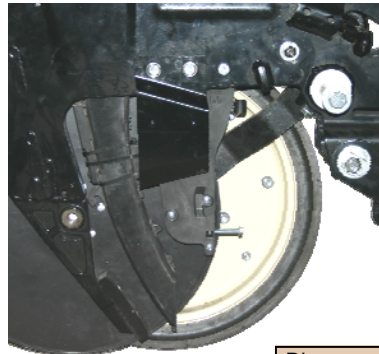
Position the scrapers over the same holes on the outside of the planter frame. Secure scrapers, firmer bracket, and planter frame together using the ⅜" x 2 ¾" machine bolts. Tighten firmly.

Kinze EdgeVac (Old Bracket)



Step 3

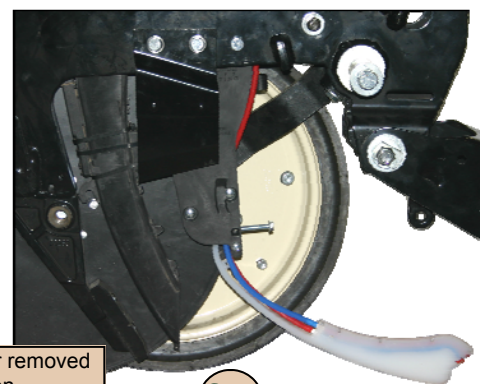
Start with step 1 & 2 above. Drill a ⅜ hole behind the original scraper hole on both sides. Position the hole 1 ¾" back from rear scraper hole and 1" up from bottom.



Step 4

Slide the bracket assembly up inside the row unit frame. Align the top two holes of the bracket with the back hole of the scraper and the newly drilled hole behind the scraper.

If assembly is too wide to fit between sides of shank remove one ⅛" metal spacer or replace them with thin washers



Step 5

Position the scrapers over the original holes on the outside of the planter frame. Secure scrapers, firmer bracket, and planter frame together using the ⅜" x 2 ½" carriage bolts. Tighten firmly.

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Kinze OEM Large Seed Tube and Scraper

Follow these steps if installing with the large OEM seed tube and scraper.

Step 1: Place bolt spacers in holes “A” and “D” as shown in the picture at right. “D” is for added strength and a bolt will NOT go through the spacer.

Step 2: Install spacer plates BACKWARDS from their normal orientation. The slotted holes in the spacer plate will NOT line up with the slotted holes on the bracket itself on either side.

Step 3: Install the bracket on the row unit utilizing holes “A” and “C”.



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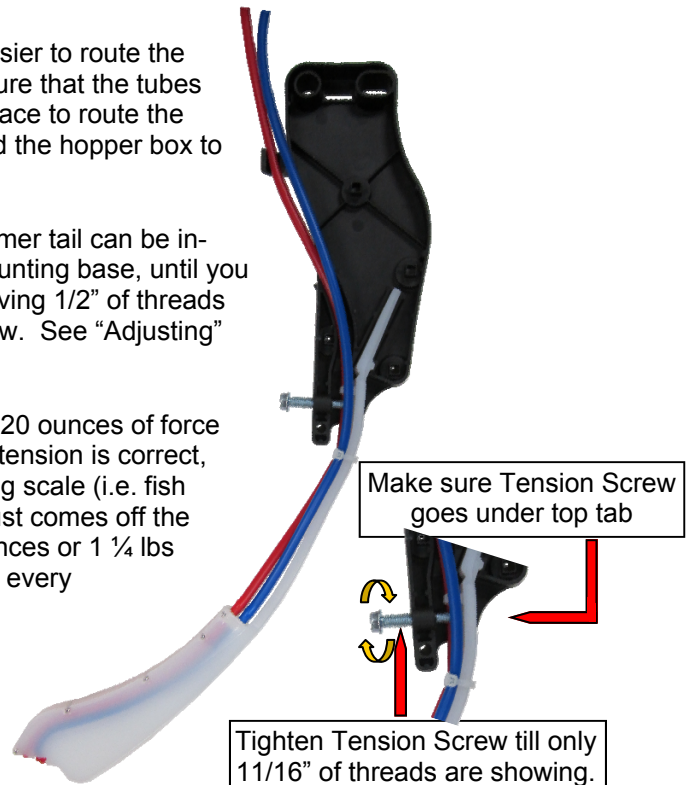
Kinze Installation Instructions

Step 5 **Liquid Firmer Tubing Connections:** Liquid Firmers include 1/4" tubes and splicer's. The tubes mount directly onto the hose barbs on the firmer — do not use the 2" splices to mount the tube to the firmer. These splicer's 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 on-to the hose barb. Don't use any type of petroleum-based lubricant. Once the tubing is in place, remove the white tie strap from your hardware bag. 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 tighten it too tight 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 1/2" of threads between the bracket and the head of the tension screw. See "Adjusting" below.

Step 8 **Adjusting 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.



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.

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

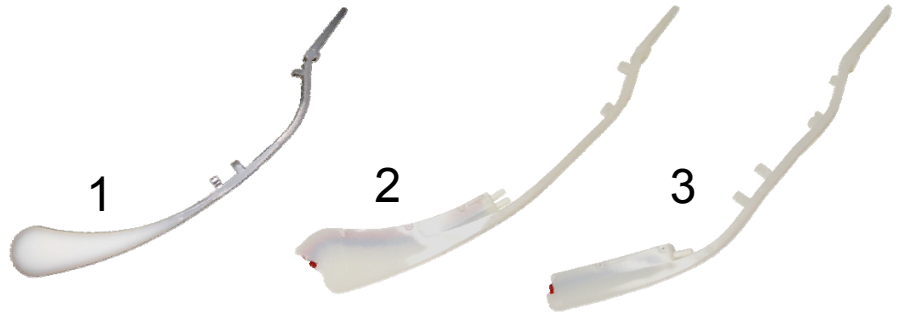
- ▶ This chart is for reference to maximum flow rates using starter fertilizer (11 lb. per gallon).
- ▶ It is recommended that flow be distributed through an orifice system to ensure equal flow to each row.
- ▶ Pump pressure can be run higher if an orifice is used to regulate flow.

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Firmer Choices

Replacement Tails

1. Dry , (125011)
2. Dual Tube, (115013)
3. Short Low-Profile, (126010)



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 ¼ 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.

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 oriface 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 opener disk contact and shim if necessary. 2 ► Check liquid starter shoe for interference with firmer. 3 ► Make sure firmer tail is trailing down center of trench.

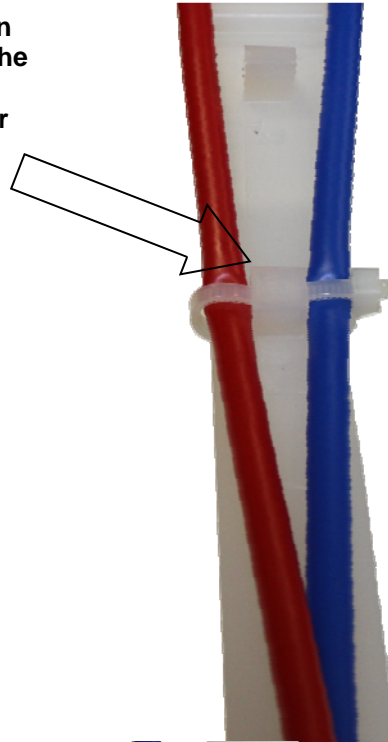
Warranty: Precision Planting, Inc. warrants this product to be free from defects in material or workmanship during the first year of service. Our obligation under this warranty shall be limited to repairing or replacing, free of charge to the original purchaser, any part that in our judgment shall show 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.

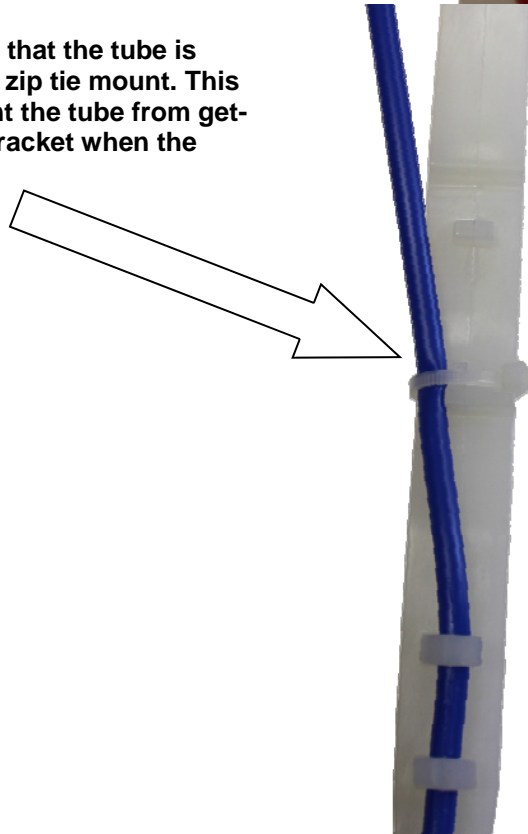
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Securing Liquid Tubes

Dual Tube: Ensure that tubes are secured on either side of the zip tie mount. This allows the firmer to prevent the tubes from getting pinched against the bracket when the planter is lowered.



Short Low-profile: Ensure that the tube is mounted to the side of the zip tie mount. This allows the firmer to prevent the tube from getting pinched against the bracket when the planter is lowered.



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