

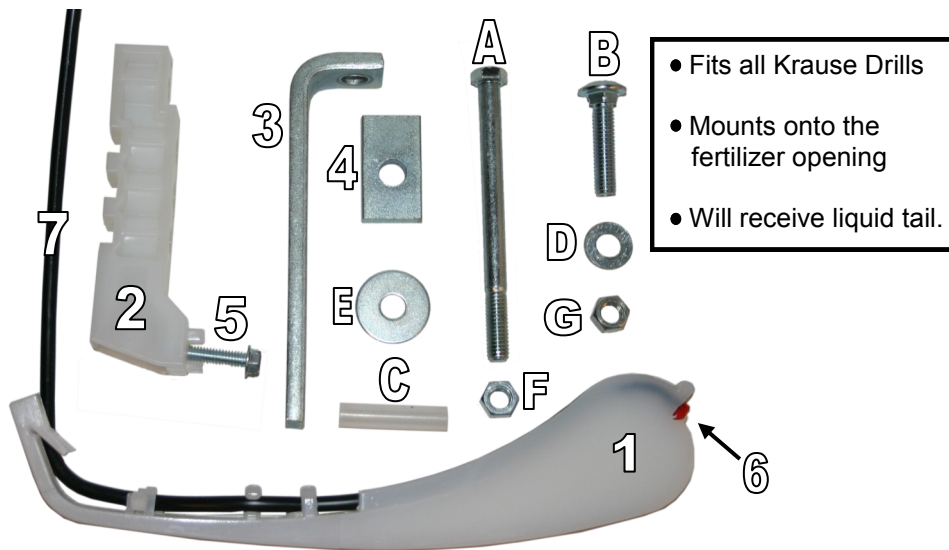
Mounting Instructions for a Krause Drill

Parts List

1. Firmer Tail, (120820)
2. Poly Mounting Bracket,
3. Metal Mounting Bracket, (150033)
4. Metal Mounting Bracket, (150048)
5. Tension Screw, (32411)
6. Liquid Splitter, (125006)
7. Tubing, (129BXT814)

Hardware Kit Includes (160023)

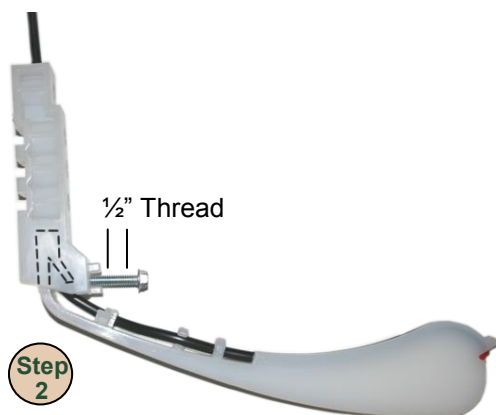
- A) 1 - $\frac{3}{8}$ x $4\frac{3}{4}$ " Bolt, (13122)
- B) 1 - $\frac{3}{8}$ x 2" Carriage Bolt, (21361)
- C) 1 - $\frac{1}{4}$ x $\frac{3}{8}$ " Splice Piece, (900107)
- D) 1 - $\frac{3}{8}$ " Lock Washer, (33622)
- E) 1 - $\frac{3}{8}$ " x 1 1/2" Washer, (33219)
- F) 1 - $\frac{3}{8}$ " Nut, (36306)
- G) 1 - $\frac{3}{8}$ " Locknut, (37264)



Installation Instructions

- Step 1** First, assemble 2-piece liquid firmer by inserting the Tail into the Poly Mounting Bracket as shown above. Make sure tension screw is below the tab on Tail section.

Tighten the tension screw leaving 1/2" of thread showing between the bracket and the head of the tension screw.



Step 2 Lower the drill so the opening disks rest on a flat surface or on the floor. Remove the outside disk opener from the row unit.



Step 3 Place the short 1-1/4" top bracket that has been provided sideways over the fertilizer opening in the casting of the row unit.

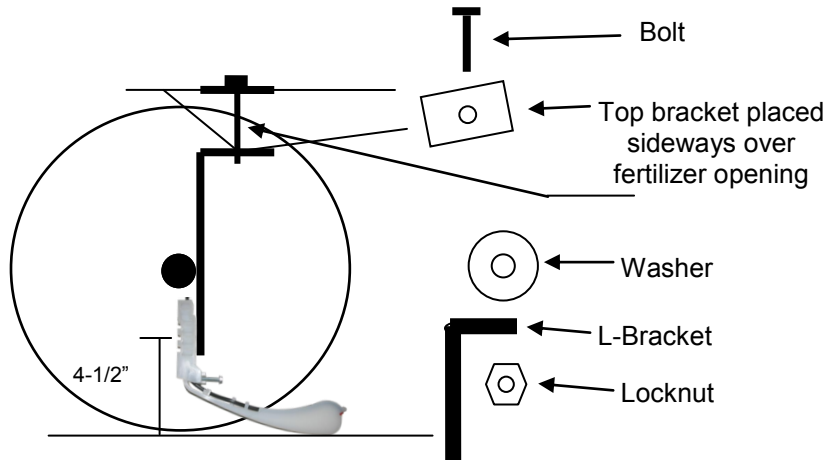
Place the 4-3/4" bolt through the top bracket and fertilizer opening. Place the large washer under the bottom of the fertilizer opening over the end of the bolt. Next slide the short end of the "L" shaped bracket over the bolt and secure all together with the lock nut.

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

Continued Installation Instructions

- Step 4** Place the Keeton Seed Firmer next to the center of the unit or as close to the bearing as possible in the center of the row. Bolt the backside of the Firmer (on the tension screw side) to the long "L" shaped bracket. To determine which holes to use, measure up from the floor to the tension screw.

The tension screw should be 4" to 4 1/2" from floor. Line up firmer hole with the bracket hole and secure with the 3/8" x 2" carriage bolt.



- Step 4** Line up the Firmer hole with the bracket hole and secure with the carriage bolt on the Firmer.

After mounting the first unit on the drill, measure the height from the Firmer's tension screw to the ground. That distance should be approximately 4" to 4-1/2". Repeat the procedures for each unit.

- Step 5** **Liquid Firmer Tubing Connections:** Liquid Firmers include 1/4" tubes and splicer's. These splicer's are provided so you can splice the provided tubes into the supply line from your manifold. If you are NOT using liquid, simply remove the black tube by snipping the tie strap that secures the tube to the firmer. Then remove the red splitter which is attached to the tube at the end of the firmer tail.

- Step 6** **Reinstall disk openers:** Check your drill manual for proper shimming and contact of your double disk openers. Replace the disks and tighten all bolts.

- Step 7** **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 drill 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.

Note: Trim the length of the tail if it is making contact with the Press wheel.

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.

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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. Groove worn on side of firmer.	1 ▶ Check to see if row unit is trailing straight. 2 ▶ Verify that mounting bracket is installed correctly. 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.
Uneven wear on bottom.	1 ▶ Check opener disk contact and shim if necessary. 2 ▶ Make sure firmer tail is trailing down center of trench.

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