

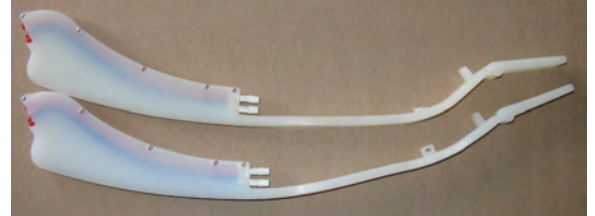
INSTALLATION & ADJUSTMENT

Exapta[®]s K.211 Mojo Wire[™] for dual-tube Univ. Keeton[®]

Assembly for Liquid-ready (dual-tube) planter Keeton tails (WaveVision-ready) for Universal wrap-around brackets or scraper-mount ("Kinze") brackets.

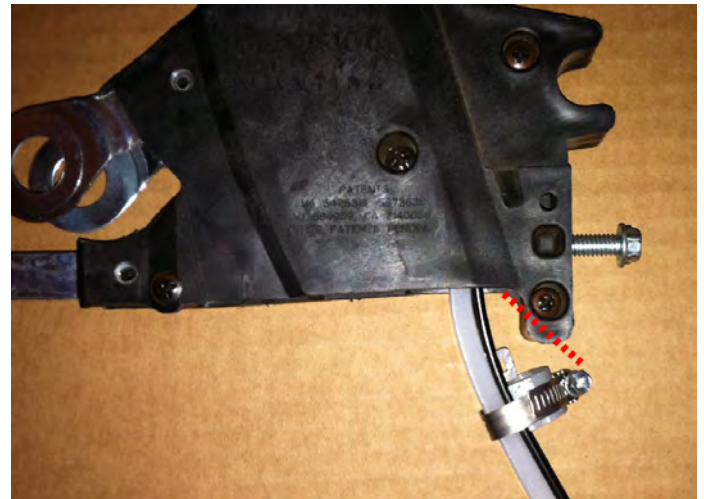
*****(Mojo Wire is not intended for use with Low-Profile tails)*****

Before starting, make sure the Mojo Wires you have match the Keeton tails, since the K.211 Mojo's curvature fits the dual-tube WaveVision-ready tails precisely, and our K.200 Mojo goes with the pre-Wave. For Dry Wave tails, use our K.212 Mojo.



Upper tail is non-Wave, lower is Wave-ready. Different curvature below 'thumb.'

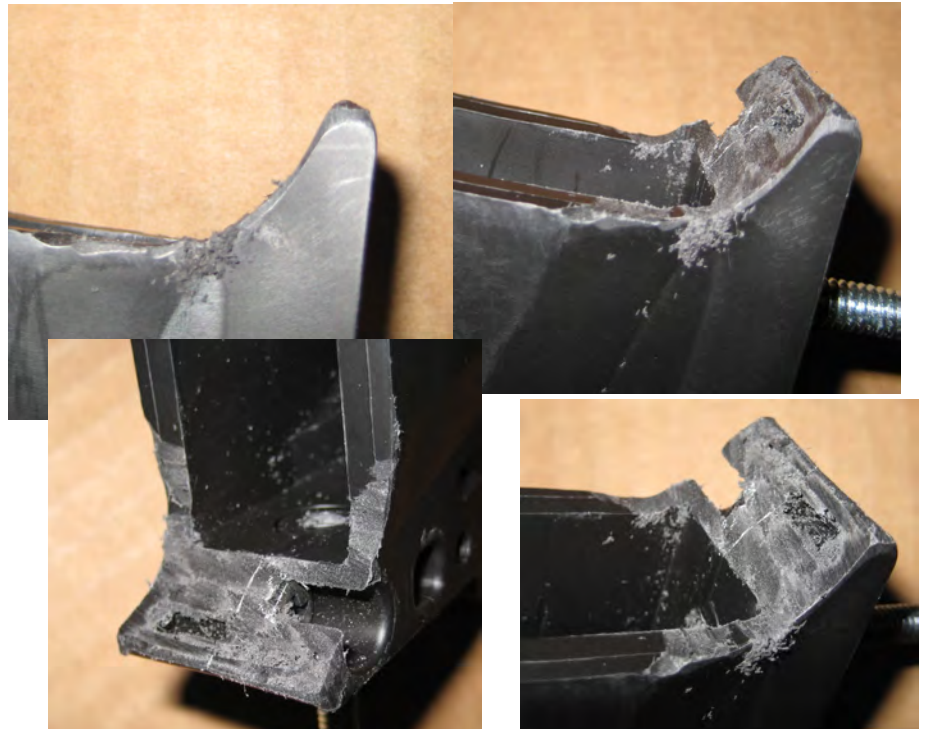
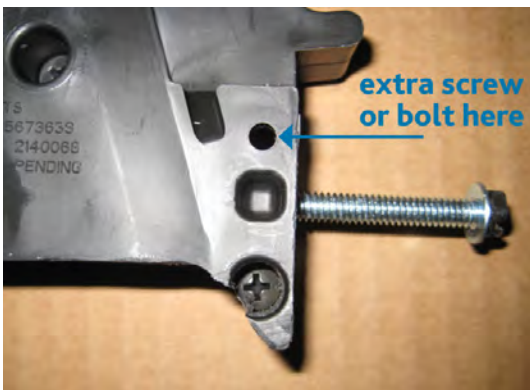
1A) IMPORTANT: If using Wave tails, you'll need to grind the bracket to provide enough clearance when tail flexes up into operating position. (If you buy these Keetons from Exapta, this grinding is already done for you. Go to Step 1B.) Precision Planting's flattening of the tail to make it Wave-sensor compatible results in loss of a crucial 0.25" of clearance, which causes much greater stress on the bracket when tail is fully flexed – brackets may fail under this stress. This loss of clearance also will crush any liquid tubing at that pinch point. To prevent damage or failure of Keeton assembly, grind away part of bracket, as shown. (No need for grinding with *pre-Wave* tails.)



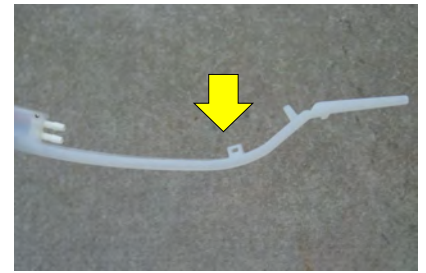
For Wave tails, grind off bracket at red dashed line.

Cut/grind bracket at angle shown by red line. Continue to grind until you get to the head of the screw, which is visible in several of the photos—it's okay to skim a tiny bit off the screw-head's edge. Try to keep grinding square to the sides of the bracket—i.e., don't grind away more plastic where the screw threads are located. If done correctly, there's no weakening of bracket. Then, contour the grinding somewhat to follow the arc of head of screw. This is to gain max clearance —since the tail curves, a straight 45° grind won't provide the full benefit. Pull tail up into maximum flex, and you'll see where it hits first with the straight grind. Round those corners off to gain more clearance.

1B) To beef up the bracket further, install a very small screw (provided by Exapta) in hole above tensioning screw (see pic). **Cont'd (over).**



1C) Start with the Keeton bracket installed on the row unit and the tail removed. Grind off the loop (see photo: yellow arrow points to loop) until smooth since you'll want maximum clearance at this spot (**for older Keeton single-tube Liquid tails**, also grind off the 2 opposing hooks molded into the tail below the loop). For liquid tubing, first route the tubing thru the row unit but *outside** the Keeton bracket, thru the Mojo blocks & hose clamps, and then onto the barbed fittings in the dual-tube tail (attaching the lower one first, if using both). *Avoid kinking the tubing.* Using dish soap helps slide the tubing onto barbed fittings (don't use petroleum-based lubricants); heating the end slightly also helps. *Note: For a leak-free system, don't do any splicing of the 1/4" tubing—instead, run a continuous piece from the manifold all the way thru to the fittings in the dual-tube tail.* (Or use a good auto-lock union connector.) Black 1/4" tubing is more durable than blue or red. Protect pinch points on the row unit with oversize tubing.



*Exapta recommends loosely tying the tubing to the outside of the bracket—see next page for details.

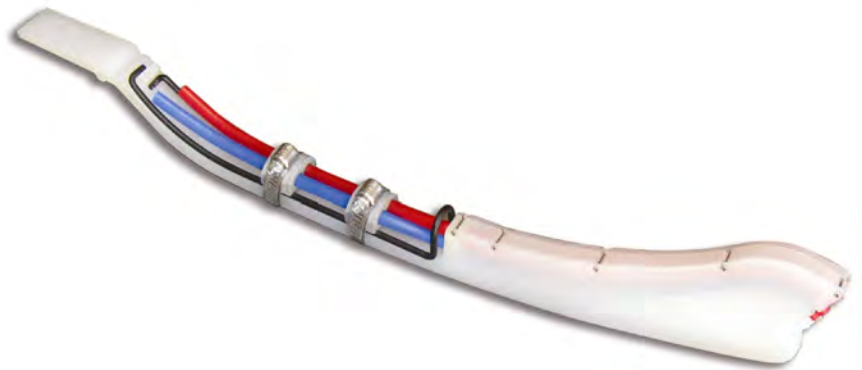
2) Slide Mojo Wire into place (see photo). Push the Mojo Wire's upper/forward L-bends down over the 'thumb' (retaining prong) of the tail.



3) Next, position the *upper* Mojo block just below the 'scar' from grinding off the loop in Step 1. Verify the upper block doesn't hit the Keeton bracket when tail is installed & fully flexed.) *Tighten hose clamp so that the worm screw is on top of the Mojo block, making sure the wire is in the notches on the sides of the block and on the upper surface of the Keeton tail.* **After tightening the clamp, gently tap the clamp on the underside of the tail to flatten the clamp there and conform it to the edges. Tighten clamps again (use a nut-driver, not a ratchet, since the clamps can't handle a lot of torque).** Flex the tail a couple times, then retighten clamps.

Upper L-bends of Mojo are on either side of thumb/prong.

4) Install the lower Mojo block so that there's ~1.5" gap between it & the upper block. **Preferably, snip off ends of hose clamps (to prevent mud & residue accumulation).**



5) Insert tail into bracket, *making sure it pops completely into place* (so that the molded thumb is above the tensioning screw; the Wire's lower L-bend should also be above where the screw will hit the tail – **individual tails may fit so tightly as to require a violent jabbing action to get them to fully pop into position**). Tighten screw partway to retain tail. (If you chose to route tubing *inside* the bracket, be careful not to pinch the tubing.) **Do not over-tighten screw! For Wave tails, start with 0.75" of threads showing on the tension screw between the head and bracket.** Pressure changes dramatically in this range of the tensioning screw: 3/4-turn may cause a 1 lb change in pressure. In the field, you should adjust this screw further, but starting with too much pressure can damage the Keeton bracket.

Adjustment:

Tighten the screw on Keeton mounting bracket until satisfactory pressure is achieved in the furrow. For firm no-till seedbeds, it's generally optimum to embed the seed in the bottom of the furrow.

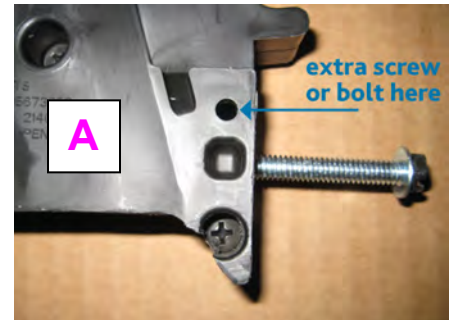
External routing of liquid tubing for Universal or Scraper-Mount Keeton brackets:

If using a reinforcement screw* in bracket (see photo A) and Exapta's holster for the liquid tubing:
(if not using these items, see opposite side)

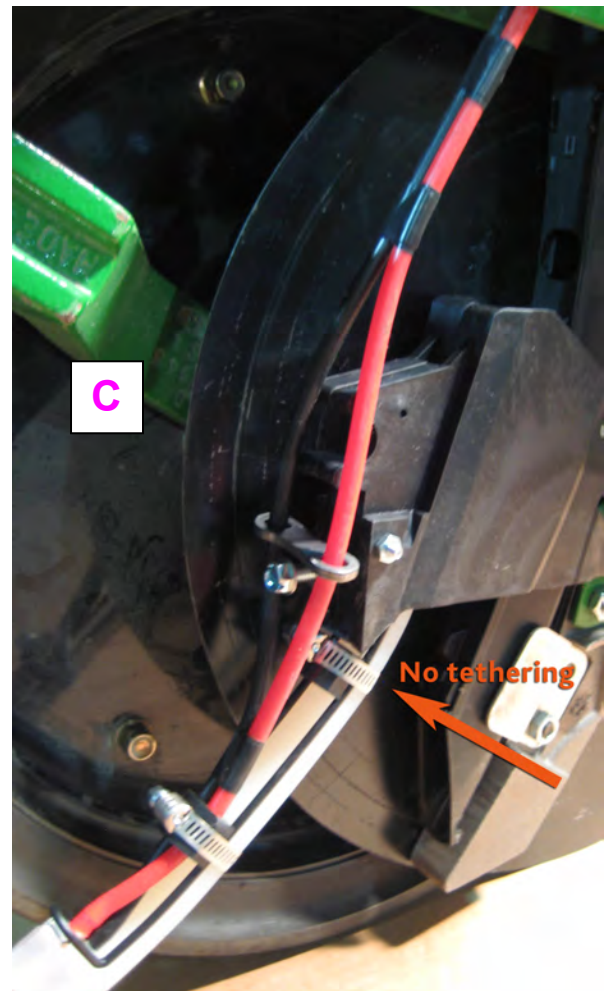
1) Install plastic tubing onto barbed fittings of Keeton dual-tube tail—warming the tubing slightly helps. Even if you are using only a single ¼" tube for liquids, install a 3-ft piece of 'dummy' tubing onto the other barbed fitting. In our photos, the red tubing is the dummy.

2) Install Mojo Wire per those instructions. *Don't route tubing thru upper plastic Mojo block on Keeton tail.* Route tubing *behind* Univ or Scraper-Mount bracket, rather than inside it, and thru the holes in Exapta's holster (see Photo B).

3) Use electrical tape to fasten the two strands of tubing together, *but only in the places shown.* See Photo C. **Important: tubing should be secured or constrained in these locations but not any additional spots.** *Tubing should slide freely up & down in holster as tail is flexed to the max.* (No tethering to upper Mojo block / hose clamp; see Photos B & C.)



*All brackets shipped by Exapta now have this screw included.



If not using a reinforcement screw in bracket (Photo A, opposite side) & Exapta's holster for the liquid tubing:

1) Install plastic tubing onto barbed fittings of Keeton dual-tube tail—warming the tubing slightly helps. Even if you are using only a single ¼" tube for liquids, install a 3-ft piece of 'dummy' tubing onto the other barbed fitting.

2) Install Mojo Wire per those instructions. **Don't route tubing thru the upper plastic Mojo block on Keeton tail.** Route tubing *behind* Univ or Scraper-Mount bracket, rather than inside it.

3) Use zip-tie to keep tubing away from blades (see Photos D & E)—**Keep zip-tie loose!** Use electrical tape to fasten the two strands of tubing together, but only in the places shown (~ 1" above the lower Mojo block, and not again until several inches above the Keeton bracket). *See Photo E.* **Important: tubing should be secured or constrained in approximately these locations but not any additional spots. Tubing should slide freely up & down inside zip-tie as tail is flexed to the max.** (No tethering to upper Mojo block / hose clamp; see photos.) This method has been working flawlessly.

Note: The pieces of clear, oversize tubing alongside tension screw in photos are for protecting the 1/4" line from abrading on screw threads (we're not sure if this is necessary or not—have never tried running without); they aren't being used as connectors. (Don't use those pieces for connectors unless you want leaks; instead, use a good auto-lock union connector, such as a Mur-lok.) Also, the photos happen to show the crappy, thin-wall red & blue tubing; we suggest using the thick-wall black tubing instead for the tube(s) actually conducting liquid (dummy tube can use the red or blue).

