

# INSTALLATION & ADJUSTMENT

for

## Exapta®s K.100 Mojo Wire™

for original seed-tube-mounted Keeton® seed firmer

Assembly for original Keeton firmers (seed-tube mounted; strapped directly to seed tube), the P100 / P100T:

1) If you're setting up for liquid capability (using the Liquid 'T' version of this Keeton), grind off the two opposing hooks molded into the Keeton & intended to hold the tubing. (These hooks are in the way, and no longer needed since the plastic Mojo blocks hold the tubing.) Route tubing thru row unit, thru Mojo blocks & hose clamps, and into outlet loop on trailing end of Keeton, then press it into the channel molded into top of firmer. *Avoid kinking the tubing. 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 end-point in Keeton. (Or use a good auto-lock union connector, such as a Mur-Lok.)* Thick-wall black 1/4" tubing is more durable than blue or red. Protect pinch points on row unit with oversize tubing.

2) Remove the original tensioning screw from Keeton hump, then slide the steel block over the ends of Mojo Wire as shown in the photo. *Replace tensioning screw with the longer one supplied in Mojo kit. Do not fully tighten screw!* Tighten screw about halfway for now.

3) Position & install the plastic Mojo blocks. The lower /rear edge of lower /rear block should be ~1.25" above / ahead of tall part of Keeton (where molded tube channel begins), and the two blocks should have ~ 1.25" between them (block should be located between the spots where hooks once were, to ensure a smooth surface for block to set upon). *Tighten hose clamps so that worm screw is on top of plastic blocks, making sure wire is in the notches in sides of block and on the upper surface of Keeton. After tightening the clamp, gently tap the clamp on underside of Keeton to flatten clamp and conform it to edges of Keeton. Tighten clamps again (use a nut-driver, not a ratchet, since the clamps can't handle a lot of torque). Preferably, snip off the ends of hose clamps to prevent mud & residue accumulation.*



K100 Mojo on seed-tube mounted P100T  
(‘T’ = liquid-ready)

### Adjustment:

Tighten Keeton adjustment screw until satisfactory pressure is achieved in the furrow. (We suggest starting with the screw at a light to medium setting and then increasing pressure until firming is satisfactory. **Using 'excessive' pressure may result in deformities or breakage of seed tube.**)

# INSTALLATION & ADJUSTMENT of **Exapta®s K.200 Mojo Wire™** for **pre-Wave dual-tube Keeton®** seed firmer tails

Assembly for Liquid-ready (dual-tube) pre-Wave planter Keeton tails for Universal (wrap-around) brackets or Scraper-Mount ('Kinze') brackets. Also fits the (older yet) single-tube (full height) tails.

**\*\*Mojo Wire is not intended for Low-Profile tails\*\***

► Before starting, make sure the Mojo Wires you have match the Keeton tails, since our K.200 Mojo fits the curvature of the pre-Wave precisely (for newer Wave-ready tails, see our K.211 Mojo kit).

1) Start with Keeton bracket installed on row unit and tail removed. **If routing the liquid tubing thru Ktn bracket,\*** grind off the loop (see photo: yellow arrow points to loop) until smooth to allow a passageway for liquid tubing (**for older Keeton Liquid tails**, also grind off the 2 opposing hooks molded into tail below the loop). Then route tubing thru Keeton bracket, thru the plastic Mojo block(s)\* & hose clamp(s)\* and then onto barbed fittings of dual-tube tail. *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 1/4" tubing – instead, run a continuous piece from the manifold all the way thru to the 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.

**\*If using Exapta's external routing for liquid tubing, grinding the loop off is somewhat optional, and tubing should not go thru upper Mojo block & clamp. See attached sheet.**

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

3) Next, position the *upper* Mojo block just below the scar from grinding off the loop in Step 1 (or up against the lower edge of loop if doing the external routing for the tubing). *Tighten hose clamp so the worm screw is on top of the Mojo block, making sure the Wire is in the notches on sides of block and on upper surface of tail.* **After tightening clamp, gently tap the clamp on underside of tail to flatten the clamp 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.

4) Install the lower Mojo block so that there's ~1.5" gap between it & the upper block. **Preferably snip off the 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 / prong 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 the screw enough to retain the tail, being careful not to pinch the fertilizer tubing if using the internal routing. **Do not fully tighten screw!** There should be a slight 'rattle' remaining between the tail and bracket (the screw not yet engaged with the tail – **for pre-Wave tails, start with 0.5" of threads exposed**). **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 (tighten) this screw further, but **starting with too much pressure can damage the Keeton bracket.**

## Adjustment:

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



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



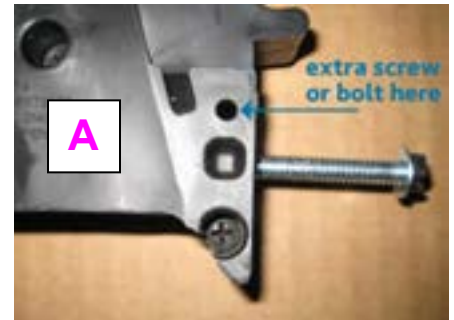
## External routing of liquid tubing for Universal or Scraper-Mount Keeton brackets:

**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)

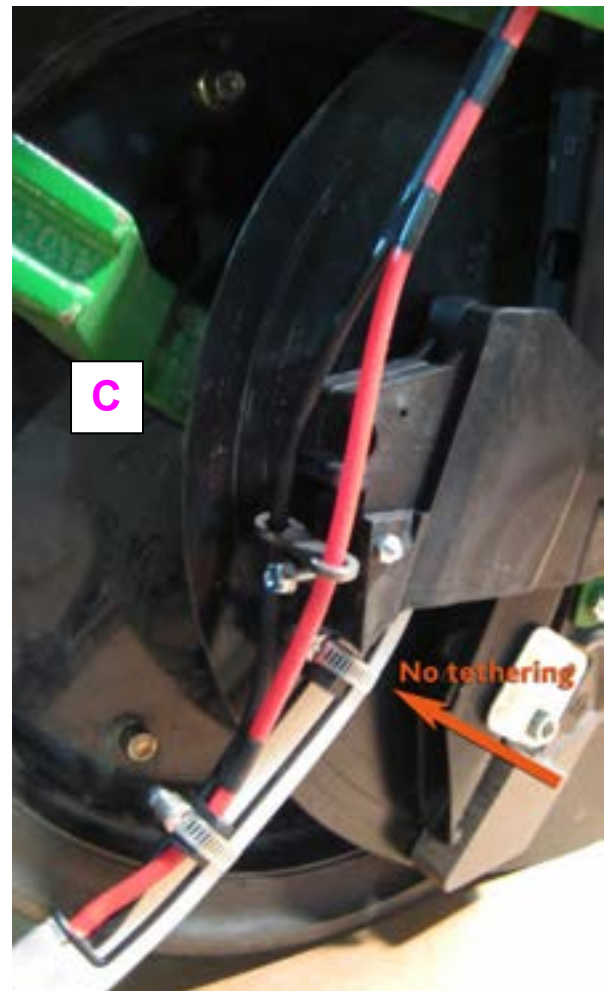
1) Install plastic tubing onto barbed fittings of Keeton dual-tube tail—warming the tubing slightly helps. Even if you are using only a single 1/4" tube for liquids, install a 3-ft piece of 'dummy' tubing onto the other barbed fitting. In our photos, the red tubing is the dummy.

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 1/4" 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).



# INSTALLATION & ADJUSTMENT of **Exapta®s K.202 Mojo Wire™** for **pre-Wave 'Dry' Keeton®** seed firmer tails (planters)

Assembly for 'Dry' (no liquid capability) pre-Wave planter Keeton tails for Universal (wrap-around) brackets or Scraper-Mount ('Kinze') brackets:

Before starting, make sure your Mojo Wires match your Keeton tails, since our K.202 Mojo fits the curvature of the pre-Wave tails precisely (for newer Wave-ready tails, see our K.212 Mojo kit).

1) Start with Keeton bracket installed on row unit & tail removed.

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

3) Next, install the *upper* hose clamp ~2.5" below the thumb / prong. You can verify the correct position by installing tail and making sure the upper hose clamp doesn't hit the bracket when fully flexed. *Tighten hose clamp so that worm screw is on top and centered between the wires.* **After tightening clamp, gently tap the clamp on the underside of tail to flatten clamp there and conform it to the edges. Tighten clamps again (use a nut-driver, not a ratchet, since the clamps can't handle lots of torque).** Flex the tail a couple times, then retighten clamps.

4) Install the *lower* hose clamp so that there's ~1.75" gap between it & the upper one.

5) Insert tail into bracket, *making sure it pops completely into place* (so that the molded thumb / prong 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 the screw enough to retain the tail. **Do not fully tighten screw!** There should be a slight 'rattle' remaining between the tail and bracket (the screw not yet engaged with the tail – **for pre-Wave tails, start with 0.5" of threads exposed**).

**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 (tighten) this screw further, but **starting with too much pressure can damage Keeton bracket.**

## Adjustment:

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



Upper tail is pre-Wave: notice how it bends deeper just below the prong, whereas the lower tail (Wave-ready) is flatter there. Upper tail has had the hooks ground off.



# INSTALLATION & ADJUSTMENT

## Exapta<sup>®</sup>s K.211 Mojo Wire<sup>™</sup> for dual-tube Univ. Keeton<sup>®</sup>

**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.*

**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.)

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).**



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



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





**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.

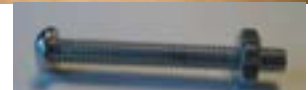
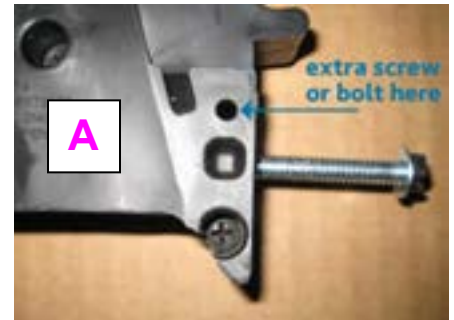
## External routing of liquid tubing for Universal or Scraper-Mount Keeton brackets:

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)

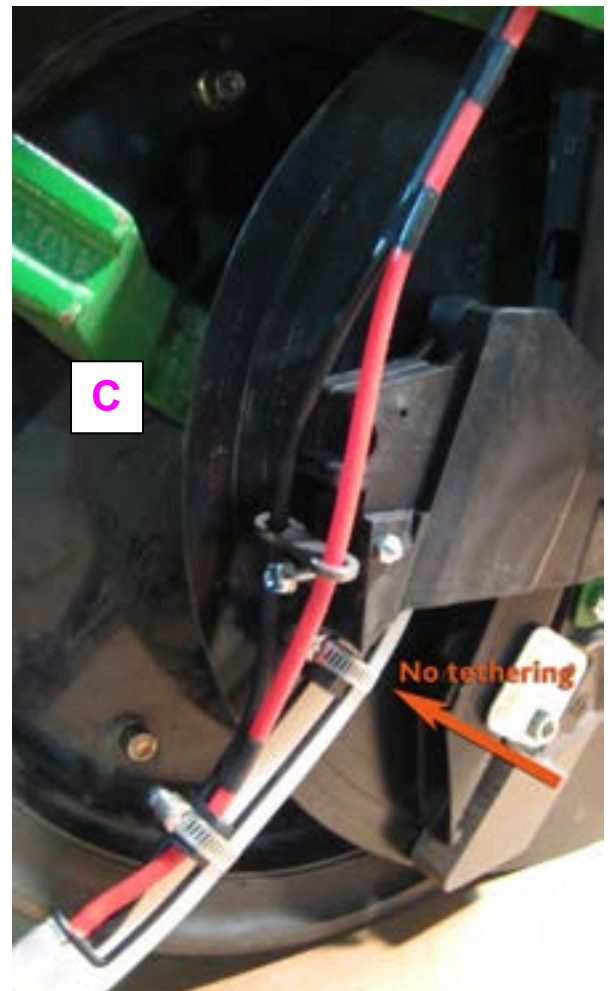
1) Install plastic tubing onto barbed fittings of Keeton dual-tube tail—warming the tubing slightly helps. Even if you are using only a single 1/4" tube for liquids, install a 3-ft piece of 'dummy' tubing onto the other barbed fitting. In our photos, the red tubing is the dummy.

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 1/4" 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).



# INSTALLATION & ADJUSTMENT

of

## Exapta<sup>®</sup>s K.212 Mojo Wire<sup>™</sup>

for 'Dry' Wave-ready Keeton seed firmer tails (planters)

Assembly for Dry (no liquid capability) Wave-ready Keeton tails for Universal (wrap-around) brackets or Scraper-Mount ('Kinze') brackets:

► Before starting, make sure the Mojo Wires you have match the Keeton tails, since our K.212 Mojo fits the curvature of the Wave-ready precisely (for older pre-Wave tails, see our K.202 Mojo kit).

1) Start with bracket installed on row unit and tail removed. Push Mojo Wire's upper L-bends down over the 'thumb' (retaining prong) of tail—see photo.

2) Install upper hose clamp about 2.5" below thumb. You can verify the correct position by installing tail and making sure the upper hose clamp doesn't hit the bracket when fully flexed. Tighten hose clamp so that worm screw is on top and centered between the wires. After tightening clamp, gently tap the clamp on the underside of tail to flatten 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.

3) Install the lower hose clamp so that there's ~1.75" gap between it & the upper one.

4) Insert tail into bracket, making sure it pops completely into place (so that the molded thumb / prong 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 the screw enough to retain the tail. **Do not fully tighten screw!** There should be a slight 'rattle' remaining between the tail and bracket (the screw not yet engaged with the tail – **for Wave tails, start with 0.75" of threads exposed. 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 (tighten) this screw further, but starting with too much pressure can damage the Keeton bracket.**



Upper tail is pre-Wave: note the deeper bend just below the thumb (upper tail has had hooks ground off). Lower tail is Wave-ready: it's flatter below prong/thumb.



### Adjustment:

Tighten the screw on Keeton mounting bracket until satisfactory pressure is achieved in the furrow. For firm no-till seedbeds, try to thoroughly embed the seed in the bottom of the furrow.

# INSTALLATION & ADJUSTMENT

of

## Exapta<sup>®</sup>s K.215 Mojo Wire<sup>™</sup>

for planter Flo-Rite seed firmer tails

### Assembly for planter Flo-Rite tails for Universal wrap-around brackets or Scraper-Mount ('Kinze') brackets from Precision Planting:

1) Press Mojo Wire's L-bends down over the 'thumb' (retaining prong) of Flo-Rite tail.

2) Position & install hose clamps as shown. *Tighten hose clamp so that worm screw is on top and centered between the wires.* After tightening clamp, gently tap the underside of clamp to flatten clamp and conform it to the tail. 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.

3) Install Universal or scraper-mount bracket. Insert tail into bracket, making sure it goes fully into position so that the thumb is above tensioning screw (lower L-bend of wire should also be above tensioning screw). Tighten screw enough to retain tail. **Do not fully tighten screw!** There should be a slight 'rattle' remaining between the tail and bracket (the screw not yet engaged with the tail – **for Flo-Rite tails, start with 0.875" of threads exposed.** *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 (tighten) this screw further, but **starting with too much pressure can damage the Keeton bracket.**

4) If using liquid tubing, first route it from the manifold thru row unit, then *keep it outside the Universal or scraper-mount bracket—don't use the small passageway thru the bracket (see Exapta's external routing instructions).* Then slide 1/4" tubing onto the tail's stainless tube. Using dish soap helps slide tubing onto knurled fitting (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 to the tail. (Or use a good auto-lock union connector.)* Thick-wall black 1/4" tubing is more durable than blue or red. Protect pinch or abrasion-prone points on row unit with oversize tubing.

5) Zip-tie tubing to lower hose clamp as shown. **Do not tether to upper hose clamp! And zip-tie to bracket must remain loose** to allow tubing to slide easily as tail flexes to max. Above this point, we recommend doing something to keep tubing away from blades, such as splitting a piece of tubing the next size up and sliding it over the 1/4" tubing to stiffen/direct it, or by using another 'dummy' piece of 1/4" tubing (see external routing instr).

### Adjustment:

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





===== additional sheet to be attached: external routing of liquid tube, MS Word doc =====\

# INSTALLATION & ADJUSTMENT

of

## Exapta<sup>®</sup>s K.311 & K.312 Mojo Wires<sup>™</sup>

for planter “Quick Attach” Keeton seed firmer tails

### Assembly:

1) Carefully grind off the hooks & loops (see photo).

2) Install Quick Attach mounting bracket onto row unit.

3) If using liquid tubing, first route it from manifold thru row unit, then thru Ktn bracket and upper hole in tail, then thru pair of plastic Mojo blocks, then into passageway in rearward portion of tail. Install red emitter if you wish.

*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 to the tail. (Or use a good auto-lock union connector.)*

Thick-wall black 1/4" tubing is highly recommended; it's more durable than blue or red. Protect pinch or abrasion-prone points on row unit with oversize tubing.

4) Position Mojo Wire & install hose clamps as shown. *Tighten hose clamp so that worm screw is on top and not hanging over the side of tail. After*

*tightening clamp, gently tap the underside of clamp to flatten and conform it to the tail. Tighten clamps again (the clamps can't handle a lot of torque – use a nut-driver instead of a ratchet).* Flex the tail a couple times, then retighten clamps.



**Blue tubing used here for visibility. Customers are strongly encouraged to use thick-wall black tubing instead, for durability.**



**Install when not using the liquid feature.**

# INSTALLATION & ADJUSTMENT of **Exapta<sup>®</sup> s K.600 Mojo Wire<sup>™</sup>** for **drill Keetons on press-wheel drills**

**(use K.608 instead for Case P-500 drills, GP twin-row planters, and JD 50/60/90)**

## Assembly:

**1a)** Remove tail from plastic holder/‘receiver’. Remove liquid tubing.

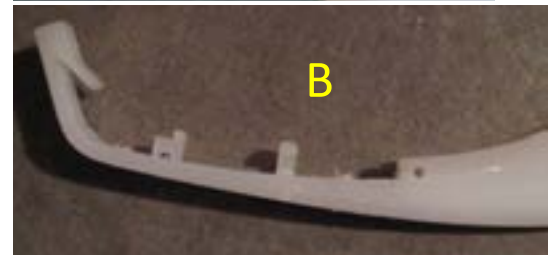
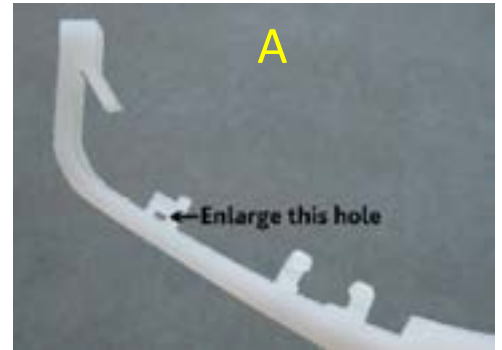
**1b)** If you plan to apply liquids via the Keeton: drill out the loop (see Photo A) to easily accept a larger zip-tie (or use small zip-ties). Also drill a 3/16" hole across the front end of grooved area, as shown in Photo B.

**2)** Grind off rear hook (see Photo B). Also, smooth off any ‘rib’ (flashing from the molding process) in centerline of tail where the holes will be drilled in Step 3 (getting rid of any ‘rib’ will help you drill the hole in the exact centerline if you’re drilling free-hand).

**3a)** Set Mojo Wire & steel blocks onto tail as shown. Grooves in sides of steel block will mate with the Wire. Mark where the holes need to be. Drill holes with 3/16" bit, and ream them somewhat. Screw steel blocks into position, drawing them down sufficiently to hold Wire in place.

**3b)** If using Keeton to apply liquids: Reinstall liquid tubing into tail— and definitely use the black tubing, not the flimsy red or blue tubing which crushes/creases/cracks too easily. *Insert zip-tie into loop hole that was enlarged in Step 1B, but above both sides of the Mojo Wire (Photo D).* Then zip together around tubing so as to secure the tubing to the loop, **but not overly tight**. Also zip-tie thru hole drilled at front of grooved area, and cinch tight.

**4)** Insert tail into plastic receiver, making sure the ‘thumb’/prong jutting from tail is above tensioning/retaining screw as you tighten. Tighten screw until rattle (free play) is eliminated and is just beginning to push on tail—further adjustment will be done in-field. **Don’t overtighten!** If using the liquid feature, *keep 1/4" tubing outside of plastic receiver of Keeton* (see photo E) and zip-tie it to one of the unused holes in the receiver.



## Adjustment of Keeton tension:

Keeton tail should resist being pulled out of the furrow by your thumb and index finger, and vigorously ‘thump’ back into the furrow when released. Or, better yet, adjust with a fish scale hooked into the loop at far trailing end of tail, aiming to obtain 3 – 4 **pounds** (*not* ounces) of pressure for no-till conditions (when doing this measurement, pull the Keeton up out of the furrow a bit, so that it isn’t stuck (tractor may have rolled back a smidge or whatever), then let tail relax again and measure as the tail is pulled upward slightly (moving the end of the tail upward no more than 0.5" from where it was on the bottom of the furrow).

During the drilling season, you’d be wise to recheck this pressure on a few rows (spot-check) every 20 hrs, at least initially, until you get an idea of how fast they’re losing tension from stretch and/or wearing off the bottom edge. Periodically check for missing or badly damaged Keetons & Mojos.





# INSTALLATION & ADJUSTMENT of Exapta<sup>®</sup>s K.608 Mojo Wire<sup>™</sup> for grain drill Keetons

**for Case-IH Precision 500 / NH P2080 / 2085 drills only (also fits JD 50/60/90\*)**

\*Note: JD 50/60/90 drills perform much better if seed-lock wheels are used, especially the newer, thinner wheels. The Fin also works. Any of these are much better choices for the Deere drills, but if you insist on using a Keeton, the Mojo Wires help supply more pressure on them.

## **Assembly for 2-piece drill Keetons w/ replaceable tails (not for older single-piece drill Keetons).**

(You need the Keeton specific for these drills from Exapta or S.I. Distr.: several key modifications have been done.)

**1)** Slide hose clamp & Mojo Wire onto tail (see Photo A). Secure wire with hose clamp as shown in Photo—*clamp's location fore/aft is important, since hose clamp must be able to go up inside plastic receiver as tail flexes to the max, but not strike*

*the tensioning screw any sooner than necessary. Clamp should be exactly midway thru the curve of Keeton tail (refer to Photo A).* Also keep the upper wire ends somewhat away from centerline of Keeton tail by placing your thumb between the wires while tightening hose clamp (tensioning screw of plastic receiver will get screwed down onto tail *between* wire ends). *Keep clamp's worm-screw approx. centered on midline of tail as you tighten* (start out with it rotated 20° towards the head side, and it will crawl into position as the clamp begins to grip the tail). When nearly tight, gently tap the bottom of hose clamp to conform it to bottom edges of tail. Finish tightening, gently (*don't overtighten—the small worm-screw can't handle much torque*—ideally, use a nut-driver rather than a ratchet). *This hose clamp doesn't need to be all that tight anyway.* The straight end (no L-bend) of the wire remains loose under the hose clamp. **Snip off end of hose clamp.**



**2)** Position steel tab on Mojo Wire as shown in Photo B, as far rearward as it will go. Mark the hole location and drill a 3/16" hole *that is at 90-degrees to the plane of the upper Keeton tail surface below it* (see photo C). Ream hole very slightly.



**3)** Insert screw thru tab and tighten (Photo B).

**4)** If using Keeton to apply liquids: Install liquid tubing, by pressing the tubing back into the groove—and definitely use black tubing, not the flimsy red or blue tubing which crushes/creases/cracks too easily. *Zip-tie tubing to one of the torsion loops in the Mojo Wire (see Photo D).* Drill a hole where the black dot is in Photo E, and run another zip-tie thru it and around the black tubing.

Note: Full-length Keetons that have liquid capability are compatible only with Exapta's closing system for the P-500; i.e., Case / NH & other aftermarket closing systems that don't move the packer / closing wheel rearward will need the shortened Keeton tail, which eliminates the liquid feature.

**5)** Top of Keeton's plastic receiver should already be chopped as shown in Photo G on p 2.

**6)** Insert tail into plastic receiver, making sure the 'thumb'/prong jutting from tail is above tensioning/retaining screw as you tighten. Screw should be between wires (if not, revisit Step 1). Tighten screw until most of the rattle (free play) is eliminated but screw isn't yet pushing on tail—further adjustment will be done in-field. **Don't tighten!** If using the liquid feature, keep the 1/4" tubing outside of plastic receiver of Keeton (see photo G). (OVER)



7)

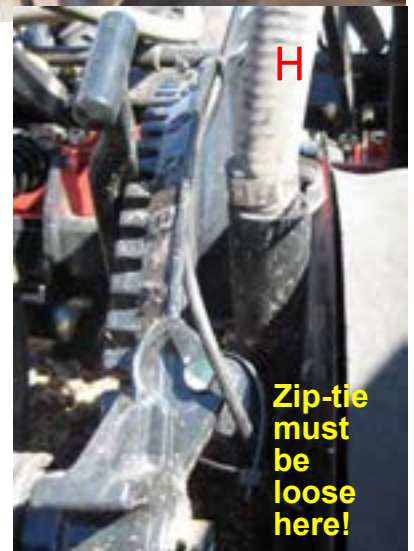
i) Remove the two stud bolts attaching “scraper” (a.k.a. boot) to opener, paying attention to any spacer washers. The shield above the boot also is held by these bolts. These bolts will be used again to reinstall.

ii) Insert 2 bolts (provided by Exapta) into the pair of smaller holes in Exapta’s steel bracket from what will be the *front* of bracket (inside the L-bend) (see Photo G). Using these bolts, attach plastic Keeton receiver to steel bracket as shown, and secure with locknuts. Tighten.

iii) Using the front bolt that holds boot/scraper on, align all the pieces and insert bolt (with the drill unfolded, it’s much easier to do this while lying under the opener (*for safety: make sure opener ranks are locked in transport position*)). The steel Keeton bracket is the outermost ‘layer’ (scraper is innermost, then shield, then Exapta Keeton bracket). When aligning stud bolt and getting it started, **remember that stud angle is 90-degrees to blade & hub, and not main opener arm (visually deceptive). Do not tighten this bolt yet—only a couple turns.** Then, get ready to install rear bolt. Rotate scraper, shield, and Keeton bracket into position. If any spacers came out, put them back (underneath the scraper), using special ‘finger-magic’ ☺ —seriously, just hold the spacer washer up from the bottom in the approx spot (using thumb and index finger), and finagle the bolt until it captures the hole in spacer washer(s). Tighten bolts—note that one of them cranks down the top part of the scraper until it’s against the blade, while the other cranks the bottom of the scraper over. Both need to be tight, but if the scraper doesn’t realign against the blade, this means you might’ve lost a spacer, or were on the verge of needing one. Scraper must be flush against blade to prevent plugging.



iv) If using the liquid feature: Attach tubing to uppermost hole in plastic receiver with a zip-tie to keep it from rubbing on the blade, but *leave the zip-tie as loose as possible (see Photo G) so that tubing doesn’t kink when tail flexes to maximum. Then zip-tie farther up the opener but as loose as possible (see Photo H, towards bottom of pic).* Finally, secure tubing farther forward (for instance, front of depth-adjust notches) and these should be zipped tight.



#### Adjustment of Keeton tension (all drills):

After adjusting opener down-pressure, frame weight (ballast) (make sure the drill frame isn’t lifting), and depth, check to see how much pressure the Keeton tail has on it. It should resist being pulled out of the furrow by your thumb and index finger, and vigorously ‘thump’ back into the furrow when released. Or, better yet, adjust with a fish scale hooked into the loop at far trailing end of tail, aiming to obtain 5 – 8 pounds (*not ounces*) of pressure for no-till conditions (when doing this measurement, pull the Keeton up out of the furrow a bit, so that it isn’t stuck (tractor may have rolled back a smidge or whatever), then let tail relax again and measure as the tail is pulled upward slightly (moving the tip of the tail upward no more than 0.5" from where it was on the bottom of the furrow)).

During the drilling season, you’d be wise to recheck this pressure on a few rows (spot-check) every 20 hrs, at least initially, until you get an idea of how fast they’re losing tension from stretch and/or wearing off the bottom edge. Periodically check for missing or badly damaged Keetons & Mojos.