

of Exapta's Thompson closing wheel*

Assembly for T-wheel with bearing (T.2X, T.3X):

1) Remove old closing wheel. For planter closing brackets, re-use OEM bushings & spacer washers to initially set T-wheels to a width of ~2.0" (spoke tip to spoke tip at pinch point; see photo). This spacing is the most common setting, but test this in your own planting conditions (see Adjustments).

If installing on a planter with option to stagger closing wheels fore/aft, this is preferred.

2A) For wheels held with a bolt (no bolts are provided, due to differing widths of closing brackets among planter makes & models – note that left side doesn't really need to be LH threads), slide parts onto bolt in this order:

- machine washer,
- bushing (goes inside bearing),
- wheel (open end of hub toward bolt head),
- shroud (lip toward wheel) (hole is either 5/8" [T.3X] or metric [T.2X]),
- spacers (Note: number required may fewer or more than OEM, or you may need flat washers instead; see Adjustment section below)
- toe-out wedge (if used – see reverse side),
- closing bracket flange
- flat washer (Note: to distribute the load on the closing bracket if toe-out wedges are used)
- locknut

Don't install dustcap until after in-field adjustment of wheel spacing and/or toe-out. To install, use a rubber mallet. Dustcap should be installed before significant dust or fluid exposure.

2B) For wheels that go onto a spindle/stud (JD 50-series drills, 7200 planters w/ OEM closing brackets), slide Thompson wheel parts onto spindle/stud in the following order:

- shroud (lip toward wheel) (Note: hole will be metric [T.2X]),
- bushing (goes inside bearing)
- wheel (open end of hub away from shroud),
- flat washer,
- locknut (on 750/1850 drill: locknut's dome towards washer)

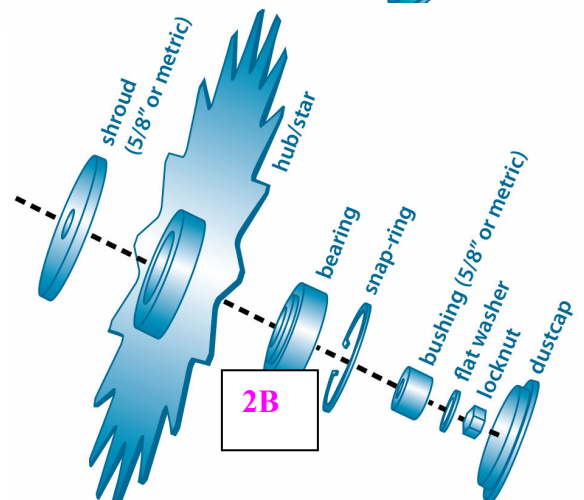
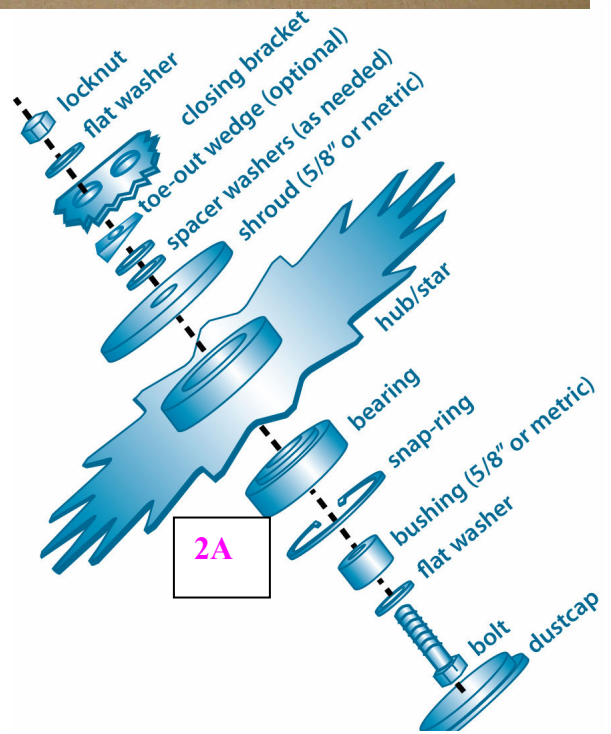
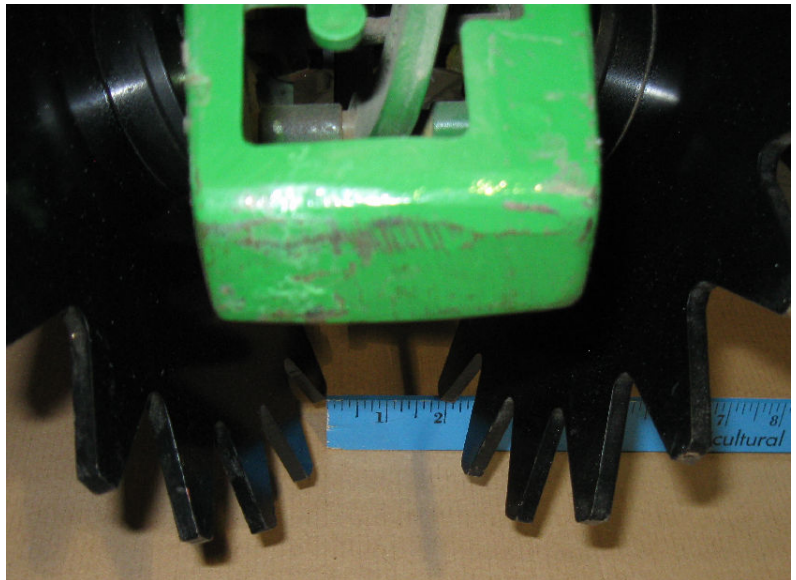
Assembly for T-wheel with stub shaft (T.4X) for JD 60 & 90-series drills (bearing in closing arm, not in wheel):

Remove old closing wheel. Use longer 5/8 x 7.5" bolt (provided), along with original spacers, locknut, & dustcap.

Adjustment (all Thompson wheels):

Spoked closing wheels require less pressure than smooth wheels. Too much pressure can force spokes to go too deep and dislodge seeds in very loose or mellow conditions, especially if the seeds aren't truly embedded into bottom of furrow with the in-furrow firming device (Keeton + Mojo, or seed-lock wheel). However, too little pressure fails to break up the sidewall, which can seriously impair crown root development, especially for corn. T-wheel spokes should penetrate soil to about 2/3 to 3/4 the depth of furrow. **Planter OEM closing bracket springs are too strong to allow much adjustment; Exapta offers 33%-rate & 55% replacement springs for a greater range of usable adjustment.** (For Exapta's toe-out wedge, see reverse side.) Planter must run level for closing wheels to work properly—the slightest bit nose-down really hinders closing action. See reverse side.

Wheels may be spaced in or out also; moving the Thompson wheels closer to the furrow makes them more aggressive (unless they're so close they're just slicing off the top corner of the furrow lip, which looks sufficient until you dig and discover that most of the sidewall is completely intact), and vice versa. Once you've determined the optimum width for your soils under no-tillage, you'll probably never need to adjust this spacing in or out again unless dramatic changes are made to planting depth or planter leveling, or the spokes wear down considerably in length). If you plant on contours a lot, slightly wider spacing may be desired. **For drills**, position the spoke tips about 0.75" from the lip of furrow (note: closing arms can get bent, including JD 60/90).

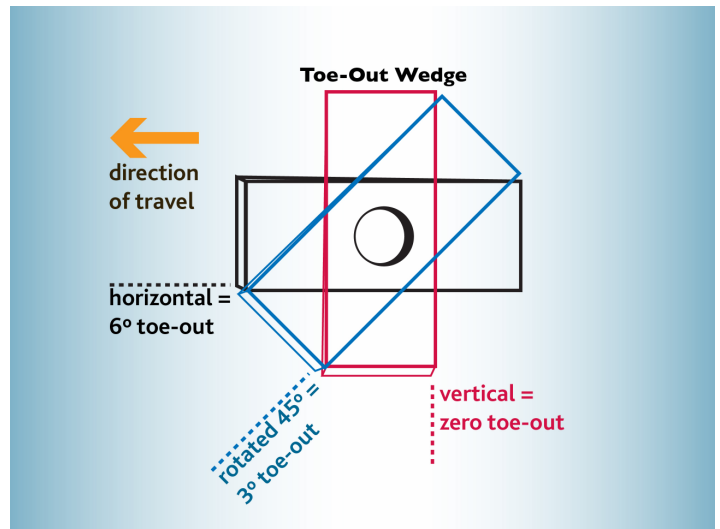
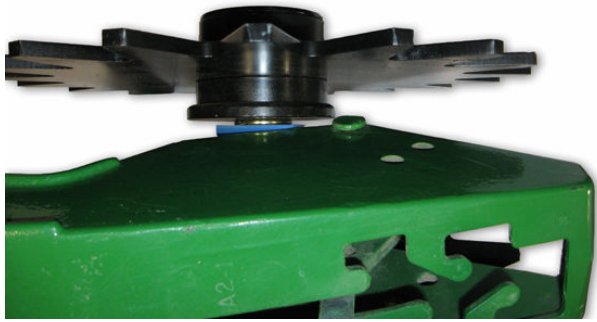


INSTALLATION & ADJUSTMENT

of Exapta's toe-out wedges

for planter closing brackets

Assembly for toe-out wedges for JD 1700-series, White 6000- thru 9000-series, Kinze 3000 & 4000s, or other planter closing brackets using *bolts* (not spindles/studs) to attach the wheels:



Remove closing wheel & spacers. Place wedge with **wide end towards front of planter for the full 6° of toe-out** (a suggested starting place for setup for soddy conditions or tough clay soils that resist closing, such as southern USA), **or rotate the wedge by 45 degrees (see diagram) to reduce the toe-out to 3 degrees – a good starting place for mellow soils, such as in the northern Corn Belt & Canadian prairies.** Install closing wheel using original spacers & bolt. Hold wedge in place while tightening bolt. The wedge won't turn after bolt is tightened. [Note on JD 1700-series: it may be desirable to place a flat washer under the locknut on inside of closing bracket, to help distribute the load since bolt is now at an angle and the cast material is slightly brittle.]

Adjustment:

Note: **Running the planter nose-down** (if drawbar or 2-point is too low) causes the front of the closing bracket to be carried too high, which **negates toe-out** (i.e., causes the closing wheels to be toed inward, that is, **narrower at the front than the back – this prevents any significant closing action!**). For this and many other reasons, the *planter should run level or even a couple degrees 'nose up' (not dramatically nose up)*. This is best gauged visually when looking at the planter in the soil from a distance. If you change tractors, change tractor tires, or alter inflation pressures, you'll need to repeat this. **All other adjustments of the planter should be ignored until planter is running level.** Everything changes by leveling the planter, including down-pressure on the row unit, depth of row cleaners, pressure on Keetons, furrow shape, closing bracket pressure, toe-out, etc. Note that carrier wheels may prevent the planter from being level if they bottom out too soon—there are adjustment holes for the carrier wheels. On planters pulled by the drawbar, there are a series of holes that bolt the clevis or pull loop onto the planter tongue—move the loop or clevis to the lower holes to raise the planter nose.



Determine planter levelness by looking at lower edges of tractor tires, assuming both axles are set at the same width, and no duals, or both axles with duals (otherwise, compensate for this). **Ignore planter tongue angle, and parallel link angle.** **Need big square toolbar tube to be level (marker arms will be 90 degrees to the immediate terrain). Ideally, take a photo of tractor & planter, print it out, and draw lines & measure – without this, the eye is easily deceived.** If no marker arms, and no sheet metal on row units that's supposed to be level, find something else that is square to the toolbar and use that. (Don't try to use a carpenter's level; this leveling must be done with the openers of the planter going the required depth, transport tires sinking into the soil, etc.)

Toe-out will cause any spoked closing wheel to be more aggressive, resulting in better furrow closing and sidewall shattering. *In loose or mellow soil conditions, toe-out may result in spoked closing wheels becoming too aggressive and pulling seeds loose;* if so, reduce closing bracket spring pressure and/or rotate the wedge to create less toe-out. (Or increase the amount of seed firming by increasing tension on Keeton or seed-lock wheel.) *But the sidewalls need to be broken up for the all-important crown roots to develop on corn, so run enough closing bracket pressure to accomplish this, and/or increase toe-out (or revisit the question of whether the planter is running nose down).* **Once you have toe-out set approximately for your soils, you probably won't need to change it – you can fine-tune the closing action by adjusting the spring pressure.** However, when planting into soddy conditions, such as perennial grassland, the maximum toe-out is typically needed, and considerable spring pressure.