



Installation Manual

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**Manufacturers Assembly Instructions for Bourgault Tillage Tools,
Atom Jet Industries and Dutch Industries**
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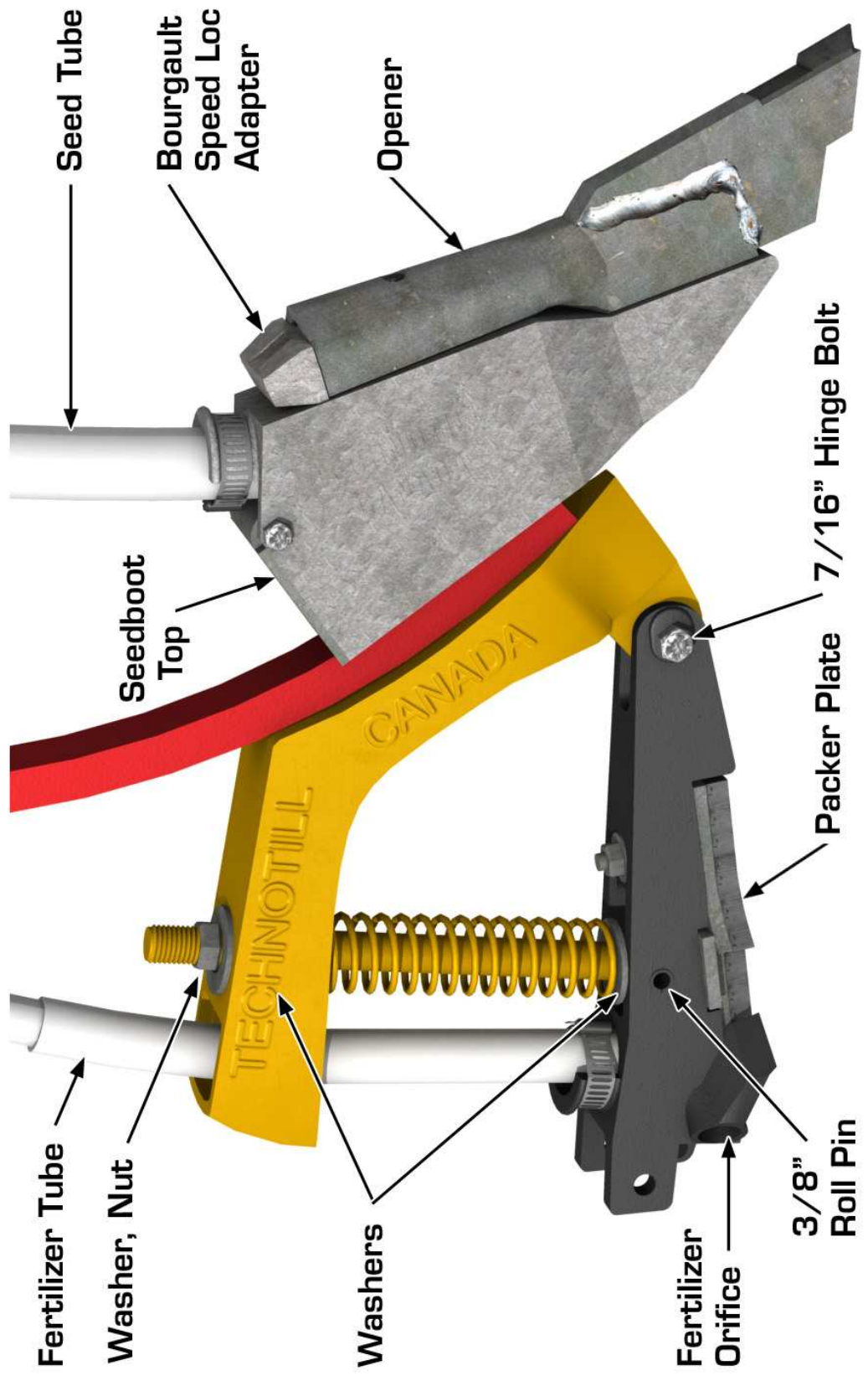
Updated March, 2010

Things to Remember

IF YOU HAVE QUESTIONS OR CONCERNS, CALL
TECHNOTILL FOR ASSISTANCE (780 352-9890)

1. Slow down and read the directions. Allow time to install and test the Technotill Seeding System before beginning seeding. Expect to set each packer individually to allow for differences in the angle of the shanks.
2. BEFORE BEGINNING INSTALLATION:
 - a. Level each section of the cultivator from front to back. Block in that position.
 - b. Check the shanks to ensure that all are the same length and angle, and to identify any that are twisted.
 - c. Repair and adjust the alignment of the shanks, if necessary.
3. Grade 8 shank bolts ($\frac{1}{2}$ x $3\frac{1}{2}$ inches with a carriage head and long shoulder) are recommended, and are available from Technotill.
4. Tighten the shank bolts securely. Check after the first 300 acres and retighten, if necessary.
5. **FERTILIZER SIDEBAND**
 - a. **Granular, liquid and NH₃ fertilizer can be sidebanded using Technotill.**
 - b. **Customers should consult local dealers regarding recommended rate applications.**
 - c. **Technotill customizes the system for NH₃ application to increase seed/fertilizer separation.**

Technotill Seeding System



Assembling an Opener for the Technotill Seeding System

There are several openers suitable for use with the Technotill Seeding System. Instructions for installation follow.

A. Technotill Knock-On Opener

- Instructions from Bourgault Tillage Tools are provided with the Speed Loc Adapter to explain how to attach the adapter to the seedboot.
- Install the point, using the Bourgault Driver to protect the carbide point.
- Align the shank bolt openings, seed tube opening, and point to ensure that the point is properly aligned with the seedboot.
- Tighten the bolts to firmly attach the Speed Loc Adapter to the seedboot.
- Attach the seedboot cover, using the cotter pin, after the system is installed on the shank.

B. Atom Jet CB15 Single Shoot

- A ‘focus tube’ is used to direct seed to the front of the opener.
- Hook the focus tube to the rear of the seed tube on the opener and hold in place with the seed hose, secured by a hose clamp.
- Attach the seedboot cover using the provided bolt and nut after the system is installed.

C. Dutch Industries Vertical Series Single Shoot

- See www.DUTCHOPENERS.com/DOWNLOADS
 - i) Choose: “Dutch Vertical Instruction Sheet – C-Shank”

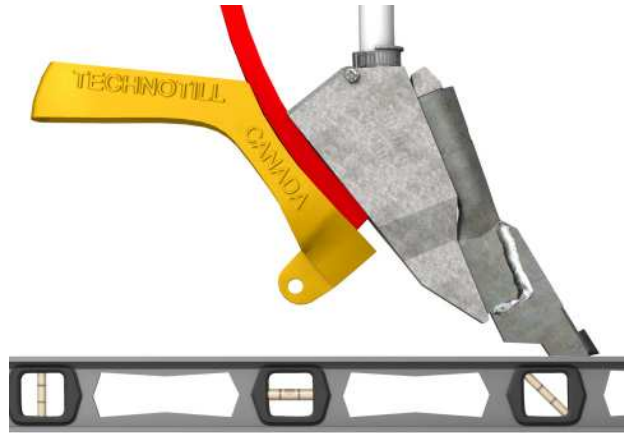
Technotill Seeding System Installation

1) Prepare the tool bar for installation.

- Level, from front to back, each section of the toolbar. Block in that position.
- Check the shanks for alignment. Repair and the align shanks, if necessary

2) Assemble the opener according to manufacturer directions.

3) Attach the opener and packer top to the shank, using Grade 8 shank bolts.



- The opener may need to be shimmed at either the top or bottom shank bolt to ensure the point is properly positioned in relation to the packer plate.

SEE ILLUSTRATION: PAGE 6 - OPENER POSITION AND PACKER PLATE ANGLE

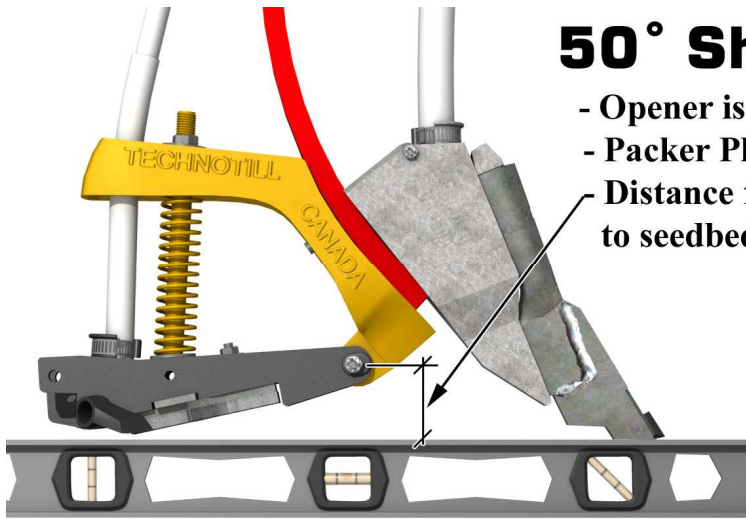
4) Tighten the shank bolts.

5) Attach the threaded rod to the packer bottom with the $\frac{3}{8}$ inch roll pin.

6) Place washers on each end of the spring. Place over the threaded rod and position the rod through the hole in the packer top. Place the third washer and start the $\frac{3}{4}$ inch nut on the threaded rod.

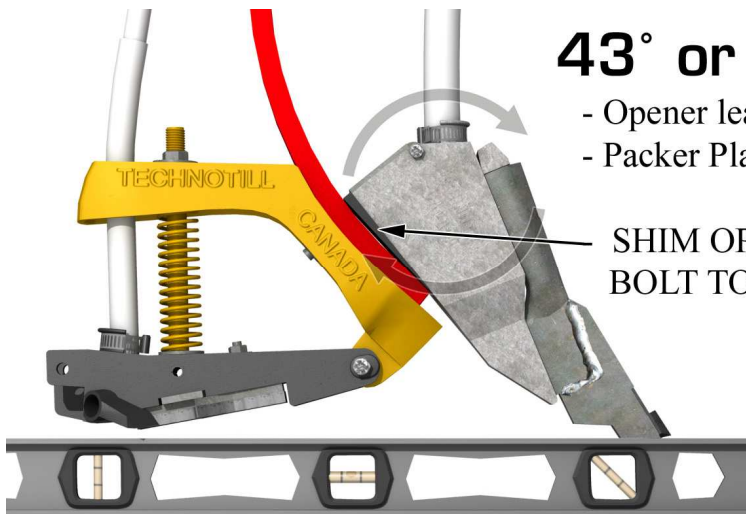
7) Attach the packer to the shank using the $\frac{7}{16}$ hinge bolt.

Opener Position & Packer Plate Angle



50° Shank

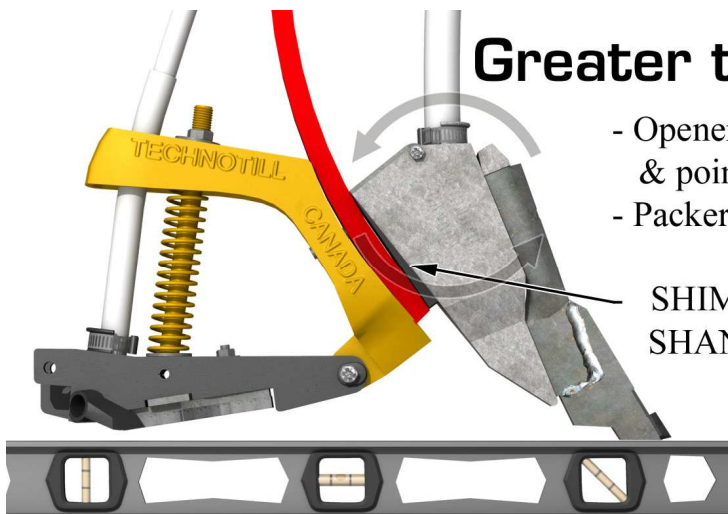
- Opener is properly positioned
- Packer Plate angle is correct
- Distance from centre of hinge bolt to seedbed is correct (2 – 2 ½ inches)



43° or 47° Shank

- Opener leans back & point is too high
- Packer Plate angle is too flat

SHIM OPENER AT TOP SHANK BOLT TO CORRECT.



Greater than 50° Shank

- Opener leans forward & point is too low
- Packer Plate angle is too steep

SHIM OPENER AT BOTTOM SHANK BOLT TO CORRECT

8) Setting the pack thickness

- Choose the desired pack thickness.

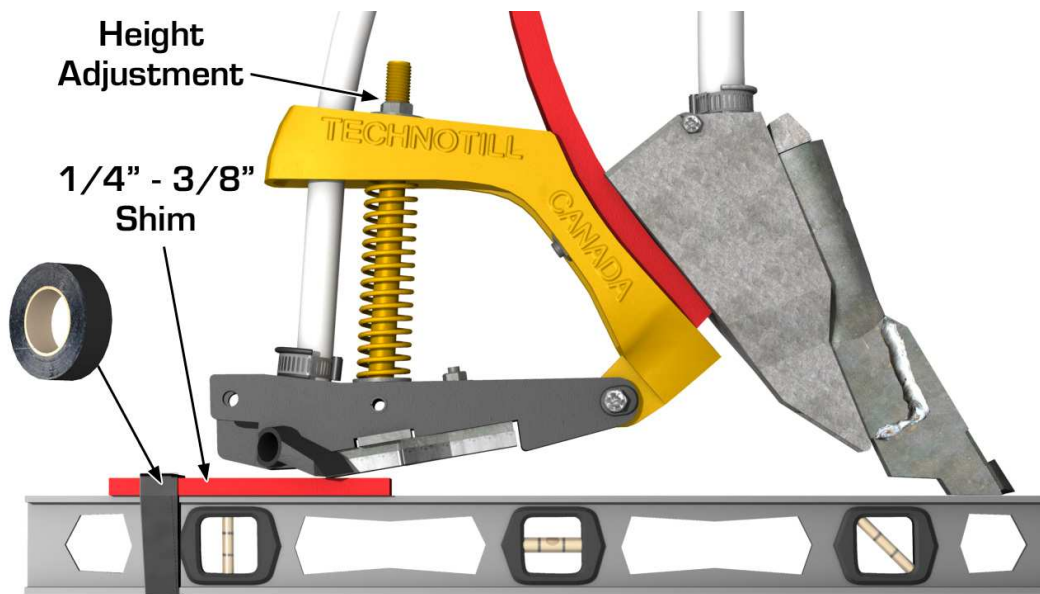
In general, pack thickness is set according to soil type.

- Clay soil – ¼ inch
- Sandy/loamy soil – ⅜ inch

Special conditions:

- Very wet conditions – ¼ inch
- Legumes and grasses – ⅛ inch

- Set the pack thickness.
 - i) Tape a shim of the desired pack thickness (for example, ¼ inch) to one end of the level.
 - ii) Place the level below the opener point and the shim under the back of the packer plate. Tighten or loosen the nut on the rod until the bubble is at the level position.



9) Spring Compression

- The uncompressed spring is 7¼ inches long. 1 inch of compression results in approximately 120 lbs. pressure per square inch. ½ inch to ¾ inch compression is recommended. Add washers below the spring, if necessary, to increase compression.

10) Attach the seed tube and fertilizer tube with hose clamps.

- Fertilizer tube
 - i) Insert the fertilizer tube through the packer top and down into the fertilizer orifice.
 - ii) Fasten the tubing with a hose clamp. Smaller tubing should be shimmed before being fastened.
 - iii) Liquid and NH₃ fertilizer tubing should be inserted into a larger tube and extended downward so that the tube extends past the fertilizer orifice in the packer bottom.
 - iv) As a precaution, always use larger tubing extending upward about 12 inches through the packer top to protect the smaller tube from possible damage in stony conditions.

11) Field test the system to check pack thickness and firmness.

TIGHTEN THE SHANK BOLTS SECURELY AND RETIGHTEN, IF NECESSARY, AFTER SEEDING 300 ACRES.

Farmers' Tips

1) Technotill's priority is germination.

Our technology is designed to:

- i) Provide the best possible moist soil to seed contact.
- ii) Encourage emergence by reducing the amount of packed soil over the seed.

It is important to seed into moisture to allow seed placement on a moist, unfractured seedbed. Seeding into moisture allows a small amount of moist soil to be packed over the seed. The loose soil that falls over the pack protects it from drying in hot, windy conditions.

IN IDEAL CONDITIONS, THE SEEDBED WILL BE APPROXIMATELY 1 ½ INCHES BELOW THE SOIL SURFACE AND ¾ TO 1 INCH OF LOOSE SOIL WILL BE OVER THE PACK. REMEMBER, WITH TECHNOTILL, YOU WILL WANT TO SEED INTO MOISTURE, NOT SEED SHALLOW.

2) Technotill places sidebanded fertilizer slightly above the seed row and approximately 1 ¼ to 1 ½ inches to the side of the seedrow.

Consult local fertilizer suppliers for recommended fertilizer application rates.

3) Field testing:

When in the field, check:

- i) Are you seeding into moisture?
- ii) Is there a thin, firm layer of packed soil over the seed?
- iii) How much loose soil is over the pack?
- iv) Where is the fertilizer placed?

Appendix A - Manufacturers Assembly Instructions