

## CK-5000T Metropolis Patterson Transmission Crankset Installation Instructions

Published – July, 2011. ZSxxx.v0 © Full Speed Ahead

### Installation Instructions

Congratulations on your Full Speed Ahead product. Please read these instructions and follow them for correct use. Failure to follow the warnings and instructions could result in damage to product which is not covered under warranty, damage to bicycle; or cause an accident resulting in injury or death. Since specific tools and experience are necessary for proper installation, it is recommended that the product be installed by a qualified bicycle technician.

### Warranty

Full Speed Ahead (FSA) warrants all FSA, Gravity, Vision, Metropolis, and RPM products to be free from defects in materials or workmanship for a period of two years after original purchase unless otherwise stated in the full warranty policy. The warranty is non-transferable and valid to the original purchaser of the product only. Full warranty policy is available at

<http://www.fullspeedahead.com/techdoc>

**⚠ The Metropolis Patterson Transmission is specified for use on pavement. The warranty extends to pavement use only.**

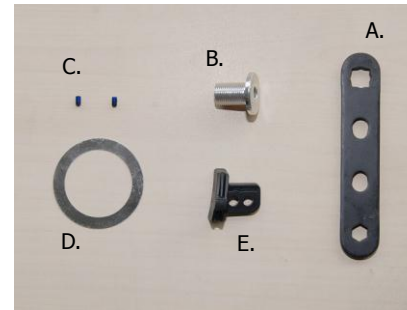
Using the Metropolis Patterson Transmission for anything other than the intended purpose will void the warranty, and may create an unsafe riding condition that can cause accident and injury to the rider.

### Specification

Item Number / Model Name **CK-5000T / Metropolis Patterson Transmission Crankset**

**Each assembly package should include:**

- I. Drive side crankset x1
- II. Non-drive side crank arm x1
- III. Accessory pack x1

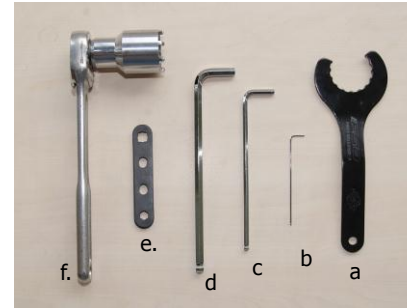


**Accessory pack includes:**

- A. Auxiliary tool x1
- B. Spindle bolt x1
- C. Set screw x2
- D. Seal washer x1
- E. Tall cable guide x1

**Before installation, disassemble CK-5000T into below units:**

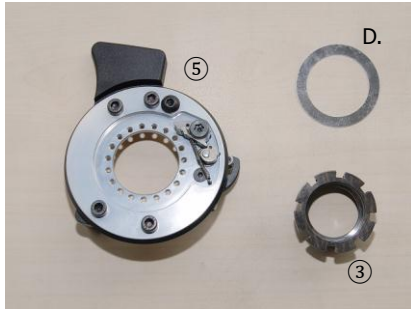
- ① Drive side (Right) crankset
- ② Non-drive side (Left) crank arm
- ③ Drive-side (Right) BB cup
- ④ Non-drive side (Left) BB cup with waterproof sleeve
- ⑤ Control plate sub-assembly



**Tools for installation:**

- a. Wrench for external BB
- b. 1.5mm hex wrench
- c. 5mm hex wrench
- d. 8mm hex wrench
- e. Auxiliary tool (included in the accessory pack)
- f. Socket wrench with BB-18 socket

**Note:** A 3/8" socket wrench can be used instead of the 8mm hex wrench "d."



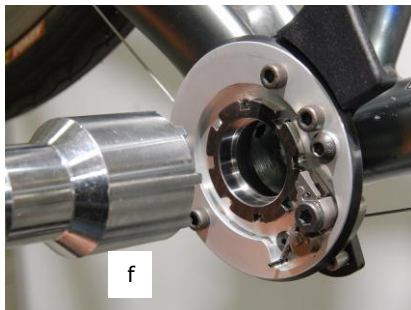
**Step 1:** The first step of assembly involves Control plate sub-assembly ⑤, Drive side (Right) BB cup ③, and the seal washer (included in the accessory pack "D").

Before assembly, ensure that the parts and bottom bracket shell are clean, and free of any debris or machine chips. Make sure Bottom bracket shell is faced to exactly 68mm width. Patterson Transmission cranksets are not compatible with 73mm or Italian threaded bottom brackets.

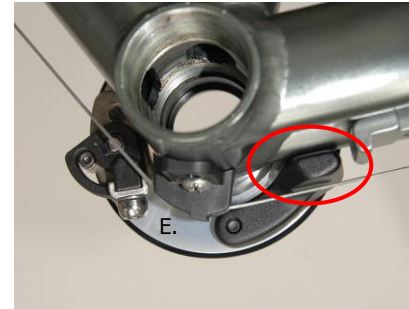


**Step 2:** Place the Drive side (Right) BB cup ③ through the Control plate sub-assembly ⑤ and the seal washer "D" as shown in the photo. Thread the BB cup ③ into the right side of the BB shell. Keep the black Inboard chain guard in the top (12 o'clock) position.

**(Arrow)** The "D" seal washer goes behind the Control Plate Sub assembly, over the BB cup threads. Be careful not to damage the seal washer while threading BB cup into frame.

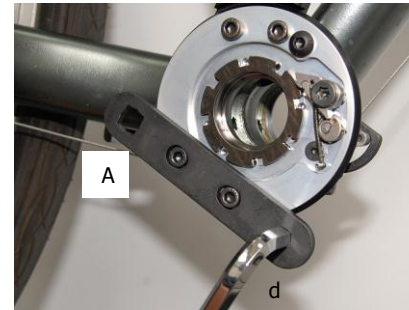


**Step 3:** Use the "f." Socket BB-18 wrench to thread the Drive side (Right) BB cup completely into the BB shell. Use very little torque. **DO NOT** fully tighten.



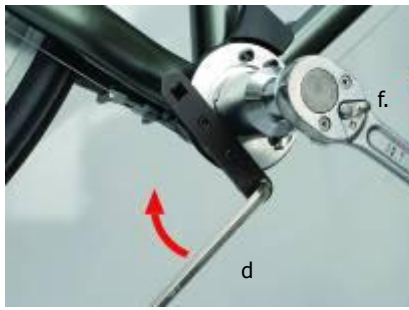
**Step 4:** Rotate the Control plate sub-assembly ⑤ until the torque fix feature rests firmly against the bottom of the chain stay. (Circled in picture).

**NOTE!** If the rear shift cable will contact the torque fix feature, replace the original cable guide (under the BB shell) with the Tall cable guide "E" (included in the accessory pack).



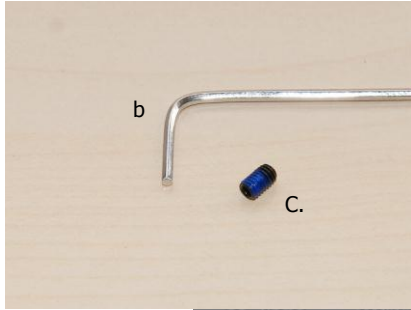
**Step 5:** Place the Auxiliary tool "A" on the Control plate sub-assembly with the two holes engaging the bottom bolts, as shown in the photo. Insert the 8mm hex wrench "d" in the hex end hole of the Auxiliary tool. These tools will fix the assembly in place during the next step of assembly.

**NOTE!** With the square hole on the other end of the auxiliary tool, the "d." 8mm hex wrench can be replaced by a 3/8 square driver.



**Step 6:** Turn the "d." Hex wrench clockwise to keep the torque fix feature firmly against the chainstay. While holding the "d." 8mm Hex wrench, turn the Socket BB-18 wrench "f" counter-clockwise to tighten the Drive Side BB cup to a torque value of 40 to 50Nm.

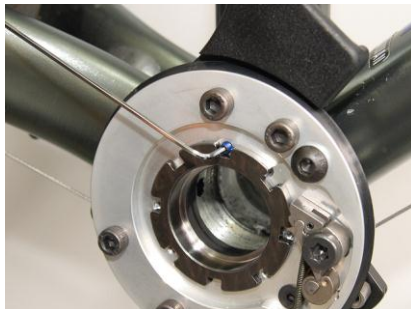
**NOTE!** When BB cup is fully torqued, make sure torque fix feature is resting against the chainstay as shown in the circle in picture of step 4.



**Step 7:** Locate the 1.5mm hex wrench "b" and one of the set screws "C". The set screw is used to keep the drive side BB cup from loosening.



**Step 8:** Find a proper screw hole in the Control Plate sub assembly that is exposed between the notches in the Drive side BB cup flange. The threaded hole should be at the center of a BB cup flange notch (see Fig.1) or the "counterclockwise side" of screw hole should be close to the BB cup flange notch (see Fig.2, side A). **DO NOT** use "clockwise side" of screw hole close to the BB cup flange notch (see Fig.3, Side B), or a partially covered screw hole (see Fig.4). This is important to isolate the control plate from movement.



**Step 9:** Tighten the set screw "C" with 1.5mm hex wrench "b" to a torque value of 0.2N-m. Only one set screw is needed for assembly. The extra set screw is included as a spare.



**Step 10:** Install the Non drive side (Left) BB cup with waterproof sleeve ④. Use the an external bottom bracket wrench "a" to tighten it to a torque value of 40 to 50Nm.



**Step 11:** Use a finger to move the cable arm (at the back of Control plate sub-assembly) to full forward position, and hold until step 12 is completed.

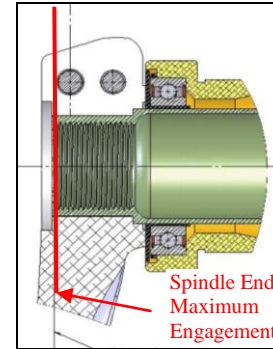


**Step 12:** Install Drive side (Right) crankarm ① by sliding the spindle through the drive side (right) BB cup, through the BB shell, and out the Non-Drive side (left) BB cup.

**Note!** If the cable arm is not moved to the forwardmost position, the drive arm will not insert into the bottom bracket fully.



**Step 13:** Release the cable arm.



**⚠ WARNING**

Make sure engagement teeth of spindle and left arm insert are seated correctly before tightening crankbolts. Make sure spindle engages the non-drive arm fully. The spindle must be inserted passed the center of the outermost pinch bolt for proper engagement. If spindle engagement is not sufficient, the crankarm can loosen while riding causing loss of control of bicycle and potential injury.



**Step 14:** Install the Non-drive side (Left) crank arm ② on the BB spindle, ensuring that the crank arms are 180° opposite of each other. Apply medium strength threadlocker to the spindle bolt "B." Use the 5mm hex wrench "c" to tighten the spindle bolt to a torque value of **0.7 to 1.5Nm**.

**Warning:** Do not over tighten! The spindle bolt is only used to provide preload to the bearings.



**Step 16:** Screw the front shifter barrel adjuster completely inward to reserve the adjustment range as much as possible. Check the shifter is at the lowest position possible. Usually #1 on most gear indicators.

**NOTE!** It is strongly recommended to use a shifter without "trim" functions. Trim functions are smaller clicks between gears to adjust derailleur for chain angle. Many twist style shifters have "trim" functions whereas most thumb style shifters do not.



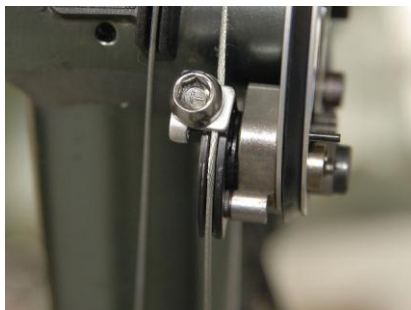
**Step 15:** Use the 5mm hex wrench "c" to tighten the pinch bolts of the Non-drive side (Left) crank arm ② to a torque value of 10.8 to 14.7Nm.

**CAUTION!** It is very important to tighten each bolt minimum three times. Alternate between outer and inner pinch bolts during tightening process. Tightening only one or two times will cause one bolt to have less than optimal torque value, and could lead to loosening of the left crank arm!



**Step 17:** Thread the cable down to the cable arm, and install it through the cable pinch plate. Tighten the cable pinch bolt with 4mm hex wrench to a torque value of 5 to 7 N-m.

**Warning:** Do not over tighten! Over tightening the cable pinch bolt can damage the bolt or cause the cable arm to brake which is not covered under warranty!



**Step 18:** Ensure that the shifter cable is seated in the groove of the cable arm, and fixed tightly. Loosen cable pinch bolt and re-tighten if shifter cable is not seated in the groove.



**Step 19:** Ensure the shift lever can be easily operated between two lowest gear positions (#1 & #2 on most gear indicators).

**NOTE!** The CK-5000T only has two gears. This means that for MTB 3 speed front shifters, the highest gear position has no function and will not be used. Do not try to force the shifter into the 3rd gear position when shifter and crankset is adjusted properly.



**Step 20:** Spin the crankset in normal direction and operating the shifter to check if the whole system works properly.



**Step 22:** Install the chain and pedals on the crankset. Follow pedal manufacturer's instructions.

**Note!** Right and Left pedal threads are opposite. Do not attempt to install Right pedal in Left crank arm or vice versa.



**Step 21:** Check shifting function while spinning the crankset. If there is a clattering noise during the upshift or in the second gear position, screw the barrel adjuster on the shifter outwards while continuously spinning the crankset until the noise disappears.



**Step 23:** Installation complete. If you have any question about installation, please feel free to call FSA :

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**Contact**

If you have questions, please visit our web site technical section: <http://www.fullspeedahead.com/contact> or contact:

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