Congratulations! The S-Works Carbon crankset you have chosen is among the finest advanced composite products available in cycling. Carbon fiber is a very special material that requires particular care during assembly, storage and riding. This instruction guide contains instructions and warnings, plus torque specifications, to be used in conjunction with the owner’s manuals and instruction guides supplied with your bicycle.


**WARNING!** Failure to follow these instructions may result in a catastrophic failure of the crank, frame and/or its components while riding, which may result in serious personal injury or death.

**WARNING!** Bicycle assembly is a complicated task which requires training and experience. Do not attempt installation of any component if you do not have experience and training as a bicycle mechanic. Failure to follow this warning may result in serious personal injury or death. Reference should also be made to Barnett’s or some other comprehensive bicycle manual.

**WARNING!** Failure to follow the torque specifications in this instruction guide will void your warranty, but most importantly may result in damage to the crank, which may not be visible. If the crank is damaged, this can result in loss of structural integrity, which may result in serious personal injury or death. To ensure the best assembly possible and to prevent any damage to the crank components, follow all torque specifications.

**TOOLS REQUIRED:**

- 1.5mm, 4mm, 6mm and 12mm Allen key
- T25, T30 and T45 Torx key
- 17mm and 20mm wrench
- Torque wrench (3/8” socket)
- Ratchet wrench (3/8” socket)
- High quality grease
- OSBB Bearing Press Tool (S125300012) or...
- Specialized MindSet Headset Bearing Press (#9895-3045)
- Specialized Carbon Crank Tool Kit (Bearing pullers, lockring tool, 6mm Allen and T45 Torx keys, 8mm-to-3/8” adapter - #9891-3000)
- 3M DP 420 Epoxy packet (includes epoxy, alcohol wipe and applicator)
- Threadlocker (Blue 242, Green 640)

**FRAME PREPARATION**

**CAUTION:** Do not face or ream bottom bracket shell! This can possibly prevent proper installation of the crank. Your Specialized frame does not require any bottom bracket shell pre-installation preparation, as all surfaces have been precisely machined to specific tolerances at the factory for proper interface with the S-Works Carbon crankset.

**CHAINRING INSTALLATION**

To achieve optimal shifting, it’s very important to ensure proper pairing and orientation of the chainrings. Chainrings are offered in several different configurations. Spiders are offered in alloy or carbon, in 110mm or 130mm BCD options. Contact your Specialized Authorized Dealer, or visit www.specialized.com for available options.

SRM kits are available separately through SRM. Cranks and rings sold separately.

Specialized chainrings are paired specifically to ensure that the clocking of the teeth match properly between the large and small ring. Mixing various configurations of chainrings can result in poor shifting performance.

- To achieve optimal shifting performance, ensure that the counter-sunk surfaces of the bolt holes are facing away from each other.
- The large chainring pin and the small chainring “bump” must line up with the crank arm (see “INSTALLING THE SPIDER AND LOCKRING”, P.4).
- The S-Works carbon spider bolt holes require proprietary Specialized chainring bolts (# S091600017). Apply blue threadlocker, use T30 Torx and flat head screwdriver.
- **Standard chainring bolts**: Use T30 Torx and 6mm Allen keys to tighten or loosen the bolts.
- **Recommended torque for chainring bolts**: 87 in-lbf (9.8 N*m).

**WARNING!** Great care should be taken to not damage carbon fiber or composite material. Any damage may result in a loss of structural integrity, which may result in a catastrophic failure. This damage may or may not be visible in inspection. Before each ride, and after any crash, you should carefully inspect your crank for any fraying, gouging, scratches through the paint, chipping, bending, or any other signs of damage. Do not ride if your crank shows any of these signs. After any crash, and before you ride any further, take your bicycle to an Specialized Authorized Dealer for a complete inspection.

**WARRANTY**

For the complete warranty provisions, please refer to www.specialized.com.

**COMPATIBILITY**

Carbon frames with 61mm width carbon OSBB bottom bracket shell and press-in cups

Carbon frames with 68mm width alloy OSBB bottom bracket shell and snap-ring slots

Additional documents:

- After-market crank compatibility / adapter instruction guide
- Carbon road frame instruction guide
**INSTALLING THE BOTTOM BRACKET (61 x 46mm BB shell, press-in cups)**

The following setup is for frames with 61mm width carbon shells that require press-in cups.

1. Non-drive-side crank arm\(^1\)
2. Non-drive-side adjustable cover\(^2\)
3. Non-drive-side conical spacer\(^2\)
4. 42 x 30 x 7mm bearing\(^1\)
5. OSBB press-in cup\(^2\)
6. Drive-side alloy bearing spacer\(^2\)
7. Spider locking\(^1\)
8. Drive-side crank arm spider\(^2\)
9. Steel retainer nut\(^1\)
10. M12 steel center bolt\(^2\)
11. Drive-side crank arm\(^2\)
12. Drive-side crank cover screw\(^1\)

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1. Remove any grease from the carbon bottom bracket shell.
2. Finish cleaning the bottom bracket shell with an alcohol wipe.
3. Prepare the cranks for installation: Pre-install the spider, chainrings, spindle nut and spindle bolt. Pre-grease and install the crank parts in the correct order as shown on page 4.

**NOTE:** Due to the 20 minute work time of the epoxy, the cranks must be installed immediately after the cups are installed, to ensure that the cups, bearings and crank are aligned.

4. Fully mix the 3M DP 420 2-part epoxy, then apply the epoxy to the outer surface of the OSBB cups and the first 10mm of the inner diameter of the carbon bottom bracket shell.
5. Press the cups into the bottom bracket shell until the cups lightly bottom out against the frame (fig.1). Use either the Specialized Bottom Bracket Bearing Press (S125300012) or the Mindset Headset Bearing Press tool (9895-3045). When using the 9895-3045 tool, either use a Park Headset Press Tool or a bench-mounted vise to press the cups into the frame. Be sure to press the cups evenly into the frame.
6. Wipe off the excess epoxy from the inside and outside flanges of the cups. Use an alcohol wipe to clean off any remaining residue.
7. Apply grease to the outer diameter of the OSBB bearings, then press them into the cups using the same tool that pressed the cups into the frame (fig.2). Be sure to press the bearings in straight. Do not force the bearings into the cup. Wipe any last epoxy residue from the outside of the cup.
8. Once the bearings bottom out inside the cups, do not apply any more pressure. Excess force can damage the cups and can cause the bearings to spin roughly.
9. To remove the cups from the frame, pull the bearings out as shown on page 5, then lightly tap the backside of the cups in a circular pattern with a large flat surface. Do not use a screwdriver, as it may damage the cups.
10. Before installing new cups with new epoxy, remove any excess epoxy lips that may have formed at the inside and outside edges of the cups.

**TECH TIP:** Any thin epoxy residue that remains on the contact area of the carbon shell should not be removed. This thin film of epoxy residue can actually benefit the bond of fresh epoxy when installing new cups.
INSTALLING THE BOTTOM BRACKET (68 x 42mm alloy BB shell, with circlips)

The following setup is for frames with 68mm width alloy shells that require snap-rings.

1. Non-drive-side crank arm
2. Non-drive-side adjustable cover
3. Non-drive-side conical spacer
4. 42 x 30 x 7mm bearing
5. Snap-ring
6. Drive-side alloy bearing spacer
7. Spider locking
8. Drive-side crank arm spider
9. Steel retainer nut
10. M12 steel center bolt
11. Drive-side crank arm
12. Drive-side crank cover screw

1. Install the snap-rings into the snap-ring grooves in the BB shell (fig.1).
2. Apply green threadlocker # 640 to the outer diameter of the OSBB Bearings and inner diameter of the OSBB shell.
3. Press the bearings into the shell (fig.2). Be sure to press the bearings in straight, use a bearing press tool (9895-3045 or S125300012) to guide the bearings in straight. Do not force the bearing into the shell.
4. Once the bearings have bottomed out against the snap-rings, do not apply any more pressure. Too much force applied to the bearings once bottomed out can cause damage to the snap-rings and can cause the bearings to spin roughly.

NOTE: Earlier generation cranks are equipped with a cap and wave washer. Newer generation cranks are equipped with an adjustable cover and conical spacer (#2 and #3). The adjustable cover and conical spacer are available separately to replace the cap and wave washer.
INSTALLING THE CRANKSET (73 x 46mm BB shell, press-in cups)

NOTE: Crank bolt is MTB- or Road-specific.
MTB Bolt: 20g (small hole)
Road Bolt: 16g (large hole)

1. Install the non-drive-side cover (2) and conical spacer (3) on the non-drive-side spindle. The cover only fits one way, with the "ALIGN CRANK" text hidden by the crank arm.
2. Install the bearing spacer (6) on the drive-side spindle.
3. Liberally grease the spacers, bolt threads and spline surfaces before installation.
4. To increase torque accuracy, ensure that the bolt head surface is greased.

Crank arm removal: reverse steps 3 & 4.

Tighten using a 6mm Socket Allen Key with Torque Wrench.
REMOVING THE BEARINGS FROM THE CRANK SPINDLE

NOTE: Removal of the crank arms can result in the bearings remaining in the BB shell or on the spindle. Choose the according tool for the job.

1. Open the two halves and place over the axle shaft and bearing.

2. Close the two halves over the bearing.

3. Tighten the two pinch bolts to lock the tool around the bearing.
   - Turn the center bolt clockwise until it contacts the crank axle.

4. Continue tightening the center bolt, or...
   - Turn the body of the tool assembly while keeping the center bolt from turning until the bearing slides off the axle.

REMOVING THE BEARINGS FROM THE BOTTOM BRACKET SHELL

1. Angle the expander tip into the bearing, then pull back until the lip of the expander seats against the bearing.

2. Thread the expander bolt into the expander tip.
   - Do not overtighten the expander bolt.

3. Install the bearing receptor sleeve over the expander assembly.

4. Thread the nut onto the expander assembly with a 17mm wrench, while holding the expander assembly with a 20mm wrench.