Revised October 29, 2007

2008 NEW MADONE ASSEMBLY TIPS

The 2008 Trek Madone is the lightest, strongest frameset we have ever made. To accomplish this, we have used shaped tubes, an integral seatmast with seatmast cap, internal rear brake inner wire, and very thin-walled carbon tubes. Because of these unique features, the 2008 Trek Madone requires different or additional assembly techniques, provided here:

- Putting the bike in a workstand
- Attaching and adjusting the saddle
- Inner wire routing for front derailleur and rear brake

We have also provided general maintenance information:

- Carbon fiber care
- Headset bearing installation
- Bottom bracket bearing installation

Check www.trekbikes.com for updates. These instructions are written for an experienced mechanic. If you need further information, refer to your bicycle owner's manual, the instructions in a bicycle mechanic's handbook, or consult your dealer.

Please save these instructions for future reference.

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WORKING WITH CARBON FIBER PARTS

Carbon fiber parts are different from metal parts, so they require different treatment.

Avoid sharp edges or excessive pressure

Carbon fiber composite can be damaged by sharp edges or clamping mechanisms which cause a point load, or a high pressure area. Before installing any carbon fiber part, or attaching any component to an existing carbon fiber part, follow these procedures to make sure the parts or components are carbon-compatible.

As carbon frames have gotten lighter and lighter, you can now feel movement in the tubes when you squeeze them. This is normal and no reflection of the strength of the frame. However, repeated compression of the sides of the tubes is not good for them, and could eventually led to frame damage. Do not squeeze the frame tubing with your fingers, and especially never clamp the tubing in any mechanical device, including car racks.

Clean carbon parts before installation

With some interfaces of metal parts, grease is used on the clamping surfaces to prevent corrosion. When making adjustments, always grease the threads and shoulders of bolts. Grease reduces corrosion and allows you to achieve the correct tightness without damaging tools.

However, with most carbon parts you should avoid grease. On the other hand, the bearing seats of the Madone frameset do require grease, as explained in these instructions.

If grease is applied to a carbon part that is clamped, the part may slip in the clamp, even at the recommended torque specification. In these cases, since carbon does not corrode, grease is not necessary, nor recommended. Examples include the stem attachment to the steerer (metal to carbon), or the seatmast cap to the seatmast of the frame (carbon to carbon).

Before assembling a carbon part, clean both the part and its mating surface with rubbing alcohol and a shop rag; clean until the rag shows no discoloration.

Never modify the fork, frame, or components

The parts of the Madone frameset have been carefully designed to meet the strength and function requirements of safe riding. Modifying these parts in any way may make the bike unsafe. As an example, the seatmast on the Madone frame is a “No Cut” System. The closed end of the seatmast provides strength required for the system. Do not cut the seatmast on this frame. . Removing the redundant wheel retention tabs on fork tips or peg-and- eyelet style redundant retention devices is another example of how modifying a bicycle could make it less functional.

Suspension forks can add stress to a bike frame. Never add a suspension fork to a road bike, or change style and/or length of forks. If you are unsure if a fork is compatible with a frame, call Trek customer service. Any modification of a frame, fork, or components means that the bike no longer meets our specifications and will therefore void the bike’s warranty.

PUTTING THE FRAME IN A REPAIR STAND

Use special care when putting the new Madone frame in a workstand. The only accepted or recommended method is to use the special workstand clamp adapter designed specifically for this frameset. The adapter clamps to the seatmast cap (only), which must be installed first.

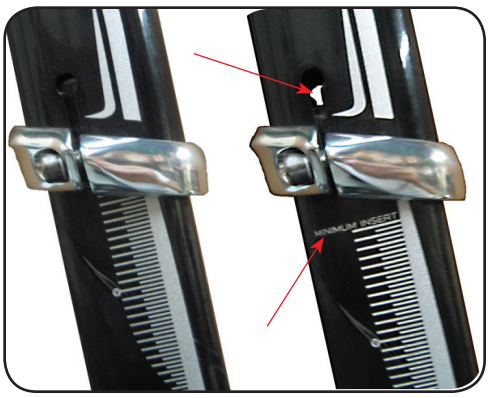

Figure 1. Proper seatmast cap insertion (left) and improper (right)

Tools and materials required

- 4 mm allen wrench
- Workstand
- Workstand clamp adapter (PN 40348)

To install the seatmast cap

1. Clean the seatmast.
2. Grease the clamp bolts of the seatmast cap.
3. Slide the seatmast cap over the seatmast.
4. Make sure the seatmast cap is has the minimum insertion (Figure 1).

   The Minimum Insertion line should be completely covered, and the Minimum Insertion Window should only show carbon fiber, not light.

5. Tighten the clamp bolts gradually in an alternating pattern to the torque specification on the clamp. If there is no specification, tighten to 50-70 lb•in (6-8 Nm).



Figure 2. Seatmast cap clamp

To attach the workstand clamp adapter

1. Open the workstand clamp adapter (Figure 2).
2. Wrap the adapter around the seatmast cap (Figure 3).

   Do not attach the clamp adapter directly to the seatmast, which is part of the frame. Clamp to the cap only.

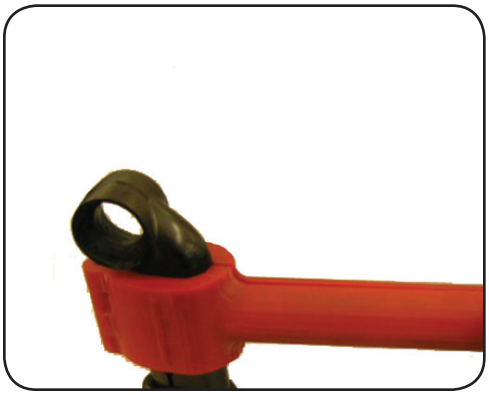

Figure 3. Seatmast cap clamp in a workstand

3. Insert the base of the seatmast clamp in the workstand (Figure 4).

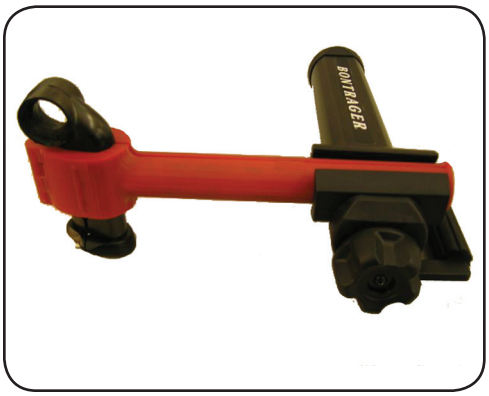

Figure 4. Seatmast cap clamp in a workstand (without bike, for photo purposes)

PREPARING THE SEATMAST CAP FOR THE SADDLE

The seatmast cap must be prepared for use. This service will make the sadddle adjustment easier and also more secure.

Tools and materials required

- 5 mm allen wrench
- Park Polylube 1000 grease

To prepare the seatmast cap

1. Remove the bolt that holds the clamp (Figure 5).
2. Remove the cones.
3. Apply a light coat of grease to the sockets, the surfaces of the seatmast cap where the cones contact it (Figure 6).
4. Apply a light coat of grease to the threads of the bolt.
5. Assemble the clamp parts (see Figure 5).
6. Wipe excess grease from the clamp.

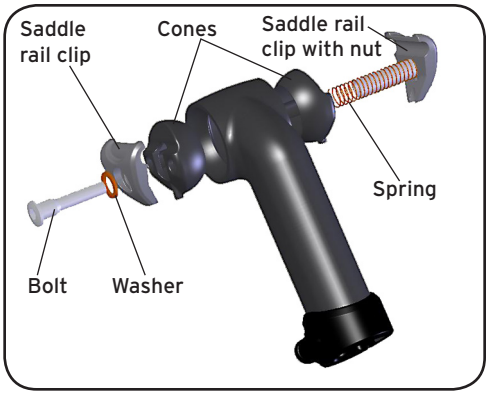

Figure 5. Parts of the saddle rail clamp mechanism



Figure 6. Applying grease to the socket of the seatmast cap

ADJUSTING THE SADDLE

The seatmast on the 2008 Madone frame uses a "No Cut" System. The closed end of the seatmast provides strength required for the system. Do not cut the seatmast on this frame.

Note: Do not use grease between the seatmast and the seatmast cap. For the best performance, the seatmast should be clean before installation of the cap, as explained on page 1.

Tools and materials required

- 4 and 5 mm allen wrench

Adjusting the height of the saddle

You can easily change the height of the saddle. Loosen the clamp bolts on the seatmast cap and slide the cap up or down as necessary. Do not raise the cap above the minimum insertions marks, as explained on page 1. When the cap is at the right height, gradually tighten the clamp bolts in an alternating pattern.

There are two versions of the mast cap, and each requires a different torque setting:

- Original version: Tighten to the torque specification on the clamp. If there is no embossed specification, tighten to 50-70 lb•in (6-8 Nm).
- Second version: Torque specification embossed on the clamp, 35-53 lb•in (4-6 Nm)

If the seatmast cap does not provide enough adjustment, optional caps with different lengths and setbacks are available (see Table 1).

Table 1. Seatmast caps

Seatmast cap				**PN**
Material	Cap height (mm)	Set-back (mm)	Forward offset (mm)	
Carbon	120	5		402770
	120	20		402738
	120		10 (forward)	402773
	160	5		402772
	160	20		402771
	160		10 (forward)	402774

Adjusting the angle (up-and-down and side-to-side) of the saddle

As with a "normal" saddle post, the saddle rail clamp on the seatmast cap of the Madone provides a wide adjustment of saddle tilt. The adjustment system uses a "ball and socket" system (Figure 5) to provide precise angular adjustment.

The Madone saddle rail clamp also provides several degrees of lateral angle adjustment so you can align the saddle (Figure 7). The saddle rail clamp is a mating ball and socket system that is easy to use.

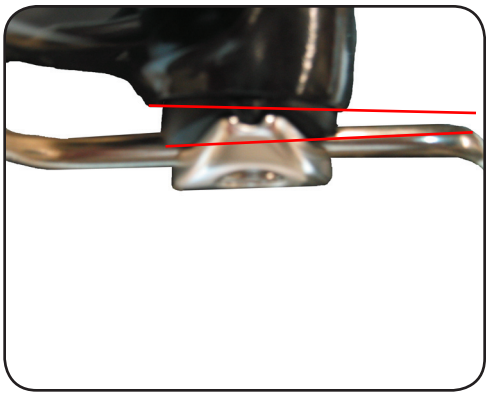

Figure 7. Angular (side-to-side) adjustment of the saddle

To adjust the saddle angle

1. Tighten the saddle rail clamping bolt just enough to keep the assembly from rattling.
2. Tap the front or the back of the saddle to adjust the fore-aft position.
3. Tap the nose of the saddle to align, either horizontally or vertically.
4. When the saddle is in the desired position, hold the saddle and tighten the saddle rail clamping bolt to 125-140 lb•in (14-16 Nm)

Changing the adjustment of the saddle

Once the saddle rail clamp bolt has been tightened, the clamp mechanism will lock into place. When you loosen the clamp bolt, the mechanism might not unlock.

To unlock the saddle clamp mechanism

1. Loosen the saddle rail clamp bolt until the outer clamp plate allows you to insert a 4 mm hex wrench in one of the holes in the adjusting ball (Figure 8).
2. Push lightly on the allen wrench until the cup releases from (moves in) the carbon cap.
3. Follow same procedure for the other side of the clamp.
4. Follow the procedure “To Adjust the Saddle Angle.”

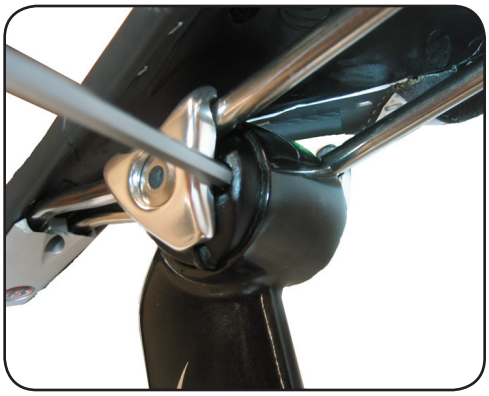

Figure 8. Prying the locking cones loose with a 5 mm allen wrench

FRONT DERAILLEUR INNER WIRE INSTALLATION

The front derailleur inner wire on the 2008 Trek Madone starts out following a normal path. However, after passing through the bottom bracket inner wire guide, the inner wire goes through a special tunnel built through the frame. To keep water or grit from running down the tunnel, we have designed a special rubber seal.

Tools and materials required

- 08 Madone bottom bracket inner wire guide (contact customer service for part number)
- 08 Madone derailleur inner wire tunnel seal (contact customer service for part number)
- Derailleur inner wire and housing
- Inner wire lubricant
- Inner wire cutters
- Housing cutters
- 5 mm allen wrench

To install the front derailleur inner wire

1. Install front shifter housing into the housing stop on the non-drive side of the down tube (Figure 9).
2. Insert the inner wire through the housing, the housing stop, and the bottom bracket inner wire guide (non-drive side, Figure 10).
3. Route the inner wire from the bottom bracket inner wire guide and into the tunnel on the bottom of the bottom bracket shell (Figure 11).
4. Pull the inner wire out the top of the tunnel (Figure 12).
5. Install the tunnel seal onto the inner wire
6. Slide the inner wire seal down the inner wire and press the seal into the tunnel.
7. Attach the inner wire to the front derailleur and adjust in the normal manner.



Figure 9. Inner wire routing around the head tube

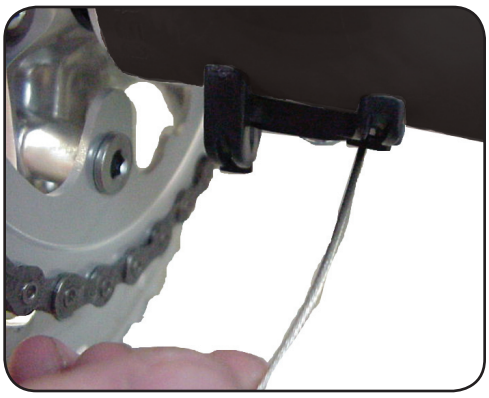

Figure 10. Front derailleur inner wire on the rider's left of the bottom bracket inner wire guide

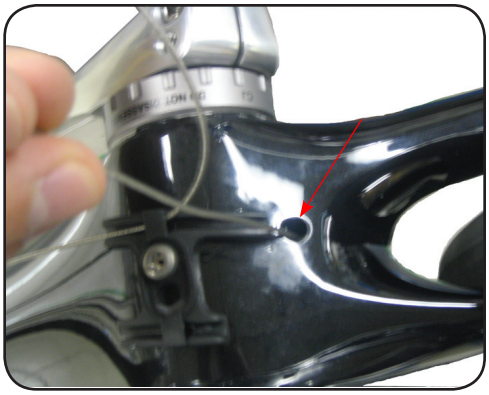

Figure 11. Front derailleur inner wire passing through bottom bracket inner wire tunnel

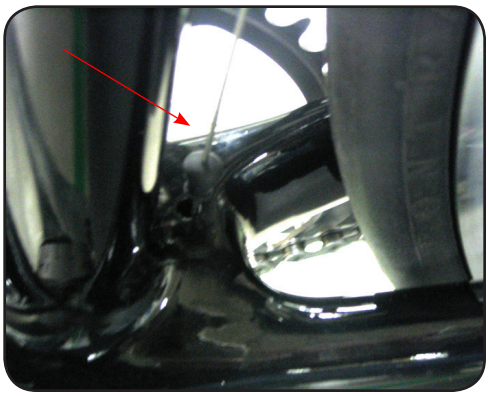

Figure 12. Sliding the seal down the front derailleur inner wire into the frame tunnel

REAR BRAKE INNER WIRE INSTALLATION

The 2008 Madone uses an internal inner wire route for the rear brake. The inner wire housing does not run continuously through the frame, but instead uses special housing stops. This design is lighter and provides a firmer feel to the lever when applying the rear brake.

There are two options for how to route the inner wire from the housing stop to the brake: housing or clearance adapter. The clearance adapter routes the inner wire closer to the frame, providing more leg clearance.



Figure 13. Removing the fixing screw for the rear housing stop

Tools and materials required

- 2008 Madone top tube housing stops (2) and fixing screws (2) (contact customer service for part number)
- Brake inner wire and housing
- Inner wire lubricant
- J-bend spoke
- 5 mm allen wrench
- Inner wire cutters
- Housing cutters

To install the inner wire

1. Loosen the fixing screw on the rear housing stop (Figure 13).
2. Remove the rear housing stop from the exit window in the frame.
3. Insert the inner wire through the front housing stop.

   Make sure the inner wire goes through the end of the stop, not the side hole (Figure 14).

4. Feed the inner wire through the top tube while you watch the rear exit window of the top tube. When you see the inner wire, use a spoke to fish it out (Figure 15).
5. Slide the housing stop onto the inner wire (Figure 16).

   Make sure the inner wire goes through the end of the stop, not the side hole (Figure 13).

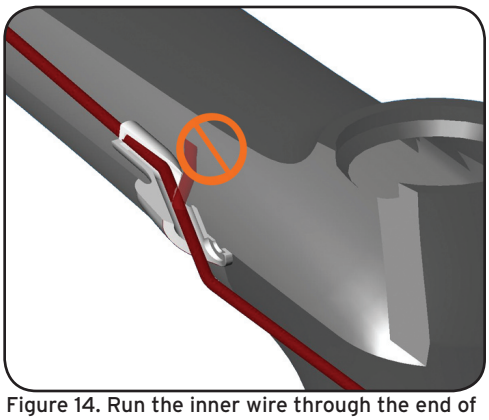

Figure 14. Run the inner wire through the end of the housing stop, not the side.

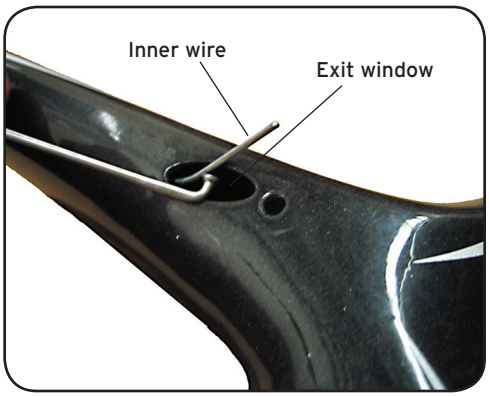

Figure 15. Fishing the rear brake inner wire with a spoke



Figure 16. Sliding the frame ferrule up the brake inner wire

6. Insert the housing stop into the exit window.
7. Install the fixing screw (Figure 17) and tighten the screw to 8-10 lb•in (1 Nm).



Figure 17. Attaching the housing stop with the fixing screw

To install the rear brake housing

1. Cut the housing to the desired length.
2. Lubricate the inner wire and slide the housing into place.
3. Press the housing firmly into the housing stop so that it seats correctly.
4. Attach the inner wire to the brake and adjust the brake.
5. Squeeze the brake lever firmly toward the handlebar to make sure the housing is in place and that the lever applies adequate force to the rim.



Figure 18. Installing the optional clearance adapter

To install the rear brake clearance adapter

1. Lubricate the inner wire and slide the clearance adapter into the housing stop (Figure 18).
2. Press the clearance adapter firmly into the housing stop so that it seats correctly.
3. Cut the housing to length and slide it onto the inner wire.

   Make sure the housing length allows the brake arm to move freely.
4. Press the housing firmly into the clearance adapter (Figure 19).
5. Attach the inner wire to the brake and adjust the brake.
6. Squeeze the brake lever firmly toward the handlebar to make sure the clearance adapter and housing are in place and that the lever applies adequate force to the rim.

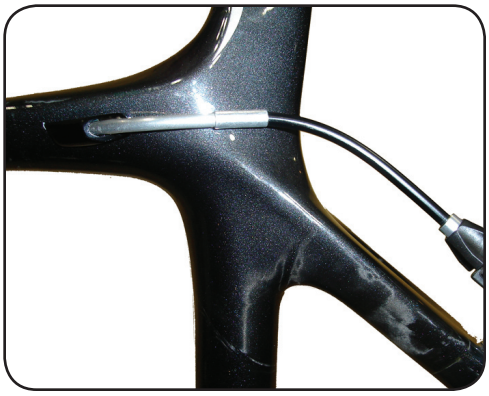

Figure 19. Optional inner wire clearance adapter installed

HEADSET INSTALLATION

The headset of the 2008 Madone uses a 1.5" lower bearing and 1 1/8" upper bearing. The bearings are slip-fit into the frame. There are many benefits to this design, and one is that the 2008 Madone headset is a tool-less installation. The bearings are slip fit, so a headset press or fork race setting tool are not needed.

Special care information

The fork on the 2008 Madone frame has several unique features that require special care to avoid frame damage:

- Do not attempt to remove the dust cap on the shoulder of the fork; it is bonded on.
- With the carbon steerer, do not use a star-fangled nut; use only the compression nut assembly supplied with the fork.
- Do not cut or machine the fork crown or head tube; never use facing tools.
- Do not use a hammer to install the bearings.
- Make sure the stem clamp is designed correctly and is free of burrs.
- If you choose to cut the steerer, follow all normal procedures and cautions regarding carbon fiber composite parts. If you are not familiar with these procedures, consult your dealer.

Tools and materials required

- Top cap asembly
  - For aluminum steerer
    - Starfangled nut, bolt, and top cap
  - For carbon steerer
    - Compression nut assembly (see customer service for part number)
- Stem
- Optional headset spacers (maximum of 40 mm including bearing cover, Figure 20)
- Bearing cover, conical

Aluminum	5 mm	PN 404691
	15 mm	PN 404689
Carbon	5 mm	PN 404690
	15 mm	PN 404687

- Shims, 1mm
- Centering washer
- Upper bearing, 1.125"
  - Steel, PN 271111
  - Stainless steel, PN 271112
- Lower bearing, 1.5" PN 404698
- Fork
- Rock "N" Roll Super Coat grease
- 4 and 5 mm allen wrenches
- Torque wrench

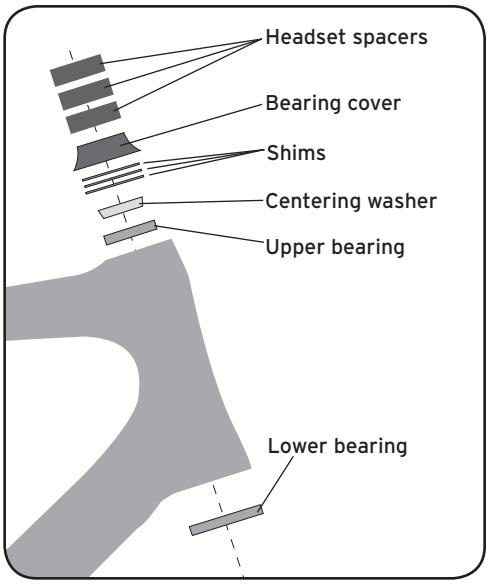

Figure 20. Pressing in the second bearing cover

To install the bearings

1. Apply a light coat of grease to the inner race of the lower bearing.
2. Install the bearing on the steerer (Figure 21).

   The bearing is symmetrical, so either side is "right-side up."



Figure 21. Lower bearing on fork crown

3. Apply a liberal coat of grease to the bearing seats of the head tube, both top and bottom (Figure 22).



Figure 22. Greasing upper bearing saddle

4. Slide the steerer (with the bearing installed) through the head tube (Figure 23).

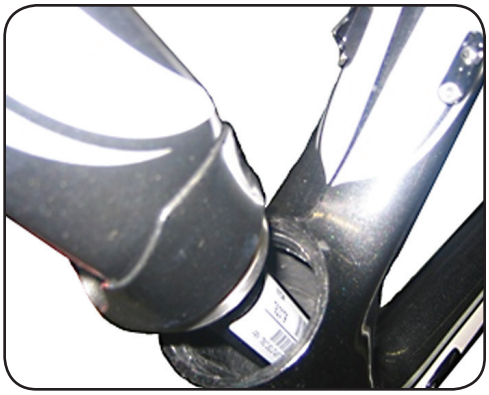

Figure 23. Inserting the fork through the head tube

5. Slide the upper bearing down the steerer and into the frame.
6. Slide the compression ring onto the steerer (Figure 24).



Figure 24. Slide the compression washer onto the steerer

To install the shims, bearing cap, and spacers

Trek installs three 1mm shims between the centering washer and the bearing cover to ensure an adequate space between the bearing cover and the top of the head tube. There should be at least 0.5 millimeter space.

1. Slide the three shims onto the steerer.
2. Slide the bearing cover onto the steerer (Figure 25).
3. Measure the gap between the head tube and the bearing cover.

   In some cases, all three shims may provide more clearance than necessary. In this case, remove shims until there is only one millimeter of space between the head tube and the bearing cover (Figure 26).

4. Slide the headset spacers and the stem onto steerer.
5. Install the headset top cap and adjusting bolt.

   For a carbon steerer, do not use a starfangled nut. Use the special adjusting plug.

6. Adjust the headset.

   The 2008 Madone headset uses an angular contact bearing system, so the headset will rotate freely with a wide range of tension. Make sure there is no free play, but do not overtighten the bearings because then might wear prematurely.



Figure 25. Sliding the shims and bearing cover onto the steerer



Figure 26. Measure the distance from the head tube to the bearing cover

7. Tighten the stem clamp bolts to the manufacturer's recommendation.
8. Follow the steps in "Inspecting the headset."

Inspecting the headset

Once a month inspect the headset of your bicycle to see that it is not loose, nor too tight. If your headset bearings are loose or too tight, do not ride the bicycle.

Readjust the bearings or take your bike to your Trek dealer for service.

To check is the headset is too loose

1. Stand over the top tube of your bicycle with both feet on the ground.
2. Apply the front brake firmly while you rock the bicycle forward and backward.
3. Look, listen, and feel for looseness of the headset bearings.

To check is the headset is too tight

1. With the front wheel off the ground, slowly rotate the fork and handlebars to the right and left.
2. Look, listen, and feel for any grinding noises, or stickiness or binding at any point in the rotation; the bearings may be too tight.

FORK CROWN CAP REPLACEMENT

This section explains how to remove the fork crown cap from a Madone fork, and also how to install a new one.

To remove a fork crown cap

1. Stand the fork upside down with the end of the steerer on a solid surface (Figure 27). The fork must be straight so that the end of the steerer is fully supported.

   Note: You may need a second person to hold the fork. In the factory, we have a special table built just to hold the fork. If the end of the steerer is at an angle during this procedure, you could damage the steerer.

2. Place the removal tool on the rear (with the larger hole) lip of the crown cap, just below the brake mounting hole (Figure 28).
3. While you hold the tool level with the supporting surface, firmly tap the tool with a dead-blow hammer.

The crown cap might not come off with the first tap. Repeat until the cap comes off.

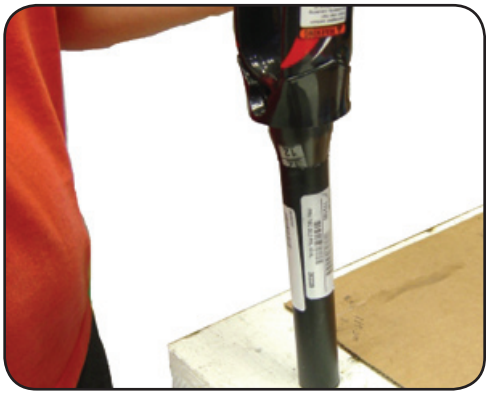

Figure 27. Stand the fork up



Figure 28. Engage the tool with the lip of the crown cap



Figure 29. Firmly tap the tool with a dead-blow hammer

Installing the crown has two tasks: clean the parts and bond them together.

To clean the fork and fork crown cap

1. With the old crown cap off, thoroughly clean the fork with a lint-free cloth and mild degreaser (Figure 30).
2. Clean the fork again with isopropyl alchohol.
3. Note the trasnition between the flat or buffed-out glue area and the glossy fork legs (Figure 31). Apply masking tape to the crown to protect the high-gloss area (Figure 32).
4. With 220 grit sandpaper, lightly scuff the bonding area of the fork crown (Figure 33).

   Note: The sanding is to roughen the old glue, not to remove any fork material.

5. Remove the masking tape (Figure 34) and wipe the area with isopropyl alcohol to remove any dust or grit.
6. Use the sandpaper to lightly scuff the inside of the fork crown cap (Figure 35). Do not try to remove all the old glue; just sand until the old glue is rough (Figure 29).
7. Clean the scuffed area of the cap with isopropyl alcohol.



Figure 30. Clean the fork

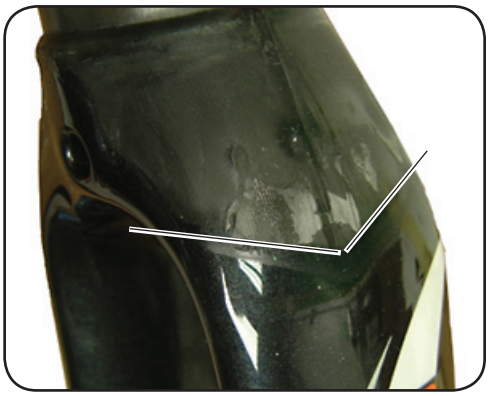

Figure 31. Transition between clear coat on lower blade and area prepped for glue

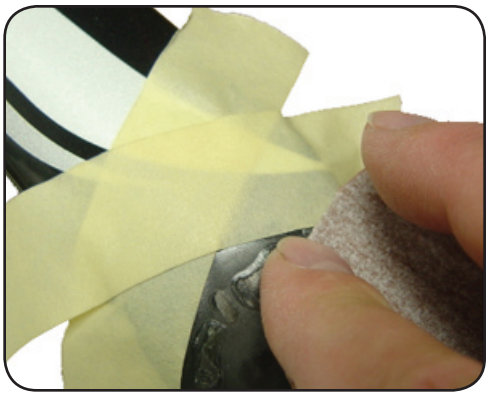

Figure 32. Abrading the bonding area.

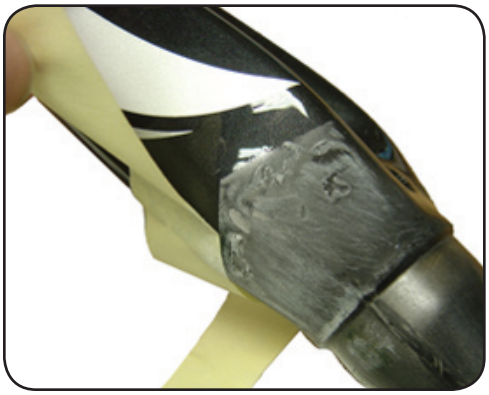

Figure 33. Remove the masking tape, showing the scuffing of the fork crown



Figure 34. Sanding the inside of the fork crown cap.



Figure 35. Stand the fork up

To install the fork crown cap

1. With the crown on the fork, clamp the fork steerer in a work stand (Figure 35).
2. Dry-fit the fork crown; make sure it fits well before you apply any glue. The large, protruding lip of the crown cap should face the front of the fork (Figures 35 and 37).
3. Apply a 2mm bead of LocTite Super Glue to both sides of the inside of the fork crown cap. In Figure 36, the red area shows where you should apply the glue. The darkened area shows where the fork crown will contact the crown cap.
4. Press the crown cap firmly into place and hold for five seconds.
5. Check that the crown cap is correctly aligned and firmly attached (Figure 37).

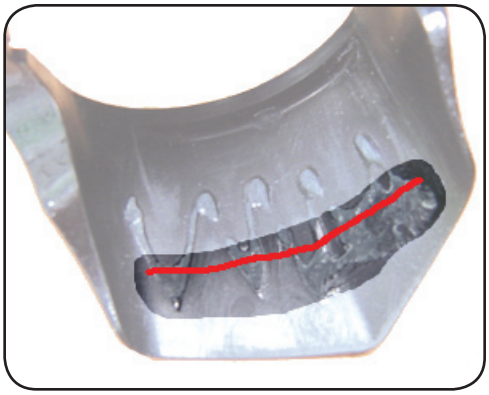

Figure 36. Glue application area (red) and bonding area (dark)

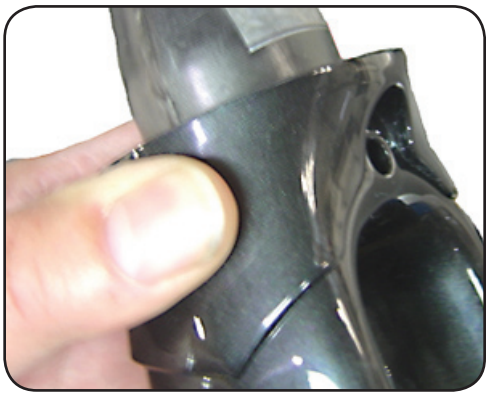

Figure 37. Fork crown cap aligned and attached to the fork

CRANKSET INSTALLATION

The 2008 Madone uses a special bearing system that has no parts that thread into the frame. Instead, the bearings are a slip-fit into the frame. Bearings kits will be available for all major brand of cranksets: Bontrager (TruVativ GXP), Shimano, Campagnolo, SRAM, and FSA. The Campagnolo system requires you to attach bearing supports to the Madone's bottom bracket shell, covered separately on pages 16-20.

Each kit includes a slightly different set of bearings, seals, and spacers. When installing other crankset systems, follow the manufacturer's instructions to achieve the correct assembly and adjustment. These instructions are for the Shimano system.

Do not use a hammer or bearing press to install the bearings into the frame. If the bearing fit is too tight, make sure the bearing seats are clean and free of debris.

Tools and materials required

- Crankset and bottom bracket
- Plastic crank arm installation tool
- 5 mm Allen Wrench
- Bearing installation tool PN 404694
- Rock "N" Roll Super Coat grease
- Bottom bracket parts (listed at the right)

Part description		Shimano	SRAM
Kit		404699	404700
Drive side parts			
	Bearing	281824	281824
	Seal	281820	281820
	Sleeve	281823	281823
	Wave washer	-	282866
Non-drive side parts			
	Bearing	281824	282864
	Seal	281820	282865
	Sleeve	281822	281822

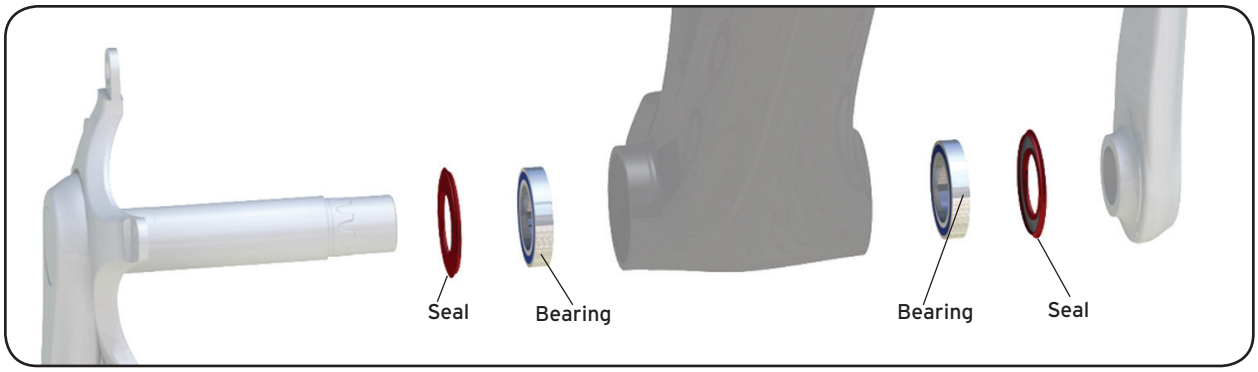

Figure 27. Shimano bearing set

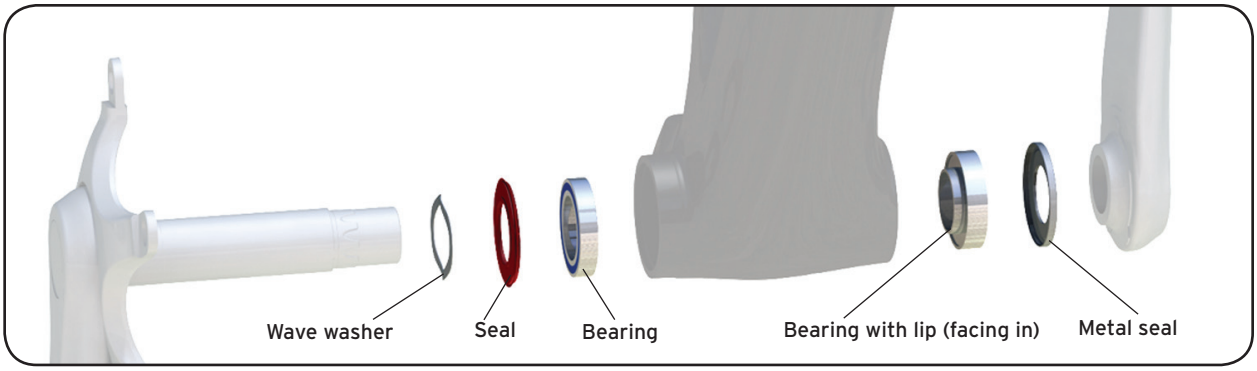

Figure 28. SRAM bearing set

INSTALLING A SHIMANO OR SRAM CRANKSET

To install the bearing shields

Your frame may already have the bearing shields installed in the frame.

1. Apply a light coat of grease to the male axle shield (smaller diameter, Figure 29).
2. Place the male axle shield into the bottom bracket shell from the drive side (Figure 30).
3. Place the female (larger diameter) axle shield into the bottom bracket shell from the non-drive side.
4. With the installation tool, push together the two halves of the axle shield.

   When they are inserted in the correct position, there will be an audible click.



Figure 29. Applying grease to the bottom bracket sleeve



Figure 30. Inserting one half of the sleeve into frame

To install the bearings

1. Apply a liberal coat of grease to the contact surfaces of one bearing and the drive side of the bottom bracket shell (Figure 31).
2. Slide a bearing onto the installation tool.

   Either side of the bearing is the "right side."
3. Press one bearing into the drive side of the bottom bracket shell (Figure 32).

   To remove the installation tool, press the release tab (Figure 33).
4. Repeat steps 1-3 for the other bearing on the non-drive side.



Figure 31. Greasing the bearing and the frame saddle



Figure 32. Pressing the bearing into the frame

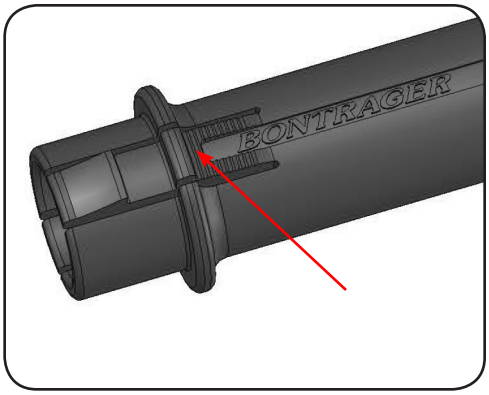

Figure 33. Release tab

To install the drive-side crankarm

When handling the seals, avoid bending them. A bent seal will rub on the bearing, creating drag.

1. Apply a light coat of grease to the face and the axle contact surface of the bearings.
2. Apply a light coat of grease to the metal inside of one bearing seal (Figure 34).
3. With the grease facing up, slide the bearing seal onto the axle (Figure 35).
4. Apply a light coat of grease to the bearing contact area of the axle (Figure 36).

   The grease areas should be about 1 inch (25 mm) wide. On the drive side, start at the bearing seal. On the non-drive side, start at the splines and apply toward the drive side of the axle

5. Insert the axle through the drive-side bearing in the bottom bracket (Figure 37).



Figure 34. Greasing the bearing covers



Figure 35. Sliding the bearing cover onto the axle



Figure 36. Greasing the axle

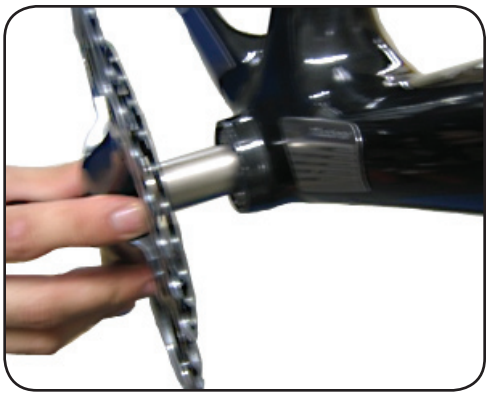

Figure 37. Sliding the axle through the bearings

To install the non-drive side crankarm

1. Apply a light coat of grease to the inside of the other bearing seal (Figure 34).
2. With the grease side toward the bearing, slide the bearing seal onto the axle (Figure 38).
3. Align the non-drive crank arm with the groove on the axle and slide the crank onto the axle.

   The non-drive crank arm should point 180 degrees opposite of the drive-side crank arm.
4. With the plastic installation tool, press the crank onto the axle (Figure 39) as far as it will go.
5. Release the installation tool and spin the cranks 10 to 20 revolutions.
6. Tighten the installation tool until the crankarm touches the seal, then tighten 1/8 turn further.
7. Tighten the pinch bolts of the non-drive crank arm to 88-132 lb•in (10-15 Nm).

   Tighten alternate bolts a little at a time. As one bolt is tightened, the other will seem loose; tighten them gradually so that they always stay about the same tightness. Continue to tighten alternating bolts until you have reached the correct torque with both bolts.



Figure 38. Pressing in the second bearing cover



Figure 39. Pressing the crank arm onto the axle

8. Follow the steps in “Inspecting the bottom bracket.”

To remove the bottom bracket bearings

The 2008 Madone bottom bracket bearing system is designed to be a slip fit. However, after the first installation some bearings might be tight. If the bearings do not easily come out by hand, you may use the following method to remove them.

1. Slide the crank axle into the bearing so that the bearing is over the non-drive side of the axle, about 1 inch (25 mm) from the non-drive end.
2. Gently rock the axle while you pull the axle out.

Inspecting the bottom bracket

Every 3 months check the bottom bracket adjustment.

To check the bottom bracket bearing adjustment

1. Lift the chain from the chainrings.
2. Rotate the crank so that one of the arms is parallel to the seat tube.
3. Put one hand on the crank arm and one hand on the seat tube, and attempt to move the crank arm laterally toward and away from the seat tube.
4. Spin the cranks.

If the crank feels or sounds loose, or if the motion stops abruptly or you hear a grinding noise coming from the bearings, readjust the bearings or take the bike to your Trek dealer.

INSTALLING A CAMPAGNOLO CRANKSET

The 2008 Madone uses a special bearing system that has no parts that thread into the frame. Instead, the bearings are a slip-fit into the frame. However, the Campagnolo system requires you to attach bearing supports to the Madone's bottom bracket shell. This section explains how to do that.

The seal seats might fit into the frame tightly. In this case, you might need to tap the cups with a soft-faced mallet. However, do not use a hammer or bearing press to install the bearings into the frame. If the bearing fit is too tight, make sure the seal seats are clean and free of debris.

Tools and materials required

- Crankset and bottom bracket (bearings come pressed onto the axle halves)
- Plastic crank arm installation tool
- LocTite® 638 retaining compound, TCG 408082
- LocTite® primer 7649, TCG 408083
- 5 mm Allen Wrench
- Rock "N" Roll Super Coat grease
- Bottom bracket parts (listed at the right)

Part description		Campagnolo
Kit		407383
Drive side parts		
	Bearing	Campy part
	Seal seat	281825
	Sleeve	281823
	Wave spring	281827
	Washer	281826
Non-drive side parts		
	Bearing	Campy part
	Seal seat	281825
	Sleeve	281823
	Washer	281826

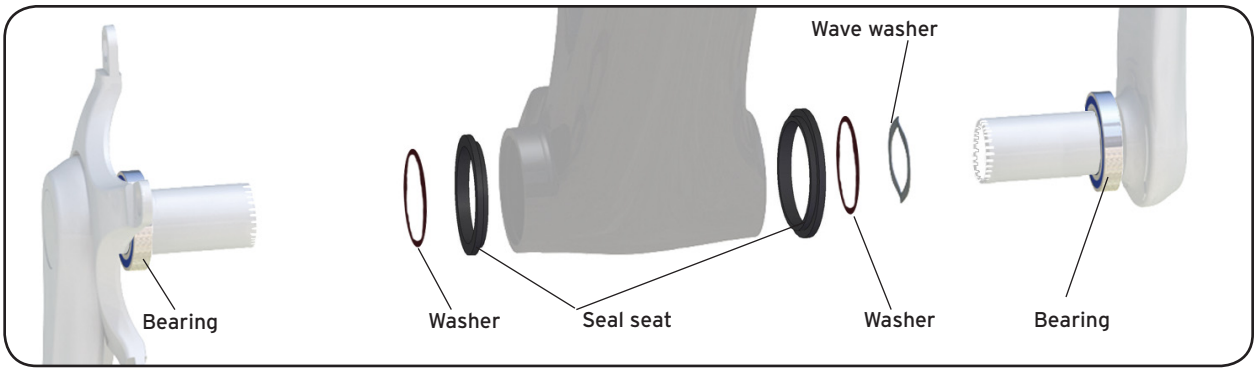

Figure 40. Campagnolo bearing set

To install the bearing shields

Your frame may already have the bearing shields installed in the frame.

1. Apply a light coat of grease to the male axle shield (smaller diameter, Figure 41).
2. Place the male axle shield into the bottom bracket shell from the drive side (Figure 42).
3. Place the female (larger diameter) axle shield into the bottom bracket shell from the non-drive side.
4. With the installation tool, push together the two halves of the axle shield.

When they are inserted in the correct position, there will be an audible click.



Figure 41. Applying grease to the bottom bracket sleeve



Figure 42. Inserting one half of the sleeve into frame

To install the seal seats

1. Clean all surfaces to be bonded (bottom bracket shell, seal seats) with alcohol wipes or similar (Figure 43).
2. Apply a thin film of Loctite Primer to the outer step of the bearings cups and the outer shoulder ot the bottom bracket shell (Figure 44). Allow the primer to evaporate completely.
3. Apply LocTite 638 to the faced of the seal seat that contacts the bottom bracket shell.
4. Press the seal seat into the frame (Figure 45). If needed, tap lightly with a soft-faced mallet.

Let the LocTite cure for at least 24 hours before inserting the bearings.

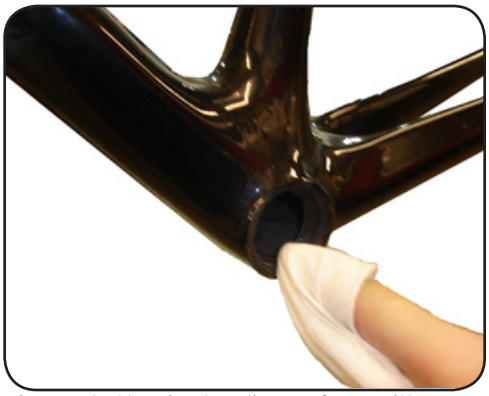

Figure 43. Cleaning bonding surfaces with an alcohol wipe



Figure 44. Applying LocTite primer to the outer step of the bearing cups



Figure 45. Inserting the bearing cups into the bottom bracket shell

To install the non-drive side bearings

1. Insert a washer into the non-drive side seal seat.
2. Apply a liberal coat of grease to the contact surfaces of the bearing (Figure 46) and the non-drive side seal seat (Figure 47).
3. Insert the wave spring into the non-drive side seal seat (Figure 48).
4. Slide the non-drive side axle through the seal seat and bottom bracket shell (Figure 48).

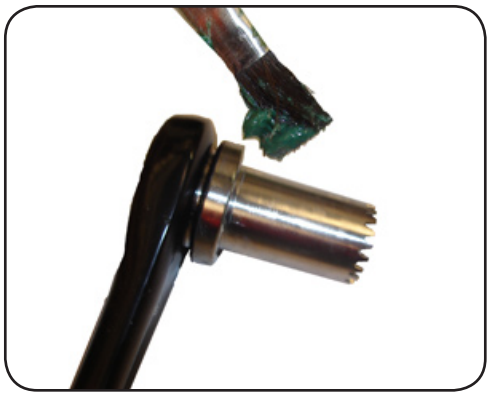

Figure 46. Greasing the bearings

To install the drive side bearings

1. Insert a washer into the drive side seal seat.
2. Apply a liberal coat of grease to the contact surfaces of the bearing (Figure 46) and the drive side seal seat (Figure 47).
3. Slide the drive side axle through the seal seat and bottom bracket shell (Figure 48).
4. Line up the splines of the bottom bracket axle and press the axle together. If necessary, tap the ends together with the heel of your palms.
5. Insert the crank bolt from the drive side and tighten to 380 lb•in (43 N•m).
6. Follow the steps in "Inspecting the bottom bracket."

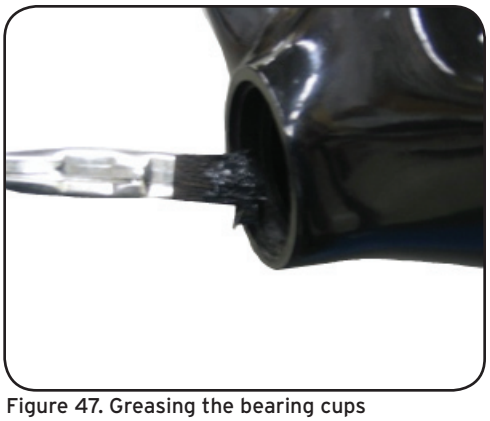

Figure 47. Greasing the bearing cups



Figure 48. Inserting the wave spring (after the washer) on the non-drive side



Figure 48. Inserting the non-drive side axle

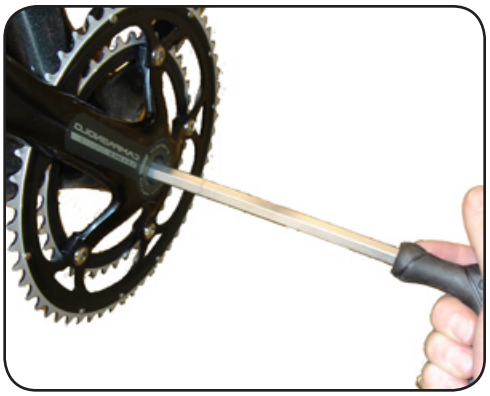

Figure 49. Tightening the axle bolt

To remove the bottom bracket bearings

With the Campagnolo system, the bearings are pressed onto the halves of the bottom bracket axle. To remove the bearings, follow the Campagnolo service instructions.

Inspecting the bottom bracket

Every 3 months check the bottom bracket adjustment.

To check the bottom bracket bearing adjustment

1. Lift the chain from the chainrings.
2. Rotate the crank so that one of the arms is parallel to the seat tube.
3. Put one hand on the crank arm and one hand on the seat tube, and attempt to move the crank arm laterally toward and away from the seat tube.
4. Spin the cranks.

If the crank feels or sounds loose, or if the motion stops abruptly or you hear a grinding noise coming from the bearings, readjust the bearings or take the bike to your Trek dealer.