

# Bicycle Noise Diagnosis

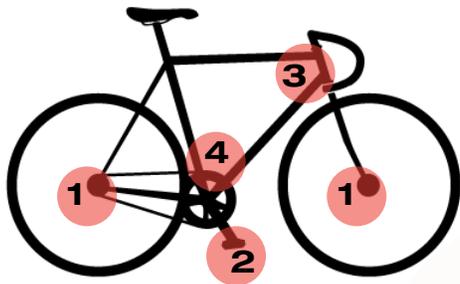
Bottom bracket noise is a common complaint but most times the noise could be coming from another area on the bicycle. Noises that are telegraphing through the frame often sound like it is originating in the bottom bracket. These noises can be very frustrating for the rider and difficult for a mechanic to troubleshoot. Diagnosing and repairing the problem can be time consuming. This guide is intended to aid in streamlining this process.

## Ride the bicycle.

It is important to establish a baseline before putting the bike into the repair stand. Take the bicycle on a brief test ride while the owner of the bicycle is present. As a result, both the mechanic and bicycle owner can understand what may be causing the noise.

Find out from the rider when the bicycle was last serviced and what service was performed. Service history records are a good place to start; it will give you a glimpse of what you may want to address for this process. Worn components can create a host of issues, (e.g., a new chain on worn chainrings can make a grinding noise and felt through the pedals.)

Once you've established that a noise is coming from the bicycle, perform a quick 4-step check before the bicycle enters the stand. Much of the noise diagnosis process involves tightening bolts. Always follow manufacturers guidelines for correct torque specifications or component specific instructions.



# 1

## Quick Release Skewers:

Oftentimes, quick release skewers are improperly tightened. The causes vary from a wheel that is not seated in the dropouts to under-tightened quick releases. Check both front and rear wheels to ensure the wheel is properly seated and that the quick release is tight. Quick release skewers that use an external cam design often make noise due to a worn or dirty bushing.

# 2

## Pedals:

Ensure the pedals are properly tightened. A loose pedal or pedals can make a “ticking” noise at the bottom of the pedal stroke. This ticking noise can also be from a worn pedal or bearing.

# 3

## Headset:

A loose headset will sometimes make a knocking sound when the rider stands up during a climb, in a sprint, or under heavy braking. Check the preload of the headset bearings to ensure they are properly tightened. Check the stem faceplate bolts while performing your headset check.

# 4

## Chainring bolts:

Occasionally, chainring bolts will come loose and create noise especially aluminum bolts. Check all chainring bolts for proper torque.

## Ride the bicycle.

After you have performed the quick 4-step check on the bicycle, take the bike for a second test ride. If the noise is gone, then one of the 4 steps worked. Try to identify what the fix may have been for the bicycle owner.

If the noise is still present, go through the complete checklist.



# Noise Checklist

## Wheels:

- Quick release skewers – properly tighten skewers. External cam skewers commonly become worn over time, and may need to be cleaned or replaced
- Loose Hubs - Check hub end caps, preload adjuster or cones and lock nuts.
- Freehub body - Check drive side end cap or the free-hub bushing.
- Loose Cassette - Tighten the cassette to proper torque. Also, cassettes with a pinned carrier produce creaking. Try lubricating the pins holding the cassette together.
- Spokes - Properly tension each spoke to recommended tension. Spokes that touch can produce a creaking sound. Try cleaning this area and apply a light lube at the intersection.

## Crankset:

- Bearing pre-load - Properly tighten the bearing preload to recommended torque.
- Crankset Spider- Clean the interface between chainring and spider. If the spider bolts to the crank, clean and check the torque of the bolts or locking
- Chainring bolts- grease the chainring bolts, torque to the recommended specification. If you have aluminum chainring bolts, look for signs of cracking. The cracks can be very small and sometimes can be hard to locate. When in doubt, replace the bolts with stainless steel chainring bolts.





# Noise Checklist

## Pedals:

- Remove the pedals, clean the threads on both the pedals and the crankset. Grease the pedal threads and re-install.
- Check the pedal body and bearing on the spindle for play and tighten the pedal body if necessary. This may require pedal replacement or new bearings for the pedal body and spindle.

## Frame:

- Inspect the frame for cracks. Check closely around the dropouts and bottom bracket shell for any smaller hairline cracks.
- Inspect the dropouts on the frame and fork for any paint or clearcoat that may be chipping away, remove any flaking paint or clearcoat where the hub/QR interfaces with the dropout.
- Inspect the seatstays that are bolted or pinned to the dropouts. Tighten these bolts, or clean and lubricate the pins with a dry lubricant.
- Check water bottle cage bolts and bosses. Tighten the cage bolts and check the bosses or rivets on the frame to ensure they are not loose inside the frame. Inspect the bottle cage for any cracks, replace if needed.
- Clean the outside of the Bottom Bracket shell and the cable guide. Reinstall the cable guide and tighten properly.
- If the frame has a replaceable derailleur hanger, check the derailleur hanger for tightness and alignment. Derailleur hangers can fatigue and the metal becomes soft. This fatigues cause movement in the hanger which leads to creaking.
- Check the shift ferrule/shift housing interface. Occasionally the housing becomes worn and will rub the ferrule creating a creaking sound when turning the bars. Replace the shift housing and ferrule.





# Noise Checklist

## Seatpost:

- Inspect the seatpost for any cracks in the post or the head of the seatpost. Clean the post and the head, and make sure the saddle rails are clean and free of debris. On the saddle, lube the contact points where the saddle interfaces with the seat rails.
- Clean the inside of the seattube. Use a fiber-grip or assembly compound inside the seattube.
- Clean and re-grease the bolts on the seatpost frame clamp. Reassemble the clamp and tighten to manufacturer's torque spec.

## Fork, Stem and Handlebars:

- Inspect the fork, stem and handlebars for any cracks or chipping of paint. Clean any debris on these components.
- Remove the stem pinch bolts and faceplate bolts. Clean the bolts and threads in the stem. Grease the bolts and torque properly.
- Remove the top cap bolt and expander wedge. Thoroughly clean the bolt and expanding wedge. Grease the bolt and any part of the expanding wedge that is metal on metal. Do not grease the exterior of the expanding wedge that makes contact with the inside of the steerer tube.





# Noise Checklist

## Headset:

- Check the headset for proper preload and adjust the headset so that it is free of play.
- Check the headset bearings and replace worn or corroded bearings. Clean all points of contact with the bearings.
- Occasionally a bearing cap will rub the top of the headtube on an integrated headset. This rubbing issue will occur under heavy efforts. Place a thin shim between the bearing cap and split collet to prevent rubbing.
- Inspect the headset spacers, clean the spacers and re-install. Replace corroded spacers. For carbon spacers, check for wear and movement and replace as necessary.
- Inspect the split collet for corrosion and wear. Replace if necessary.

## Bolts and Broken Components:

- This is very broad and covers a large range of items on a bicycle. It is very important to check all bolts on the bicycle. For example, a rack that is mounted on a bike with under-torqued bolts will rock against the mounting point on the frame and can create a noise or a loose accessory bracket mounted on the handlebar. Grease all bolts that require it and check all bolts for proper torque.
- It is very important to carefully inspect all components on the bicycle. Look for any signs of fatigue or cracking on all components.

