



Disc Brake Noise

Safety Information

Disc brakes are an important safety-related component of your bicycle. Improper installation, set-up, or use of brakes may result in reduced braking power, loss of control of the bicycle, which ultimately could lead to serious injury or even death. Formula strongly recommends that you avoid installing or repairing brakes yourself and that you have a reputable, qualified bicycle mechanic perform the installation/repair for you. If you decide to work on your own brakes, please remember you do so at your own risk. Never touch a brake rotor immediately following use as it can be hot. Wait until the rotor has cooled before adjusting brakes.

This document addresses some of the misconceptions and questions surrounding disc brake noise and discusses its causes and solutions. It is important to note that some noise in any disc brake system is not abnormal. This document will describe some of the more common issues that can cause disc brake noise and detail their potential solutions.

First off, we strongly recommend that you take your bike to a reputable bike shop for brake installation and service with a copy of this information sheet. It is critical for safety and proper function that your Formula Brakes are installed and maintained correctly. Please reference the installation instructions that came with your brakes for proper setup and maintenance information. Some noise, like contaminated pad howl, is easily diagnosed, other noise may be more complicated and require a systematic approach to solve.

1. Rotor rub

- Sounds Like: a rhythmic squeak or rubbing noise.
 - (Note: Some intermittent rotor noise is normal, especially with larger rotors. Rotors rub while cornering or while the frame is under side load due to flex in the frame.)
- Causes & Solutions:
 - Bent rotor – get your rotor checked for straightness/trueness.
 - Incorrect Wheel Installation – have your mechanic verify that your wheel is seated fully in the dropouts, the QR is tightened to the spec called out by its manufacturer, and that there are no burrs or indentation marks causing the wheel to sit crookedly.
 - Caliper Alignment – have your mechanic check to see if the caliper is properly adjusted. Be sure to have this performed this after ensuring that the wheel is fully seated in the drop-outs and having the mounting tabs faced for alignment.

2. Contamination



- Sounds Like: Honking, loud howl (contaminated pads also cause a loss of braking power in some cases)
- Causes:
 - Grease purging from the hub bearing assembly.
 - Caliper leaking DOT fluid, (Missing bleed port o-ring).
 - Fork purging fluid that drips onto either the caliper or rotor.
 - Touching your rotor with greasy or dirty hands.
 - Overspray from chain lube application.
- Solutions:
 - If you believe your brakes are contaminated, have your rotor cleaned thoroughly with alcohol or brake cleaner spray. Have the brake pads replaced. There are many “tricks” to decontaminating your brake pads, in our experience none of them work.

3. Intermittent noise with organic pads

- Sounds Like: short honk or a short squeal or chirp
- Causes:
 - Intermittent noise can occur as the system changes temperature during use. The organic pad compound can glaze over due to excessive heat; the glaze is worn off during rotor contact once the pads have cooled. As the glaze is worn thru, the brakes may generate some noise.
 - Can be exacerbated by the several factors that affect the resonance frequency of your bike (i.e. fork, wheel/hub, and frame choice)
 - Environmental factors can also play a role (i.e. dust/dirt compound, moisture, and air temperature)
- Solutions:
 - Switch to Formula sintered pads that have can withstand additional temperature.
 - Move to a larger rotor size.

Note: This noise is considered normal for disc brakes using organic pads.

4. Extreme heat conditions with sintered pads

- Sounds Like: loud howl-only under high heat conditions.
- Causes:
 - Under the most extreme heat conditions it is possible to glaze over pads and create a loud howl.
 - Exceeding the heat capabilities of the pads.
- Solutions:
 - Use larger rotors.
 - Pump brakes frequently on descents as you would in a car. This is considered good braking procedure and will prevent overheating.

5. Shuddering/chattering

- Sounds Like: Different sounds, oscillating turkey gobble is most common.



- Causes:
 - Specific groupings of components
 - Specific resonance frequencies
 - Can be exacerbated by bearing looseness and fork/shock bushing play

- Solutions:
 - Have your disc brake tabs faced. A build up of paint on your frame can provide an uneven clamping surface for your disc adaptor.
 - Have your bike technician ensure all fasteners have been torqued to spec using a properly calibrated torque wrench. Torque specs can be found in the tech section of www.formulabrakeusa.com
 - If the bolt on the caliper that attaches the banjo was loosened at some point to redirect the direction of the hose, it must be tightened back to the specified torque (12nm). This bolt also holds the caliper halves together and is a critical part of the caliper functioning correctly.
 - Have your bike technician make sure that your hubs and headset are adjusted properly and that your wheels are properly tensioned. Adjustments in these areas can have profound effects on the resonance frequencies of your bike.
 - Have your pivot and bushing torque checked on your full-suspension bike as per manufacturer's specifications.

6. Still can't get your brakes quiet?

Feel free to send us an e-mail with your name and phone number and we will follow up on your concern.

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