SIB 34 05 20 2020-06-15

BRAKE NOISE - HELPFUL FACTS FOR EFFECTIVE CUSTOMER COMMUNICATION

MODEL

All

SITUATION

Noise while braking

INFORMATION

This bulletin intends to explain some typical brake noise phenomena and provide some recommendations about the usage and maintenance of the braking system.

- The below information can be used during the customer interaction but is not intended as a replacement for a proper diagnosis
- Every customer complaint should be taken seriously and if necessary, addressed using the support of the BMW Technical Support resources

General information about the root cause of brake noises

- The root cause of brake noises can be very different according to the vehicle's mileage, ambient conditions, and driving style
- Noises occurring in specific conditions (e.g., brakes squeak in the morning or in stop and go traffic) usually disappear by themselves when the conditions change. By contrast, if noises are present in every condition, this likely indicates the need for a repair
- A differentiation between "break-in phase" and "normal operation" is needed in order to properly address the customer complaints

"Break-in" phase

- When the brake discs (aka rotors) and pads are new, their contacting surfaces need some mileage in order to adapt to each other and to create a perfect match. This adaptation phase is also called "break-in" phase
- Due to the stick-slip of the microscopic surface roughness of the still new contacting surfaces, some noises (especially squeaking) can arise
- The length of the "break-in" phase is strongly dependent on traffic conditions and driving style (customer profile) and usually lasts for the first 300-400 miles
- During the "break-in" phase the brakes should be applied rather gently (if traffic conditions allow), in order to ease the matching process
- Please note that in some extreme cases the "break-in" phase can last up to 1000 miles
- Many noises occurring in specific conditions during the "break-in" phase usually disappear with increasing mileage
- After installing new brake pads and/or discs, another "break-in" phase is needed

Procedure for customer complaints during the "break-in" phase

- Ask the customer under which driving condition the noise appears and try to reproduce the issue
- Check for proper functionality of the brake system
- Check the brake discs and pads for abnormal wear and/or corrosion (in this phase abnormal wear and corrosion are rather unlikely)

- If the noise is present only in specific conditions and the brake pad and disc characteristics are within the normal service specifications for the car mileage:
    - Inform the customer about the physics of the “break-in” phase (see root causes above)
    - Suggest the customer to wait until the cars reaches a higher mileage for further investigation
- Use your best judgment and your knowledge of the customer profile and driving conditions of your area in order to identify a reasonable threshold for the end of the “break-in” phase
- If the noise is present in every condition and the brake pads and discs characteristics are within the normal service specifications for the car mileage, please contact the Technical Support for further assistance

“Normal operation” phase

- After the “break-in” phase, the contact surfaces of brake discs and pads are matched. The brakes operate in their optimal design window. This phase is called “normal operation” phase
- While the noise should lessen in the “normal operation” phase, a variety of individual factors including driving style, local environment and weather conditions can influence the amount of noise
- Extremely low and high ambient temperatures can change the material properties of the brake pads and system lubricants. Noises related to extremely low or high temperatures usually disappear by themselves at normal temperatures.
- Noise and occasional vibrations may occur with increasing age and wear of the brake discs and pads as well. Vibrations are generally caused by thickness variations of discs and/or pads on vehicles with higher mileage.

Procedure for customer complaints during the “normal operation” phase

- Ask the customer in which conditions the noise appears and try to reproduce the issue
- Check for proper functionality of the brake system
- Check the brake discs and pads for abnormal wear and/or corrosion. For brake discs corrosion categorization and treatment please refer to **SIB 34 10 16**
- If the noise is present only in specific conditions and the brake pads and discs characteristics are within the normal service specifications for the car mileage:
    - Inform the customer about the physics of the “normal operation” phase, (see root causes above)
    - If the noise is present in low temperature conditions, suggest the customer to increase the functioning temperature of the brakes discs and pads by applying the brakes a few times moderately (if traffic conditions allow)
    - If the noise is present after a severe application, ask the customer if the noise disappears after cooling down the brakes. Please emphasize the importance of cooling down the brakes after severe use
    - After severe use, try to avoid applying the brake pedal while waiting at a traffic light. Instead shift the transmission into the “P” position.
- If the noise is present in every condition and the brake pad and disc characteristics are within the normal service specifications for the car mileage, please contact the Technical Support for further assistance

Corrosion

- Driving and parking repeatedly in corrosive environments, such as those with high humidity and road salt content can accelerate the disc corrosion process
- Long vehicle down times can result in strong disc corrosion that cannot be removed simply by brake application

Procedure for customer complaints regarding corrosion (visual or corrosion-related noise noises and /or vibration)

- For brake disc corrosion categorization and treatment, refer to **SIB 34 10 16**
- Inform the customer about the following best practices:

- Moderate to sporty brake application (ABS intervention) can remove light surface corrosion (i.e., after letting the car parked over the weekend). Make sure that this procedure does not endanger other traffic
- Avoid long standing times if possible
- After a car wash, gently press the brake pedal every few miles, ensuring that this action does not endanger other traffic. The heat generated during braking dries brake discs and brake pads and protects them against corrosion. This procedure is called “dry braking”
- The dry braking is strongly recommended if the car has been washed before a long storage time (for example before winter)
- Dry braking is also suggested when roads are wet, salted, or in heavy rain. Always make sure that this action does not endanger other traffic

Other maintenance best practices

When cleaning the wheels:

- Use acid/alkaline-free wheel cleaners to reduce the risk of corrosion
- Avoid an excessive use of tire shine products, as they might contaminate the brake pad surface
- Avoid pointing high-pressure cleaners directly onto brake parts. Using high-pressure cleaners can cause brake components to bind, resulting in brake noises

In addition, BMW North America has published the following customer brochure:

“BMW Brake Systems: High-Performance Stopping Power” (Shown).

Supporting Materials
picture_as_pdf B34 05 20 BMW_Brake_Brochure.pdf

THE EVOLUTION OF STATE-OF-THE-ART.

BMW 507 ▪ 1956–1959
Drum brake stopping distance: approx. 193 ft.*

BMW M1 ▪ 1978–1981
Disc brake stopping distance: approx. 134 ft.*

BMW 8 ▪ 2019
Disc brake stopping distance: approx. 100 ft.*

*From 60 to 0 MPH.

BRK300M

June 2020

BMW BRAKE SYSTEMS:

HIGH PERFORMANCE STOPPING POWER.

BMW USA

bmwusa.com

The Ultimate Driving Machine®

STOPPING STARTS HERE.

- Powerful car requires a powerful brake system
- The BMW brake systems are designed to deliver the ultimate brake performance
- We select materials with an emphasis on performance over a wide range of operating conditions

OPTIMAL USAGE AND MAINTENANCE.

To ensure optimum brake performance, please consider following guidelines:

BREAK-IN PHASE.

- When the brake discs and pads are new, their contacting surfaces need some mileage in order to adapt to each other. This adaptation phase is called “break-in” phase
- The length of the “break-in” phase is strongly dependent on traffic conditions and driving style and usually lasts for the first 300-400 miles
- During the “break-in” phase the brakes should be applied rather gently in order to ease the matching process. Make sure that this procedure does not endanger other traffic
- The break-in process should be repeated after installing new brake pads.

BRAKE NOISE.

- Some brake noise is normal – especially during the break-in phase. While the noise should lessen after the pads are fully bedded onto the discs, a variety of individual factors will influence the amount of noise including driving style, your local environment and weather conditions
- Noises occurring in specific conditions like extremely low and high ambient temperatures usually disappear by themselves when the conditions change. By contrast, if noises are present in every condition, this likely indicates the need of a repair
- Noise and vibration may occur with increasing age and wear of the brakes. These symptoms can indicate that your vehicle may need brake service

BRAKE DISCS SURFACE APPEARANCE.

- Brake rotors and pads are parts subjected to wear and corrosion and have therefore to be maintained or replaced from time to time
- Driving and parking repeatedly in corrosive environments, such as those with high humidity and salt content, can accelerate the natural disc corrosion process
- Moderate to sporty brake application can remove light surface corrosion. Make sure that this procedure does not endanger other traffic
- After car wash, gently press the brake pedal every few miles. The heat generated during braking dries brake discs and brake pads and protects them against corrosion. Make sure that this procedure does not endanger other traffic

OTHER MAINTENANCE BEST PRACTICES.

- Use acid/alkaline-free wheel cleaners to reduce the risk of corrosion
- Avoid an excessive use of tire shine products, as they might contaminate the brake pad surface
- Avoid pointing high-pressure cleaners directly on brake parts. Using high-pressure cleaners can cause brake components to bind, resulting in brake noises

BRAKE DUST.

- The high friction generated between discs and pads while braking wears the brake discs and pads causing some brake dust
- The latest generation of BMW brake pads are optimized to minimize brake dust. Brake dust can be normally cleaned off easily. Wheel cleaning is recommended on a regular bases

SPORT BRAKES.

- Optional sport brakes are available for a variety of BMW vehicles. In addition to enhanced performance, you may experience more brake dust and, in some cases, slight noises when braking