



**Important!**

Please give copies to  
all your Audi Technicians

# Technical Bulletin

**Subject: Brake Pulsation Diagnostic Guidelines**

**Group: 46**

**Number: 05-01**

**Model(s): All**

**All**

**Date: Mar. 2, 2005**

**Supersedes T.B. Group 46 number 04-01 due to change on Brake Pulsation Service Tree**

## Condition

Brake pulsation is caused and / or influenced by the following:

- Rust build-up and / or brake pad marks on discs.
- Brake disc thickness variation.
- Thermal distortion of brake discs.
- Worn brake pads and discs.
- Faulty suspension components (ball joints, tie rods, bushing, etc.).
- Imbalance of wheels and tires.

## Service

Please observe the following:

- Verify all complaints with a test drive.
- Use “Brake Pulsation Service Tree” (attached) during diagnosis. Fill it out as you work on the vehicle and attach a copy to the repair order.
- Always use the attached “Brake Disc/Pad Measurement Form (announced in Warranty Circular AWA 05-06) to document brake disc and pad thickness. Attach a completed copy to the repair order.

## Rust build-up and/or brake pad marks on brake discs

This may be due to moisture exposure or prolonged periods of the vehicle not being driven.

This may affect vehicles at PDI or those already delivered to customers.



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**Note:**

*Every effort must be made to avoid replacing brake discs if they can be cleaned off, by performing ABS stops as described in the "Diagnose" portion of Brake Pulsation Service Tree.*

*Rust build-up due to incomplete Inventory Maintenance Procedures as outlined in the Inventory Maintenance Checklist is not covered under Warranty.*

**Thermal distortion of brake discs**

Brake discs, which have blue burn marks, are evidence of extremely high thermal loading of brake system.

This results in permanent damage to brake discs and pads.

If vehicle is driven aggressively:

- ◆ Brakes must be cooled down by driving around with minimal braking before parking vehicle for extended periods of time.

**Note:**

*This type of damage cannot be repaired under warranty.*

**Worn brake pads and discs**

As brake discs and pads wear, their dampening effects are reduced.

**Faulty suspension components and / or imbalance of wheels and tires**

Inspect condition of these components. All values must be within factory specifications. Make sure only OEM components are on vehicle.

**Warranty**

For Warranty information and coverage, refer to Warranty Circular AWA-05-03 dated Jan. 21, 2005.



# Brake Pulsation Service Tree

Please check the gray boxes!

VIN \_\_\_\_\_

Odometer \_\_\_\_\_ / \_\_\_\_\_  
BEFORE / AFTER TEST DRIVE

Dealer # \_\_\_\_\_

Repair Order # \_\_\_\_\_

Technician \_\_\_\_\_

Date \_\_\_\_\_

Has the vehicle been in previously for brake repair / replacement? YES  NO

**VERIFY THE COMPLAINT**  
Test drive: Is the complaint reproducible?

yes  No repairs necessary

**DIAGNOSE**

- Using the mechanical parking brake (**not applicable to vehicles with Electric Parking Brake**) – slowly pull the parking brake handle to decelerate the vehicle slightly. If a pulsation is observed => likely caused by the rear brakes. If a pulsation is not observed => likely caused by the front brakes.

front  rear

**Result:**

- In either case, perform the braking sequence as follows:

With careful consideration of the traffic situation, perform 2-3 ABS-stops (eg. from speeds above 50 MPH). Between each stop, please allow the brake components to cool (drive vehicle for more than 1 minute at speeds greater than 50 MPH)

**Is the brake pulsation reduced?**

If required, perform additional ABS-stops allowing cooling time between each stop (max. 5).

**Is the brake pulsation gone?**

yes  no

**TIRE / WHEEL CHECK**

- Are the tire pressures within manufacturer's spec?  
 Yes  No
- Inspect the condition of tires and wheels. Mark the following boxes that apply...
  - Visual / physical damage
  - Dirt sediments (also check inner wheel)
  - Missing wheel weights (imbalanced wheel)
  - High wheel runout

⚡ Perform necessary repairs before proceeding. If any repairs are made, repeat step "VERIFY THE COMPLAINT" and diagnose accordingly.

**BRAKE COMPONENT CHECK**

**At the Problem Axle**

- Inspect the condition of brake pads and discs. Mark the following boxes that apply...

Pads

Worn to min.  Cracked / Broken  
 Uneven wear  Glazed

Discs (Braking Surface)

Worn to min.  Corrosion  
 Pad-marks  Hot-spots

- Measure the thickness of the brake components and record the information in the "Brake Disc/Pad Measurement Form". Remember to attach this form to the RO.

**BRAKE REPAIR**

Based on the diagnosis results, make necessary repairs. Mark the boxes that apply...

Changed brake pads  
 Changed brake discs  
 Changed tire/s  
 Changed wheel/s  
 Balanced tire/s & wheel/s

Other: \_\_\_\_\_

⚡ Record all thickness information in the "Brake Disc/Pad Measurement Form"

**VERIFY THE REPAIR**  
Test drive: Repeat DIAGNOSE step.  
Is the brake pulsation gone?

yes  no

Consider other chassis components (control-arms, mounts, etc.)

Vehicle is repaired

**\*\*USE THIS FLOWCHART AS A GUIDANCE FOR DIAGNOSIS. PLEASE ABIDE BY ALL TRAFFIC LAWS AND BE MINDFUL OF THE VEHICLES AROUND YOU. PERFORM ALL OPERATIONS AT YOUR OWN RISK.\*\***


**BRAKE DISC / PAD**  
**MEASUREMENT FORM**

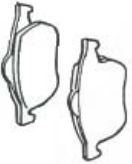



VIN \_\_\_\_\_ Date \_\_\_\_\_


Odometer \_\_\_\_\_ Complaint \_\_\_\_\_

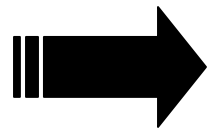
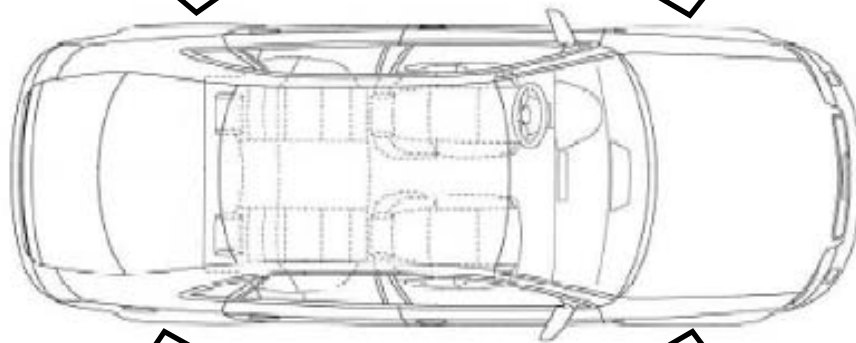
Repair Order # \_\_\_\_\_ Dealer # \_\_\_\_\_


 **LR DISC THICKNESS** \_\_\_\_\_ mm


 **LR PAD THICKNESS (W/O BACK PLATE)**  
\_\_\_\_\_ mm (INNER)  
\_\_\_\_\_ mm (OUTER)


 **LF DISC THICKNESS** \_\_\_\_\_ mm

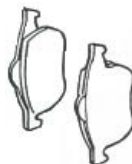
 **LF PAD THICKNESS (W/O BACK PLATE)**  
\_\_\_\_\_ mm (INNER)  
\_\_\_\_\_ mm (OUTER)



 **RR DISC THICKNESS** \_\_\_\_\_ mm

 **RR PAD THICKNESS (W/O BACK PLATE)**  
\_\_\_\_\_ mm (INNER)  
\_\_\_\_\_ mm (OUTER)

 **RF DISC THICKNESS** \_\_\_\_\_ mm

 **RF PAD THICKNESS (W/O BACK PLATE)**  
\_\_\_\_\_ mm (INNER)  
\_\_\_\_\_ mm (OUTER)