# 46-19-02 - Brake Rotor, Vibration / Pulsation (U.S. Only)

**Release date:** 02/03/2022

## Condition

| Applicable Vehicles | | | | | |
|---|---|---|---|---|---|
| **Model(s)** | **Year** | **Eng. Code** | **Trans. Code** | **VIN Range From** | **VIN Range To** |
| All (except Routan) | 2014-2022 | All | All | All | All |

| Revision Table | | | |
|---|---|---|---|
| **Instance Number** | **Published Date** | **Version Number** | **Reason For Update** |
| 2015173/30 | 02/3/22 | 46-19-02 | To include model year 2022 applicability. |
| 2015173/28 | 6/4/20 | 46-19-02 | To include model year 2021 applicability. |
| 2015173/1 | 6/11/07 | V46-07-01 | Original publication. |

When applying the brakes at highway speeds the following symptoms may occur:

- Brake Pedal pulsation
- Vibration felt in Vehicle Body
- Steering Wheel shakes

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## Technical Background

For brake vibration or pulsation concerns, brake rotor machining is allowed between 6 and 12 months or 6,000 and 12,000 miles (whichever comes first) from the warranty in service date.

## Production Solution

No production change required.

## Service

**Note:**

All policies and procedures outlined in this technical bulletin also apply to sublet brake rotor machining. Improperly machined brake rotors may cause brake pulsation/vibration after several months in service. The servicing facility will be responsible for these failures.

**Procedure:**

- Remove Wheels and separate Brake Calipers from Carrier as outlined in Repair Manual Group 44 in Elsa.

**Brake Rotor Inspection**

A detailed brake rotor inspection is needed to determine if the brake rotor should be machined or replaced.

Inspect the brake rotor friction surfaces on both sides of the brake rotor for:

- Severe discoloration (bluing)
- High heat surface damage (raised hard spots)
- Visible cracks

**Note:**

Brake rotors showing any of the above described conditions are **NOT** serviceable. Parts must be replaced in accordance with the Volkswagen Warranty Policy and Procedure Manual.

Please see the example pictures below of damage NOT covered under warranty.

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Figure 1: Brake pad imprint.

Figure 2: Brake pad imprint.


Figure 3: Brake pad imprint.

Figure 4: Brake pad imprint.

Figure 5: Corrosion.

Figure 6: Corrosion, brake pad stuck to brake rotor.

Figure 7: Corrosion, brake pad stuck to brake rotor.

Figure 8: Corrosion, brake pad stuck to brake rotor.

Figure 9: Brake pad stuck to brake rotor

Figure 10: Brake pad stuck to brake rotor.

Figure 11: Brake pad imprint.

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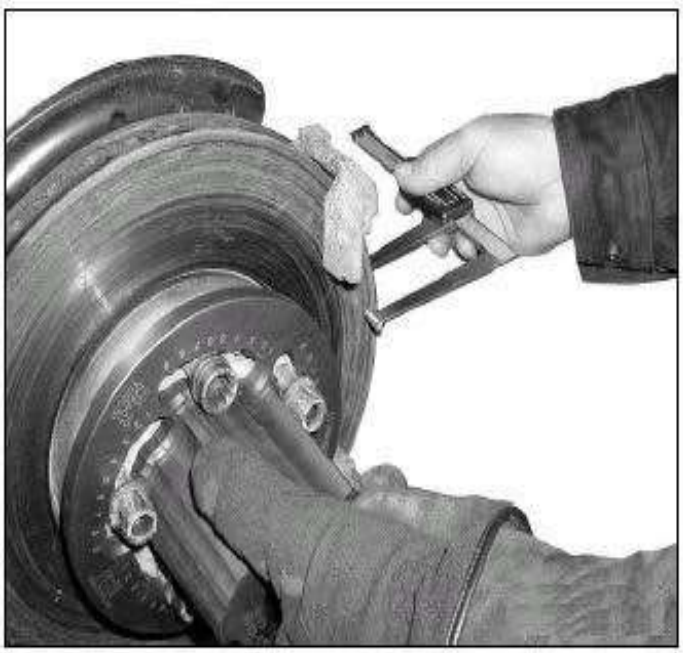
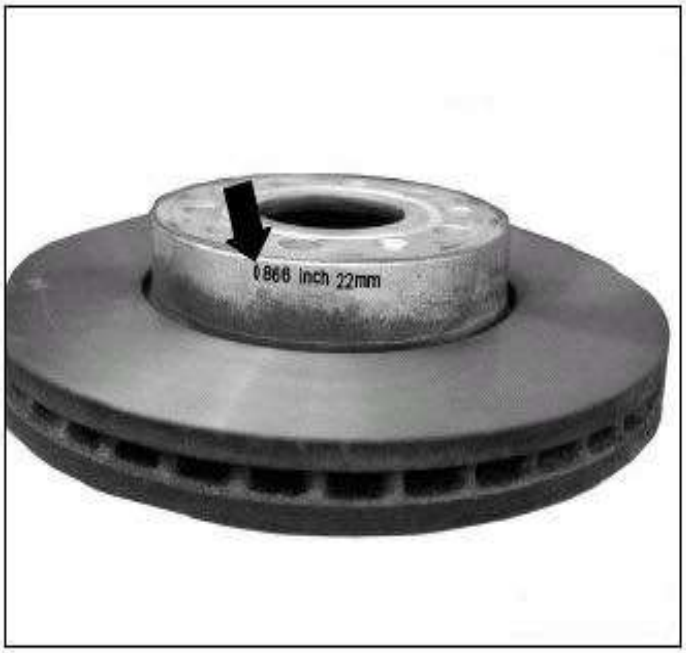


### Disc Thickness Measuring

Technician must record the beginning thickness measurements on the back of the repair order.

Each brake rotor has the minimum allowed thickness cast, stamped or laser-etched into the rotor hub.

- Measure the brake rotor thickness in 4 locations using a digital or mechanical caliper/micrometer. Measurements **MUST** be taken at the same distance from the brake rotor outer circumference to ensure consistency.




**Note:**

The brake rotor thickness measurement must exceed the minimum specification **after** the machining process is completed in order to be re-used. If the brake rotor thickness measurement does not meet this requirement after machining, replace the brake rotor.

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## Brake Rotor Machining

**Note:**

**All Brake Rotors must be machined.**

Recommended on-car brake lathe is the PRO-CUT International ™ PFM 9.2 (or equivalent – can be locally sourced). This design of brake lathe will produce a surface quality which will provide proper brake performance without a brake pad to brake rotor break-in period.

To ensure that a high quality brake rotor finish is produced, brake lathe cutting tools must be maintained as directed by the lathe or tool manufacturer.

- Follow the brake lathe manufacturer's instructions for set-up and machining.
- Wash the brake rotor with a soap and water solution upon completion of resurfacing to remove all machining particles.

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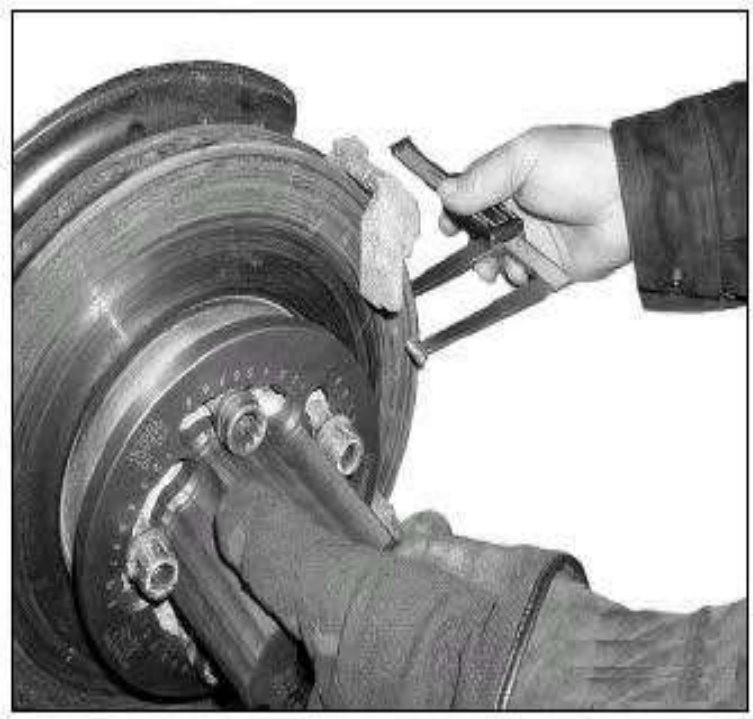

Technician must record the final thickness measurements after machining on the back of the repair order.

- Re-measure brake rotor thickness in 4 locations using a digital or mechanical caliper/micrometer. If recorded brake rotor measurement is less than the minimum thickness after machining, the brake rotor **MUST** be replaced.

**Note:**

Always replace brake rotors in pairs (front axle or rear axle). Do not replace all 4 brake rotors unless it is required.

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- Measure brake rotor lateral run out using a caliper and dial gauge set.
- Run out must not exceed 0.1mm after machining.
- If brake rotor exceed the 0.1mm specification after machining replace the applicable brake rotors.

## Warranty

**To determine if this procedure is covered under Warranty, always refer to the Warranty Policies and Procedures Manual [1)]**

| Model(s) | Year(s) | Eng. Code(s) | Trans. Code(s) | VIN Range From | VIN Range To |
|---|---|---|---|---|---|
| All (except Routan) | 2014-2022 | All | All | All | All |

| | |
|---|---|
| **Claim Type:** | **Use applicable Claim Type [1)]** |

**SAGA Coding**

| Service Number | Damage Code | HST | Damage Location |
|---|---|---|---|
| 4650 | 0013 | -- | 001 – Left<br>002 – Right |
| 4653 | 0013 | -- | 001 – Left<br>002 – Right |

| | | |
|---|---|---|
| **Parts Manufacturer** | Passat, CC, Tiguan, Eos, Touareg, Golf R, e-Golf and MY14 Golf ,Atlas, Atlas Cross Sport, Arteon, ID.4 | WWO [2)] |
| | Jetta, Beetle, Beetle Cabrio, MY14 Jetta SportWagen and MY15-20 Golf, Golf SportWagen, Alltrack, Tiguan LWB, Taos | 3ME [2)] |
| **On Car Lathe is available (All vehicles)** | | |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Wheels | | 44052004 = See Elsa for latest time units |
| **Labor Operation 3):** Front and Rear Rotor Resurfacing – On Vehicle | | 46504699 = 120 TU<br>And<br>46534699 = 120 TU |
| **Or** | | |
| **If On Car Lathe is unavailable:** | | |
| **CC/Tiguan/Eos/Arteon** | | |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Wheels | | 44052004 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Carriers | | 46142050 = See Elsa for latest time units<br>And<br>46152050 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Rotors | | 46502050 = See Elsa for latest time units<br>And<br>46532050 = See Elsa for latest time units |
| **Labor Operation 3):** Front and Rear Rotor Machining | | 46504699 = 160 TU<br>And<br>46534699 = 160 TU |
| **OR** | | |

| | |
|---|---|
| **Tiguan LWB** | |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Wheels | 44052004 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Carriers | 46142050 = See Elsa for latest time units<br>And<br>46152050 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Rotors | 46502050 = See Elsa for latest time units<br>And<br>46532050 = See Elsa for latest time units |
| **Labor Operation 3):** Front and Rear Rotor Machining | 46504699 = 160 TU<br>And<br>46534699 = 160 TU |
| **OR** | |
| **Atlas/Atlas Cross Sport** | |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Wheels | 44052004 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Carriers | 46142050 = See Elsa for latest time units<br>And<br>46152050 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Rotors | 46502050 = See Elsa for latest time units<br>And<br>46532050 = See Elsa for latest time units |
| **Labor Operation 3):** Front and Rear Rotors Machining | 46504699 = 160 TU<br>And<br>46534699 = 160 TU |
| **Or** | |
| **Passat** | |

| | |
|---|---|
| **Labor Operation 3):** Remove and Reinstall Front and Rear Wheels | 44052004 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Rotors | 46502050 = See Elsa for latest time units<br>And<br>46532050 = See Elsa for latest time units |
| **Labor Operation 3):** Front and Rear Rotors Machining | 46504699 = 160 TU<br>And<br>46534699 = 160 TU |
| **Or** | |
| **Jetta, Beetle, Beetle Cabrio and MY14 Jetta SportWagen** | |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Wheels | 44052004 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Brake Carriers | 46142050 = See Elsa for latest time units<br>And<br>46152050 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Rotors | 46502050 = See Elsa for latest time units<br>And<br>46532050 = See Elsa for latest time units |
| **Labor Operation 3):** Front and Rear Rotors Machining | 46504699 = 160 TU<br>And<br>46534699 = 160 TU |
| **Or** | |
| **Touareg** | |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Wheels | 44052004 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Rotors | 46502050 = See Elsa for latest time units<br>And<br>46532050 = See Elsa for latest time units |

| | |
|---|---|
| **Labor Operation 3):** Front and Rear Rotors Machining | 46504699 = 160 TU<br>And<br>46534699 = 160 TU |
| **Or** | |
| **MY15-22 Golf SportWagen, Alltrack** | |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Wheels | 44052004 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front Carrier | 46142050 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Rotors | 46502050 = See Elsa for latest time units<br>And<br>46532050 = See Elsa for latest time units (includes carrier) |
| **Labor Operation 3):** Front and Rear Rotors Machining | 46504699 = 160 TU<br>And<br>46534699 = 160 TU |
| **Or** | |
| **MY14 Golf** | |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Wheels | 44052004 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Carrier | 46142050 = See Elsa for latest time units<br>And<br>46152050 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Rotors | 46502050 = See Elsa for latest time units<br>And<br>46532050 = See Elsa for latest time units |
| **Labor Operation 3):** Front and Rear Rotors Machining | 46504699 = 160 TU<br>And |

| | |
|---|---|
| | 46534699 = 160 TU |
| **Or** | |
| **MY15-22 Golf/GTI/Golf R/eGolf** | |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Wheels | 44052004 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front Carrier | 46142050 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Rotors | 46502050 = See Elsa for latest time units<br>And<br>46532050 = See Elsa for latest time units (includes carrier) |
| **Labor Operation 3):** Front and Rear Rotors Machining | 46504699 = 160 TU<br>And<br>46534699 = 160 TU |
| **Or** | |
| **ID.4** | |
| **Front Brake Service Only** | |
| **Labor Operation 3):** Remove and Reinstall Front Wheels | 44052000 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front Brake Carriers | 46142050 = See Elsa for latest time units |
| **Labor Operation 3):** Remove and Reinstall Front Rotors | 46502050 = See Elsa for latest time units |
| **Labor Operation 3):** Machining Front Rotors | 46504699 = 160 TU |
| **Taos** | |
| **Front Brake Service Only** | |

| | | |
|---|---|---|
| **Labor Operation 3):** Remove and Reinstall Front Rotors | 46502000 = See Elsa for latest time units | |
| **Labor Operation 3):** Machining Front Rotors | 46504699 = 160 TU | |
| **Rear Brake Service Only** | | |
| **Labor Operation 3):** Remove and Reinstall Rear Rotors | 46532000 = See Elsa for latest time units | |
| **Labor Operation 3):** Machining Rear Rotors | 46534699 = 160 TU | |
| **OR** | | |
| **Front and Rear Brake Service** | | |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Wheels | 44052004 = See Elsa for latest time units | |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Carriers | 46142050 = See Elsa for latest time units<br>and<br>46152050 = See Elsa for latest time units | |
| **Labor Operation 3):** Remove and Reinstall Front and Rear Rotors | 46502050 = See Elsa for latest time units<br>and<br>46532050 = See Elsa for latest time units | |
| **Labor Operation 3):**Front and Rear Rotors Machining | 46504699 = 160 TU<br>and<br>46534699 = 160 TU | |
| **Or** | | |
| **If sublet machining is used:** | | |
| **Outside Labor:** Sublet Machining | Sublet Machining not to exceed Elsa SRT | |
| **Causal Part:** | Select Labor | |
| **Diagnostic Time [4)]** | | |
| **GFF Time expenditure** | 01500000 = 00 TU max. | NO |

| | | |
|---|---|---|
| **Road Test** | 01210002 = 10 TU<br>01210004 = 10 TU | YES |
| **Technical Diagnosis** | 01320000 = 00 TU max. | NO |
| **Claim Comment:** Input “As per Technical Bulletin 2015173” in comment section of Warranty Claim. | | |
| [1] Vehicle may be outside any Warranty in which case this Technical Bulletin is informational only.<br>[2] Code per warranty vendor code policy.<br>[3] Labor Time Units (TUs) are subject to change with Elsa updates.<br>[4] Documentation required per Warranty Policy Procedures Manual. | | |

## Required Parts and Tools

No Special Parts required.

Suggested tools and tool part numbers are current at the time of publication and listed below.
(*Equivalent tools can be used or locally sourced as needed)

| **Suggested Brake Lathe** | | |
|---|---|---|
| **Description** | **Part No:** | **Quantity** |
| PFM 9.2 | PCI92BASEIBT | 1 |
| **Suggested Brake Measuring Tools** | | |
| Caliper and Dial Gauge Set | VAS6668 | 1 |

## Additional Information

All part and service references provided in this Technical Bulletin are subject to change and/or removal. Always check with your Parts Dept. and Repair Manuals for the latest information.