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## Condition

<b>Applicable Vehicles</b>					
<b>Model(s)</b>	<b>Year</b>	<b>Eng. Code</b>	<b>Trans. Code</b>	<b>VIN Range From</b>	<b>VIN Range To</b>
All (except Routan)	2014-2020	All	All	All	All

<b>Revision Table</b>			
<b>Instance Number</b>	<b>Published Date</b>	<b>Version Number</b>	<b>Reason For Update</b>
2015173/27	10/17/ 2019	46-19-02	To include model year 2020 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

## Technical Background

For brake vibration or pulsation concerns, Brake Disc 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.

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## Service

**! Note:**

All policies and procedures outlined in this technical bulletin also apply to sublet Brake Disc machining. Improperly machined Brake Discs 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 Disc Inspection

A detailed Brake Disc inspection is needed to determine if the Brake Disc should be machined or replaced.

- Inspect the Brake Disc friction surfaces on both sides of the Brake Disc for:
  - Severe discoloration (bluing)
  - High heat surface damage (raised hard spots)
  - Visible cracks

**! Note:**

Brake Discs 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.



Figure 1: Brake pad imprint.



Figure 2: Brake pad imprint.


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Figure 3: Brake pad imprint.



Figure 4: Brake pad imprint.

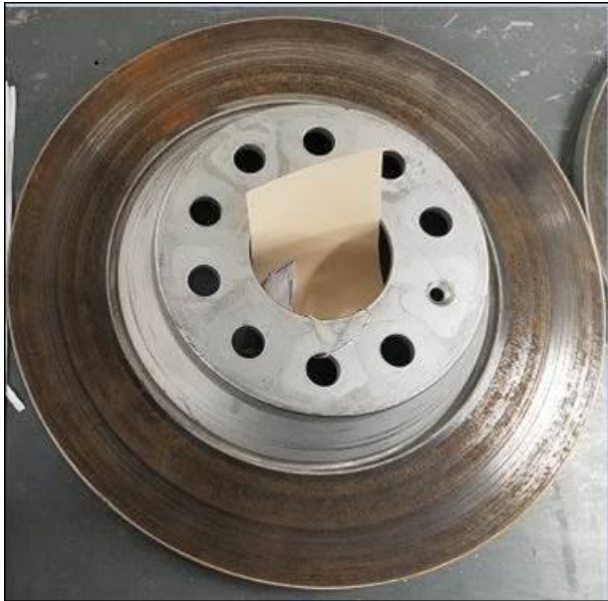


Figure 5: Corrosion.



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


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



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



Figure 9: Brake Pad stuck to Brake Disc



Figure 10: Brake Pad stuck to Brake Disc.


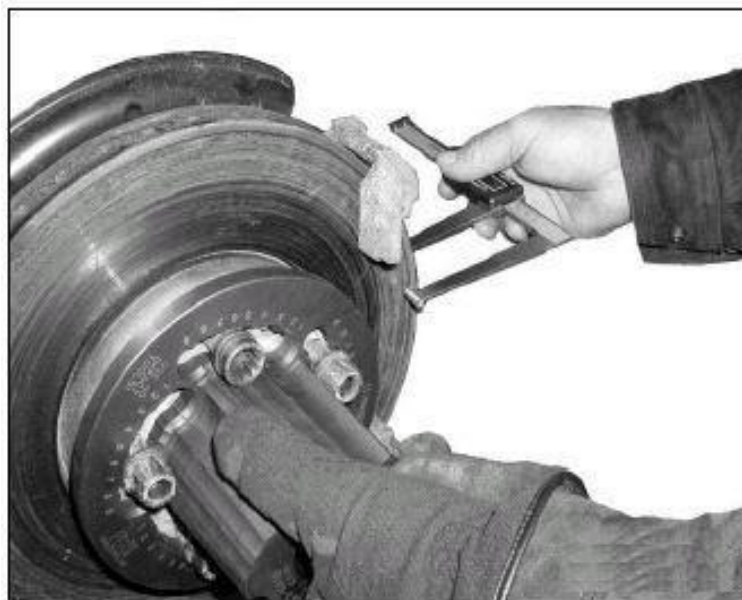
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Figure 11: Brake pad imprint.




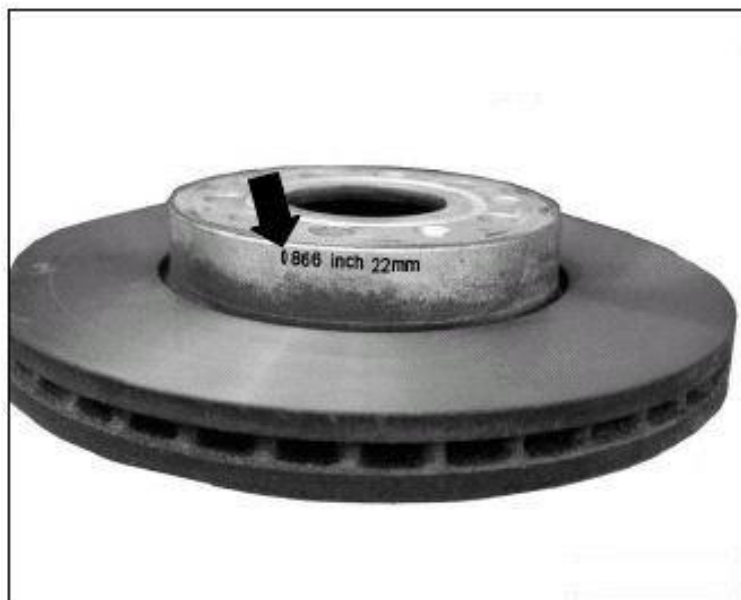
### Disc Thickness Measuring

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

Each Brake Disc has the minimum allowed thickness cast, stamped or laser-etched into the disc hub.

- Measure the Brake Disc thickness in 4 locations using either the Pro Cut International™ Disc thickness measuring tool Part No. 50-902 or the Hunter Engineering Company disc thickness measuring tool Part No. 25-99-2. Measurements **MUST** be taken at the same distance from the Brake Disc outer circumference to ensure consistency.

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**!** **Note:**

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

### Brake Disc Machining

**!** **Note:**

**All Brake Discs must be machined.**

Recommended on-car brake lathes are either the PRO-CUT International <sup>TM</sup> PFM 9.0, or the Hunter Engineering Company model OCL 400. This design of brake lathe will produce a surface quality which will provide proper brake performance without a brake pad to brake disc break-in period.

To ensure that a high quality Brake Disc 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 Disc with a soap and water solution upon completion of resurfacing to remove all machining particles.




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

- Re-measure Brake Disc thickness in 4 locations using either the Pro Cut International™ disc thickness measuring tool Part No. 50-902 or the Hunter Engineering Company disc thickness measuring tool Part No. 25-99-2. If recorded Brake Disc measurement is less than the minimum thickness, the Brake Disc **MUST** be replaced.

 **Note:**


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

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- Measure Brake Disc lateral run out using Pro Cut Disc Lateral run out measuring kit Part No. 50-700FC or the Hunter Disc Lateral run out measuring kit Part No. 25-128-2 with a dial indicator.
- Run out must not exceed 0.1mm after machining.
- If Brake Disc exceed the 0.1mm specification after machining replace the applicable Brake Discs.




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## Warranty

To determine if this procedure is covered under Warranty, always refer to the Warranty Policies and Procedures Manual <sup>1)</sup>

Model(s)	Year(s)	Eng. Code(s)	Trans. Code(s)	VIN Range From	VIN Range To
All (except Routan)	2014-2020	All	All	All	All
<b>Claim Type:</b>		<b>Use applicable Claim Type <sup>1)</sup></b>			
<b>SAGA Coding</b>					
Service Number	Damage Code	HST	Damage Location		
4650	0013	--	001 – Left 002 – Right		
4653	0013	--	001 – Left 002 – Right		
Parts Manufacturer	Passat/CC/Tiguan/Eos/ Touareg/Golf R/e Golf and MY14 Golf/Atlas/Arteon		WVO <sup>2)</sup>		
	Jetta/Beetle/Beetle Cabrio, MY14 Jetta SportWagen and MY15-20 Golf/Golf SportWagen/Alltrack/Tiguan LWB		3ME <sup>2)</sup>		
<b>On Car Lathe is available (All vehicles)</b>					
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Wheels			44052004 = See Elsa for latest time units		
<b>Labor Operation 3):</b> Front and Rear Disc Resurfacing – On Vehicle			46504699 = 120 TU And 46534699 = 120 TU		

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<b>Or</b>	
<b>If On Car Lathe is unavailable:</b>	
<b>CC/Tiguan/Eos/Arteon</b>	
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Wheels	44052004 = See Elsa for latest time units
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Carriers	46142050 = See Elsa for latest time units And 46152050 = See Elsa for latest time units
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Discs	46502050 = See Elsa for latest time units And 46532050 = See Elsa for latest time units
<b>Labor Operation 3):</b> Front and Rear Discs Machining	46504699 = 160 TU And 46534699 = 160 TU
<b>OR</b>	
<b>Tiguan LWB</b>	
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Wheels	44052004 = See Elsa for latest time units
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Carriers	46142050 = See Elsa for latest time units And 46152050 = See Elsa for latest time units
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Discs	46502050 = See Elsa for latest time units And 46532050 = See Elsa for latest time units
<b>Labor Operation 3):</b> Front and Rear Discs Machining	46504699 = 160 TU And 46534699 = 160 TU
<b>OR</b>	

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<b>Atlas</b>	
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Wheels	44052004 = See Elsa for latest time units
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Carriers	46142050 = See Elsa for latest time units And 46152050 = See Elsa for latest time units
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Discs	46502050 = See Elsa for latest time units And 46532050 = See Elsa for latest time units
<b>Labor Operation 3):</b> Front and Rear Discs Machining	46504699 = 160 TU And 46534699 = 160 TU
<b>Or</b>	
<b>Passat</b>	
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Wheels	44052004 = See Elsa for latest time units
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Discs	46502050 = See Elsa for latest time units And 46532050 = See Elsa for latest time units
<b>Labor Operation 3):</b> Front and Rear Discs Machining	46504699 = 160 TU And 46534699 = 160 TU
<b>Or</b>	
<b>Jetta/Beetle/Beetle Carbio and MY14 Jetta SportWagen</b>	
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Wheels	44052004 = See Elsa for latest time units
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Brake Carriers	46142050 = See Elsa for latest time units And 46152050 = See Elsa for latest time units

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<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Discs	46502050 = See Elsa for latest time units And 46532050 = See Elsa for latest time units
<b>Labor Operation 3):</b> Front and Rear Discs Machining	46504699 = 160 TU And 46534699 = 160 TU
<b>Or</b>	
<b>Touareg</b>	
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Wheels	44052004 = See Elsa for latest time units
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Discs	46502050 = See Elsa for latest time units And 46532050 = See Elsa for latest time units
<b>Labor Operation 3):</b> Front and Rear Discs Machining	46504699 = 160 TU And 46534699 = 160 TU
<b>Or</b>	
<b>MY15-20 Golf SportWagen, Alltrack</b>	
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Wheels	44052004 = See Elsa for latest time units
<b>Labor Operation 3):</b> Remove and Reinstall Front Carrier	46142050 = See Elsa for latest time units
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Discs	46502050 = See Elsa for latest time units And 46532050 = See Elsa for latest time units (includes carrier)
<b>Labor Operation 3):</b> Front and Rear Discs Machining	46504699 = 160 TU And 46534699 = 160 TU

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<b>Or</b>	
<b>MY14 Golf</b>	
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Wheels	44052004 = See Elsa for latest time units
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Carrier	46142050 = See Elsa for latest time units And 46152050 = See Elsa for latest time units
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Discs	46502050 = See Elsa for latest time units And 46532050 = See Elsa for latest time units
<b>Labor Operation 3):</b> Front and Rear Discs Machining	46504699 = 160 TU And 46534699 = 160 TU
<b>Or</b>	
<b>MY15-20 Golf/Golf R/eGolf</b>	
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Wheels	44052004 = See Elsa for latest time units
<b>Labor Operation 3):</b> Remove and Reinstall Front Carrier	46142050 = See Elsa for latest time units
<b>Labor Operation 3):</b> Remove and Reinstall Front and Rear Discs	46502050 = See Elsa for latest time units And 46532050 = See Elsa for latest time units (includes carrier)
<b>Labor Operation 3):</b> Front and Rear Discs Machining	46504699 = 160 TU And 46534699 = 160 TU
<b>Outside Labor:</b> Sublet Machining	Sublet Machining not to exceed Elsa SRT
<b>Causal Part:</b>	Select Labor
<b>Diagnostic Time <sup>4)</sup></b>	

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<b>GFF Time expenditure</b>	01500000 = 00 TU max.	NO
<b>Road Test</b>	01210002 = 10 TU 01210004 = 10 TU	YES
<b>Technical Diagnosis</b>	01320000 = 00 TU max.	NO
<b>Claim Comment:</b> Input "As per Technical Bulletin 2015173" in comment section of Warranty Claim.		
<p>1) Vehicle may be outside any Warranty in which case this Technical Bulletin is informational only.</p> <p>2) Code per warranty vendor code policy.</p> <p>3) Labor Time Units (TUs) are subject to change with Elsa updates.</p> <p>4) Documentation required per Warranty Policy Procedures Manual.</p>		

## Required Parts and Tools

No Special Parts required.

Description	Part No:	Quantity
Pro Cut <sup>TM</sup> Disc Thickness Measuring Tool	50-902	1
Hunter Disc Thickness Measuring Tool	25-99-2	1
Pro Cut Disc Lateral Run out Measuring Tool	50-700FC	1
Hunter Disc Lateral Run out Measuring Tool	25-128-2	1
PRO-CUT International <sup>TM</sup> PFM 9.0	PCIPFM90VW	1
Hunter Engineering Company Model OCL 400	HUNOCL400VW	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.