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2013 Volkswagen Touareg (7P5) V6-3.6L (CGRA)



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November 5, 2015

2038140 *Supersedes Technical Bulletin V481501 dated January 13, 2015 to include model year 2016 applicability.*

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Model(s)	Year	Eng. Code	Trans. Code	VIN Range From	VIN Range To
Touareg	2011-2016	All	All	All	All

Vehicle Information

Condition

Vibrations in Steering Wheel

The customer may state:

1. Shimmy/rotational vibration in the steering wheel at constant speed.
Shimmy/rotational vibrations in the steering wheel at various speeds.
2. Shimmy/rotational vibrations in the steering wheel when braking.
3. Vibration felt in the entire vehicle:

The vibration can be felt in the seat surfaces, in the underbody, in the foot well, or in the pedal.

The vibration is more prevalent when braking/accelerating.

Technical Background

Flat spots:

After a short stationary period (sometimes as little as a few hours) flat spots can develop after the warm tire has cooled down. The effect the flat spotted tire has on the vehicles performance depends on the type, dimension, make, and pressure of the tire.

Flat spots alter the radial force variation and must be driven out before balancing the wheel.

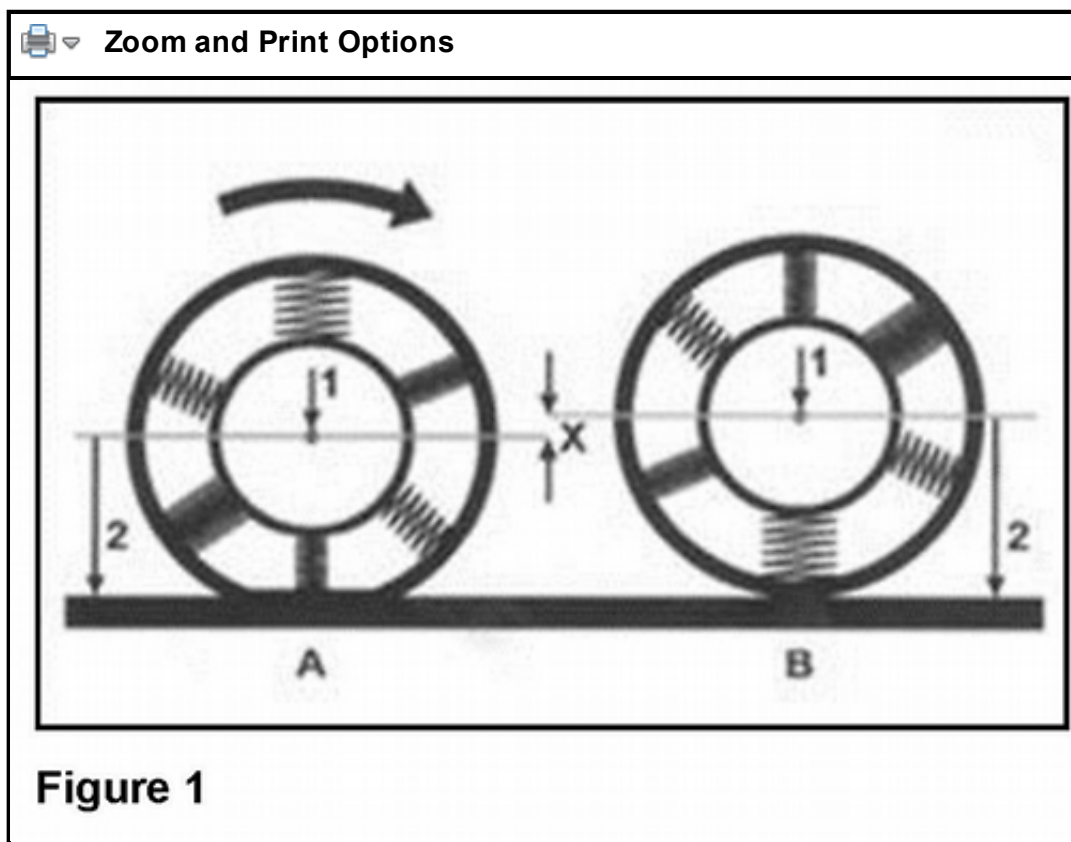
Effects of increased radial forces on the vehicle:

Increased radial forces on the front or rear tires cause vibrations in the vehicle.

Increased radial forces on the front tires amplified by braking can also lead to vibrations in the vehicle.

Explanations and definitions:

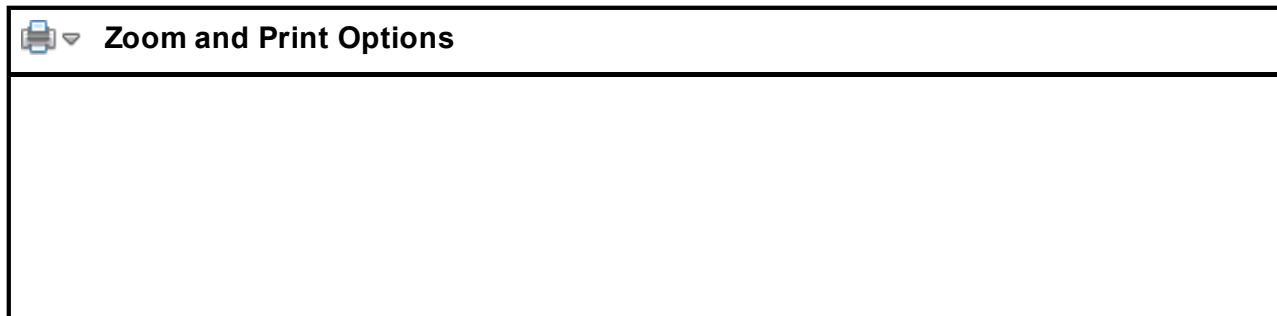
Radial force variation (RFV)



The radial force or wheel load is the force with which a tire is compressed (Figure 1) Tires have softer and stiffer areas along their circumference, which is illustrated using springs (Figure 1, A and B). Figure 1 shows the same tire at different points of rotation (A and B), as it rolls on level road with constant load (radial force).

Tip:

If this wheel rolls, the center of the wheel rises and falls X distance with a constant wheel load (illustration 1, arrow 1). This change in arrow 1 by X distance can be felt in the vehicle as vibration or shaking of the steering wheel.



Vibrations, steering wheel vibrations and juddering

A test drive with the customer is necessary.

Divide the complaint into the following symptoms:

VIN number: _____

FRED report number: _____

The complaint occurs ...

- at the beginning of the journey and gradually eases or disappears altogether
- at constant speed the and remains while driving at that speed
- in acceleration and overrun and when pressing the clutch or in the N position
- in acceleration and overrun, but not when pressing the clutch or in the N position
- in acceleration and overrun. It involves a juddering/vibrating in driving direction
- with pressed clutch or position N at an engine speed range of rpm to rpm.
- stronger when accelerating. Occurs in acceleration and overrun, but eases when the vehicle is put in N
- only when braking, whereby the pedal pressure is light, medium, strong
- when braking the complaint gets worse, when the pedal pressure is light, medium, strong

The complaint can be felt in the*:

- driver or passenger seat, steering wheel, shifter lever, pedal, footwell, centre console or tunnel, rear seats.

It involves*:

- vehicle vibrations, steering wheel vibrations, traction disruption, juddering, misfiring,
- humming or droning noises.

Additional information*:

- speed of mph to mph → in which gears or driving modes:
- since when does the complaint occur? (since x weeks, since vehicle purchase or tire change,...)
- with summer or winter tires [*select all that apply](#)



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Tire information sheet

1. Customer complaint

Be as specific as possible. Speed range, vibrations in complete vehicle, vibrations (only) in steering wheel, during acceleration, vibrations (only) when braking or accelerating, vibrations permanently or from stop, etc.

2. Vehicle data

VIN number: _____ Vehicle delivery date: ____/____/____
 Mileage of affected tires: _____ Vehicle mileage: _____
 Urban/country/highway driving in %: ____/____/____ Part number of wheel: _____

3. Tire information (cold condition)

Wheels installed? Factory ...VW accessories ...After Market
 Make of tire: _____ Tire type: _____
 Dimension: _____ Manufacturer code: _____ (e.g.: AO, AOE, R01)

Make of balancing machine: _____ Last calibration date of machine: _____

	Front left	Front right	Rear left	Rear right
DOT (last four digits mm-yy)	█	█	█	█
Tyre pressure in bar	█	█	█	█
Tire pressure according to label	correct <input type="checkbox"/>	correct <input type="checkbox"/>	correct <input type="checkbox"/>	correct <input type="checkbox"/>
	incorrect <input type="checkbox"/>	incorrect <input type="checkbox"/>	incorrect <input type="checkbox"/>	incorrect <input type="checkbox"/>
Tread depth in mm outside / center / inside	█ █ █	█ █ █	█ █ █	█ █ █
Existing wheel weights	█ █	█ █	█ █	█ █
Outer/inner balancing track (size)	█ █	█ █	█ █	█ █
Damage on tire (yes/no)	█	█	█	█
Damage on wheel (yes/no)	█	█	█	█

4. Tire information after the balancing

Warm Balance

(Conduct a test drive of at least 13 miles, at highway speeds (60 mph) if possible)

	Front left	Front right	Rear left	Rear right
Tire pressure in bar	█	█	█	█
Road force value in pounds (lbs) before matching	█	█	█	█
Road force value in pounds (lbs) after matching	█	█	█	█
Missing weight per level/track in gram outside/inside	█ █	█ █	█ █	█ █


*Road force values can be established with Hunter tester VAS 6230

Note:

The questionnaires must be filled out and submitted to the chassis team email box VWGoA.Chassis@vw.com and kept on file for warranty purposes.

Production Solution

No production change required.


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Procedure:

- Complete the following steps to eliminate vibrations (flat spots) and radial force fluctuations.

Warm balancing / matching of wheels

1. Check all tires for the following points:
 - Tread and side wall damage (for example: broken tread, impact damage/bubbles and so on).
 - Tread depth.


 **WARNING:**

The manufacturer recommends:

Replace tires damaged by external influences (for example impact damage/bubbles and so on). Damaged tires are an increased safety risk.

Replace tires with a tread depth of under 4 mm, otherwise this procedure will not be totally effective.


2. Check and correct the tire pressure of every wheel to at least 36 PSI or the permitted maximum specified value.
3. Perform a test drive of at least 18 miles, if possible on a highway, traffic and road conditions permitting over different speed ranges (up to 60 mph).

 **Note:**

Make sure that you do not endanger yourself or others during the test drive.

During the test drive observe all traffic laws.

4. After the road test, raise the vehicle immediately and begin removing the wheels for balancing.

 **Tip:**

New flat spots can develop during a short stationary period while the tires cool down so it is important to put the vehicle on the lift immediately following the test drive.

5. Balance the wheels on a stationary balancing machine.

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**Tip:**

The manufacturer recommends to balance / road force the wheels on the -VAS 6230 A/B- Hunter machine.

Measure, balance and (if necessary) match the wheel according to the instructions of the equipment.

When tightening the wheel on the balancing machine make sure the contact surfaces of flange and wheel are clean, the wheel is correctly centered and a suitable cone and/or flange are used. We recommend the use of a five-finger flange.

**Note:**

The fluctuation of the radial force does not depend on the turning direction and is measured as the difference between maximum and minimum radial force (road force).

If the radial force cannot be reduced below the specified value of 26 lbs. by matching, replace the tire.

The wheels must be installed on the vehicle according to the instructions of the manufacturer and the repair manual.

Securing the wheel on the vehicle**Note:**

This is the most sensitive and critical portion of the repair!

- Check whether the contact surfaces on the brake disc and wheel are free of corrosion and dirt, clean if necessary.
- Check whether the centering hole of the wheel and the centering of the hub are free of corrosion and dirt, clean if necessary.
- The wheels holes and the wheel bolts must be free of dirt and corrosion. It must be possible to lightly turn the wheel bolts by hand without using a tool.

**Note:**

Severely corroded or damaged bolts must be replaced according to the repair manual/ETKA.

- Make sure that the wheel bolts are the correct version and length.

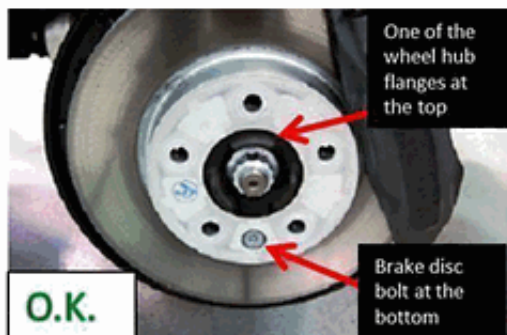
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Each wheel bolt hole is assigned a number from 1 to 5. These numbers will be referenced below (Star pattern).

Figure 2

- Align the position of the brake disc holes/hub threads as shown in Figure 3 below.



Example of proper brake disc hole/hub thread positioning.

- The brake disc bolt should be in the 6 o'clock position as seen in the picture.
- Wheel bolt hole number 1 should be in the 12 o'clock position. See Figure 2 above for wheel bolt hole numbering.
- One of the three hub flanges should also be in the 12 o'clock position.

Figure 3

- The reason this position is important is the weight of the wheel must be supported in order for proper centering to occur. When there is one of the hub flanges on top, the weight of the wheel is supported while the wheel is secured in wheel bolt hole number 1.



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Example of improper positioning.

Figure 4



Example of improper positioning.

Figure 5

- Insert the wheel on the hub and secure it loosely by hand starting with wheel bolts number 1 and 2 (See figure 2).

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**! Note:**

Do not use a pneumatic impact gun to install the wheel bolts.

Figure 6

- Screw in the remaining wheel bolts by hand in the star pattern specified in Figure 6. This will ensure precise centering of the wheel. Initially tighten the wheel bolts to 30 Nm with a torque wrench by hand.
- Lower the vehicle until the tires just begin to touch the floor. Torque the bolts by hand to the specified value in Elsa using a torque wrench.
- Lower the vehicle to the floor.
- Ensure the correct vehicle-related tire pressure.
- Test drive the vehicle.
- Assess the vehicle again in the affected speed range.


i Tip:

If the vibrations persist, call the helpline for further assistance. Before calling the helpline all steps in this bulletin must be completed and documented. Please be as specific as possible regarding the steps used, and customer complaint when calling the helpline.


Service

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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
Touareg	2011-2016	All	All	All	All
SAGA Coding					
Claim Type:	Use applicable Claim Type ¹⁾				
Service Number:	Damage Code	HST		Damage Location (Depends on Service No.)	
4405	0013	--		Use applicable when indicated in Elsa (L/R)	
Parts Manufacturer	Touareg		WVO ²⁾		
Labor Operation ³⁾ :					
Balance 2 wheels			44059400 = 50 TU		
Or					
Balance 4 wheels			44059404 = 90 TU		
Labor Operation ³⁾ :					
Clean 2 front wheel hubs			40643050 = 10 TU		
AND/OR					
Clean 2 rear wheel hubs			42683050 = 10 TU		
Causal Part: Select Labor Operation			4405940*		
Diagnostic Time ⁴⁾					
GFF Time expenditure	01500000 = 00 TU max.		NO		

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Road Test	01210002 = 10 TU 01210004 = 10 TU	YES
Technical Diagnosis: Check all tires:		
<ul style="list-style-type: none"> • Damage • Tread depth • Tire pressure 	01320000 = 10 TU max.	YES
Claim Comment: Input "As per Technical Bulletin 2038140" in comment section of Warranty Claim.		
¹⁾ Vehicle may be outside any Warranty in which case this Technical Bulletin is informational only		
²⁾ Code per warranty vendor code policy.		
³⁾ Labor Time Units (TUs) are subject to change with ELSA updates.		
⁴⁾ Documentation required per Warranty Policy Procedures Manual.		

Warranty

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Part No:	Part Description	Quantity
See ETKA	Wheel Weights	As required
Tool Description		Tool No:
Wheel Balacing Machine		VAS 6230 A/B- Hunter Or equivalent

Required Parts and Tools

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.