
Steering wheel vibrations/shimmy when driving at highway speeds mostly between 60 - 75 MPH

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Validity	221 S-Class (except 4MATIC)
Reason for change	Model designation added and content revised / Superse- des DTB P-B-33.15/24

Complaint:

Steering wheel vibrations/shimmy while driving straight ahead at highway speeds.

Cause:

Vibration might be caused by wheel/tire assembly which is not optimized in terms of balance/uniformity, torque strut bushing or in a rare cases by a steering rack.

Remedy:

Note:

Before performing any diagnostic procedures, confirm that the vehicle is fitted with approved Mercedes-Benz wheels and tires. Warranty repairs/diagnostics may have the claim denied on vehicles which are fitted with aftermarket wheels/tires.

Out of round wheels which are damaged from road hazards must be replaced as necessary. For any wheel/tire assemblies which are match-mounted, before and after print outs from the Hunter 97MB must be retained in the customer file.

Please refer to MB Warranty Policy and Procedures Manual for tire balance coverage.

Due to the fact that the complaint described above may be attributed to wheels/tires, the below instructions must be followed. Refer to WIS documents in group 40 for any additional, related instructions and procedures.

1. Check wheels and tires for wear and / or damage. Check the tire inflation pressure and correct if necessary (see the air pressure information sticker on the fuel filler flap - set the minimum pressure).
2. Drive the vehicle at a constant speed > 60 MPH at least 15 miles to ensure elimination of tire flatspots. Only then is it possible to evaluate the vehicle subjectively!
3. Lift the vehicle to unload wheels immediately after completion of the test drive in order to prevent the formation of new flatspots.
4. Remove both wheels on the front axle to determine the actual condition (balance, lateral and radial runout).

Note:

Before balancing the wheels, it must be ensured that the wheel balancing machine satisfies the specified quality requirements and is properly calibrated (reading accuracy, turnover test, etc.); see the manufacturer-specific operating instructions.

All wheels are matched at the factory (fine tuning). As a result, the new wheels with a mileage < 700 miles cannot exhibit any lateral/radial runout.

5. If imbalance exists, this must be eliminated by means of dynamic rebalancing (aim to achieve zero imbalance). The balancing result must then be confirmed by means of a static balance check, i.e. if the balancing result is >7 grams, rebalancing must be performed. Rebalancing is performed on the basis of the forces/lever arm lengths and their different effects (see attachment) by moving the inner balance weight max. 1 cm (forward or back) in the circumferential direction.
6. In some situation radial/lateral runout might require optimization by "matching". The recommended and approved wheel balancing machine manufacturers provide a menu-assisted program for this purpose. However, matching can also be achieved by implementing a simplified repair method.

To do so, mark tire relative to the rim, remove tire off the rim and turn the tire by 180 degrees. The tire must then be inflated gradually until the settling pressure is reached by applying a pressure of min. 3.5 - 4.0 bar without a valve element in order to guarantee optimum seating of the tire. Visually check the concentricity of the tire again; if not OK, turn the tire by 90 degrees again and perform balancing, after adjusting the inflation pressure, in the way described in point 5.

7. The test drive for evaluating the vehicle should only be performed after the vehicle has been driven for 15 miles.

If the vehicle is OK, close the RO (use the 40221 20 specified damage code).

8. If the complaint persists, please continue with step 9.
9. Install hydro-mount bushings on torque struts (from 4MATIC vehicles - part number provided in parts table) as described in AR33.15-P-0160-02SX (see attachment) - chassis alignment is not required. Use damage code 33122 38.
10. MY 2010 S-Class (except 4MATIC) vehicles with EHPS only and up to a VIN end number AA351230. In the situation when after performing all above steps, and if there still is an issue with steering wheel vibration /shimmy as described in the original complaint, install a different steering rack, part number A221 460 50 00.

Note:

The steering rack might not be readily available and might require involvement of special procurement. Attach print outs of wheel balancing values or Service Manager / Shop Foreman authorization when returning replaced parts to QEC. Otherwise, claims might be debited for unjustified part replacements.

Attachments	
File	Designation
Effektiver Wuchtradius.jpg	Effective balancing radius
Radunwucht.pdf	p.1 Balanced state p.2 Dynamic imbalance p.3 Static imbalance
AR33.15-P-0160-02SX .pdf	Press in/out rubber mount of torque strut
Bewahrung_Verbauung-Wirksamkeit Hydrolager.pdf	Feedback regarding performance/effectiveness

Symptoms
Steering wheel / Steering system / Chassis/suspension / Vibrates /
Tire properties / Chassis/suspension / Vibration/out-of-balance / Wheels/tires /
Steering wheel / Steering system / Chassis/suspension / Torsional vibrations at steering wheel /

Parts							
Part number	ES1	ES2	Designation	Quantity	Note	EPC	Non-EPC
A 221 333 19 14			Hydro-mount	2		X	

Work units				
Op. no.	Operation text	Time	Damage code	Note
			33122 38	
			46481 17	