Technical Service Bulletin

34, 37 Grinding or wheel bearing type noises from front when accelerating or at constant speed

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Model(s)	Year	VIN Range	Vehicle-Specific Equipment
S4 and S5	2010 – 2011	All	All with DSG Transmission
A4, A4 Cabriolet, A5, A5 Cabriolet	2009 – 2011		All with CVT Transmission
A5, S5	2008 – 2011		All with Manual Transmission
A4, S4 Cabriolet	2009 – 2011		All with Manual Transmission

Condition

Customer statement: Constant howling, droning, or scraping noises from the front of the vehicle when accelerating lightly.

Technical Background

The ball bearing for the left flange shaft spins in the gearbox housing because of a gap between the outer bearing ring and the support bracket.

Tip: The affected ball bearings are only fitted on the left side; therefore, the complaints do not occur on the right side.

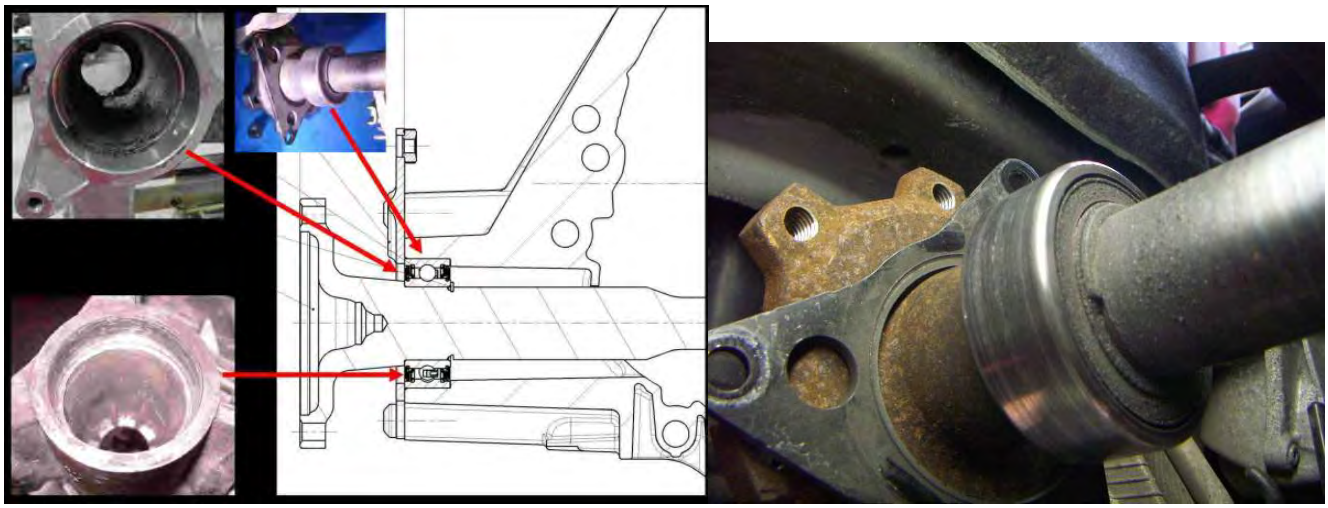

Figure 1. *Grinding marks and swarf in gearbox housing, on flange housing, outer race of the bearing and support bracket.*

Note:

After a removal of the **bolts** to check for this condition, the bolts must always be replaced by new parts (new part number: **N 912 088 01**).

Production Solution

Not applicable.

Service

Try to reproduce the customer complaint so that it can be clearly assigned to this TSB by removing the support bracket and checking for wear marks. If wear marks are present as shown in Figure 1 above, follow checks and repair instructions below.

Repair instructions/procedure:

On V6 and V8 engines:

1. Remove the gearbox according to the repair manual.
2. Loosen the support bracket of the left final drive (if not yet happened) and pull the left flange shaft out of the gearbox according to the repair manual, taking care not to damage the shaft seal.
3. Also, perform **Checks section** below.

On all models with 4 cylinder engines:

1. Remove the left drive shaft according to the repair manual.
2. Remove the brake caliper and hang caliper off to the side without stressing the brake hose.
3. Detach the suspension strut from the lower control arm, and the suspension strut from the sway arm link. (Loosen upper bolts for the strut if needed to allow for more clearance.)
4. If necessary for bearing housing clearance, remove the upper control arm bolt and allow bearing housing to swing out of the way.
5. Remove any shielding from the axle opening.
6. Pull the left flange shaft out of the gearbox (according to the repair manual). Support the flange shaft through the lower opening on the gearbox (service flap) to avoid damaging the oil seal between differential and gearbox housing.

Note:

After a removal, the bolts must always be replaced by new parts (new part number: **N 912 088 01**).

Figure 2. *Supporting the flange shaft.*

Figure 3. *Pulling out the flange shaft.*

7. After removing the flange shaft visually check the oil seal between differential and gearbox housing with a lamp through the lower gearbox opening (service flap) for damage.

Note:

Remove bearing and bearing bracket from axle and discard. **Use new bearing for measurements.**

8. Also, perform **checks section** below

Checks section:

1. Determine how many shims must be fitted between bearing and gearbox housing to make the bearing extend out from the case a minimum of 0.5mm to 0.8 mm; each shim is 0.30mm in thickness.

Figure 4. *Bearing example.*

Tip: Bearing in Figure 4 is only for demonstration purposes, ALWAYS measure using a new bearing.

Determine the number of shims to be fitted:

1. Remove any corrosion or dirt on the gearbox flange surface. Use size 600 grit sandpaper. Do not clean the bearing carrier.
2. Measure whether the gap between bearing and gearbox housing is flush or extended from case.
3. Use a straightedge on two different positions on the bearing and on the gearbox housing (this leads to four measuring positions).

Figure 5*. Apply straightedge on gearbox housing/bearing.*

4. Determine the value with a feeler gauge on four different points (in an extreme case: gap).

   Tip: Bearing in Figure 6 is only for demonstration purposes, ALWAYS measure using new bearing.

Figure 6. *Measuring gap*

5. After the measuring, calculate how many shims must be fitted between bearing housing and bearing. Examples:

   Below flush gap:

1. Measured values: Top 0.10 mm, bottom 0.15 mm, left 0.15 mm, right 0.10 mm

   Biggest measured value: 0.15 mm

   For the calculation the value must be given a negative algebraic sign.

   - 0.15 mm
   + 0.30 mm thickness of 1st shim
   = 0.15 mm
   + 0.30 mm thickness of 2nd shim
   = 0.45 mm
   + 0.30 mm thickness of 3rd shim
   = 0.75 mm minimum is reached (0.5- 0.8 mm)

Figure 7. *Determine the below flush value.*

Three shims are needed.

Note:

Although the bearing may extend from the case as shown, the distance may not be enough to hold the bearing tight. Measure as follows to determine and correct.

Extended from case gap:

1. Measured values: Top 0.10 mm, bottom 0.15 mm, left 0.10 mm, right 0.10 mm

   Smallest measured value:

   0.10 mm

   \+ 0.30 mm 1st shim

   = 0.40 mm

   \+ 0.30 mm 2nd shim

   = 0.70 mm minimum is reached (0.5- 0.8 mm)

   Two shims are needed.

Figure 8. *Determine the extended value.*

Reassembly:

1. Install new support bracket and bearing onto the shaft per repair manual being sure the part number of the support bracket is pointing outward.

   Tip: When fitting the support bracket the part number *must* point to the outside.

2. Clean the flange shaft with a fluff-free cloth and slightly lube the shaft at the seal contact area using **G 052 128 A1**.

3. Install the shims as shown below and feed the shaft back through the opening of the lower gearbox side with appropriate support taking care not to damage the seal.

4. Be sure to replace the support bracket bolts.

Figure 9. *Position of shims.*

Note:

Because the bearing turns, it may have taken material off of the bearing carrier in axial and radial direction. The resulting free play can be ignored, as a turning of the outer bearing ring is prevented by the axial clamping force of the support bracket.

Warning:

Any bolts or fasteners that were removed or loosened to that are “one time use” must be replaced per ELSA instructions.