OPERATING INSTRUCTIONS

INDEPENDENT WHEEL SUSPENSION
RL 75 E/EC

FRONT AXLE/TAG AXLE
RL 75 A
Preface

This documentation has been developed for specialized staff trained by ZF Friedrichshafen AG for repair and maintenance work to be done on ZF-units. Due to the continuous technical upgrading of the product, however, the maintenance of the unit at your disposal may require both deviating work steps and differing setting and testing data.

These operating instructions are based on the unit’s state-of-the-art at the time of printing. They were prepared with utmost care in order to avoid errors. ZF Friedrichshafen AG, however, shall not be liable for any possible errors in figures or descriptions.

ZF Friedrichshafen AG reserves the right to replace these operating instructions by a successive edition at any time without advance notice. Upon request ZF Friedrichshafen AG will advise which edition is the latest one.

The owner and the user shall be responsible for complying with the safety instructions and for implementing any maintenance work according to the specified guidelines.

ZF Friedrichshafen AG shall not be liable for any incorrect installation, improper handling, insufficient maintenance, improperly and incompetently performed work and any consequential damage resulting thereof.

It is imperative to observe the relevant instructions and manuals of the vehicle manufacturer.

Important information regarding technical reliability and operational safety are highlighted by the following symbols:

<table>
<thead>
<tr>
<th>INFO</th>
<th>This symbol serves as a reference to special working procedures, methods, information, use of auxiliaries etc... indicated in these operating instructions.</th>
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</thead>
<tbody>
<tr>
<td>CAUTION</td>
<td>This symbol identifies situations in which lacking care might lead to damage to the product.</td>
</tr>
<tr>
<td>DANGER</td>
<td>This symbol identifies situations in which lacking care might lead to personal injury.</td>
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Subject to technical modifications!
Design level 2007/12
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1. Grease lubrication of hub bearing

1.1 Grease quality

Approved greases for the ZF-independent wheel suspension RL 75 E/EC/A see ZF- List of Lubricants **TE-ML 12**.

The ZF list of lubricants is being continuously updated and can be obtained or viewed as follows:

- in all ZF plants
- in all ZF Service Centers
- Internet: http://www.zf.com

1.2 Maintenance intervals

In this connection refer to the ZF List of Lubricants **TE-ML 12**.

1.3 Grease change in the hub

A complete check of the compact bearing including a grease change is also required outside the maintenance interval, if the following criteria apply:

- Grease overflow at the shaft seal at brake disk side. Check the shaft seals during every brake disk change.
- Overheated brake parts (e.g. burnt bellows on pressure piece).

Also refer to chapter 4.

Legend:

1 = Steering knuckle assy.
2 = Bearing unit assy.
   2a = Bearing outer ring / bearing inner ring
   2b = O ring (109x5)*
   2c = Cassette-type seal*
   2d = Retaining ring
   2e = Shaft seal *
3 = Hub with brake disk
4 = Slotted nut
5 = O ring (155x3)
6 = Locking plate
7 = Cover

* These spare parts are available separately, and are supplied as loose parts with the bearing unit!

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**Removal**

<table>
<thead>
<tr>
<th>Removal</th>
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<td>1</td>
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<td>2</td>
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</table>
Reinstallation

3. Check condition and wear of tapered roller bearings (2a) (inner and outer ring)  
   Replace worn or damaged tapered roller bearings by a new bearing unit.

4. Thoroughly grease tapered roller bearings (2a) and fill them with the specified grease quantity.

5. Fill quantity: 96g per hub

6. Install hub  
   Install new shaft seal (2e), cassette-type seal (2e) and O-ring (2b).

7. Fit wheel head  
   Fit new locking plate (6). Seal cover (7) with Loctite 574.

All details of operations and setting values required for disassembly and reassembly are included in the relating repair manual (5871 197 002)!

2. Grease lubrication of steering knuckle / control arm / steering lever / relay lever

2.1 Grease quality

Approved greases for the ZF-independent wheel suspension RL 75 E/EC/A see ZF List of Lubricants TE-ML 12.

The ZF List of Lubricants is being continuously updated and can be obtained or viewed as follows:

- in all ZF plants
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A lithium-saponified multi-purpose grease of NLGI class 2 which is mixable with mineral oil (grease code KP2K-30 acc. to DIN 51825 or ISO-L-XCCHB2 acc. to ISO/DIS 6743-9) is to be used at the greasing points.

2.2 Grease interval

Grease the described components each after 80,000 – 90,000 km or once per year, whichever occurs first.

The grease intervals must be reduced accordingly (40,000 – 45,000 km or every six months) under extreme working conditions e.g. dust, wetness, dirt, considerable strains, etc.

Always lubricate the ZF steering axles of series RL 75 E/EC/A with the wheels on the ground, to ensure a correct grease flow (no jacking allowed).
2.3 Position of lubricating nipples

1 = Steering knuckle bearing (top)
2 = Steering knuckle bearing (bottom)
3 = Control arm bearing (top)
4 = Control arm bearing (bottom)
5 = Relay lever
6 = Intermediate lever
Use a grease gun to lubricate the greasing points until grease comes out at the seal rings (steering knuckle bearing) and scrapers (control arm bearing)!

3. Check of vertical play in the axle fist

The vertical play existing in the axle fist must be determined as a part of the legally stipulated periodic technical vehicle inspection. It is necessary to repair the king pin bearing if the vertical play exceeds 1.3 mm.

For further information see Service Information 85/11. All details of operations and setting values required for the repair are included in the relating repair manual (5871 197 002)!

4. Check of compact bearing (hub bearing)

4.1 Check intervals

Check the bearing when brake disk is changed, in case of any ABS-fault message and if noise rises with increasing speed.
4.2 How to check the axial play

Remove the wheels. Loosen the cylindrical screws on the cover and remove the cover, so that the steering knuckle becomes visible.

Fix magnetic stand to the hub and position the dial indicator at the circular ring area at front side of the steering knuckle. Push hub towards the axle with both hands (do not tilt) and rotate by 20° to 30° in both directions, until the dial indicator pointer remains fix. Calibrate the dial indicator to zero. Use both hands to pull the hub away from the axle (do not tilt) and rotate it by 20° to 30° in both directions, until the pointer remains fix. The difference corresponds to the axial play. Repeat measurements 3 times and calculate the average. Rotate the wheel several times between the measurements.

⚠️ If the measured value exceeds 0.20 mm, the compact bearing is worn and must be replaced. Please find further information in the Repair Manual (ZF order number 5871 197 002).

4.3 How to check grease overflow

Check shaft seal at brake disk side with regard to grease overflow.

💧 A small quantity of grease (slight collar of grease) is permitted and not to be regarded as leakage.

5. Wheel bolts and wheel nuts

We would recommend you to replace heavily corroded wheel bolts.

⚠️ For tightening torques see vehicle manufacturer. Please take further information from our Service Information.

⚠️ Never grease/oil the thread of wheel bolts and wheel nuts.
6. Lifting jack points

Do not position the lifting jacks on other points than those marked in the following illustration:

**RL 75 E**

![Lifting jack points for RL 75 E]

**RL 75 EC**

![Lifting jack points for RL 75 EC]
RL 75 EC

Lifting jack points

RL 75 A

Lifting jack points