OPERATING INSTRUCTIONS

INDEPENDENT WHEEL SUSPENSION
RL 85 / RL 85 E / RL 85 EC

FRONT AXLE/TAG AXLE
RL 85 A

5871.201.902 en

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 as well as 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.

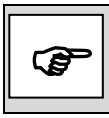
ZF Friedrichshafen AG reserves the right to replace these operating instructions by a successive edition at any time without advance notice. Upon request ZF Friedrichshafen AG will advise which edition is the latest one.

The owner and the user shall be responsible for complying with the safety instructions and for implementing the 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:

 **INFO**	This symbol serves as a reference to text passages in these operating instructions giving an **INFO** on special working procedures, methods, information, use of auxiliaries, etc.
 **NOTE**	This symbol identifies situations in which lacking care might lead to **damage to the product**.
 **DANGER**	This symbol identifies situations in which lacking care might lead to **personal injury**.

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1. Lubrication of hub bearing (wheel bearing)

1.1 Grease lubrication (standard version)

1.1.1 Grease quality

Approved grease types for the ZF independent wheel suspension RL 85 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:

- at all ZF plants
- at all ZF service organizations
- Internet: http://www.zf.com

Oil lubrication on customer's request and ONLY with ZF's approval. See 1.2.

1.1.2 Grease change interval

See ZF List of Lubricants **TE-ML 12**.

1.1.3 Grease change in the hub

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

- **Grease leakage at the shaft seal on brake disk side. Shaft seals must always be controlled when changing the brake disk.**
- **Overheated brake parts (e.g. burnt bellows on pressure pieces).**

When changing grease within the maintenance interval, it is necessary to remove the complete bearing. Detailed information on the required operations see Repair Manual ZF order No. 5871.201.102.

Procedure for renewing the grease filling:

- Remove wheel hub. Thoroughly clean hub, both tapered roller bearings and steering knuckle.
- Check tapered roller bearings for wear/damage.

Tapered roller bearings must ALWAYS be replaced in sets.

- Sealing elements (shaft seal and O-ring) must ALWAYS be renewed.
- Thoroughly grease both tapered roller bearings.

Required grease quantity per output: approx. 200 grams
Richly grease bearing rollers at the inside and outside, as well as on the front sides.
Fill remaining grease into the central hole of the wheel hub (space between both bearing holes)!

- Reinstall wheel hub.

1.2 Oil lubrication (on customer's request, ONLY with ZF's approval)

1.2.1 Oil quality

Approved oil grades for the ZF independent wheel suspension RL 85 E/EC/A are specified in ZF List of Lubricants **TE-ML 12**.

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

- at all ZF plants
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1.2.2 Oil change interval

See ZF List of Lubricants **TE-ML 12**.

1.2.3 Oil change

Precondition for a correct oil change is the horizontal installation position of the axle in every direction.

Place the vehicle into a horizontal position.

Carefully clean all drain plugs, filler plugs and level check plugs prior to opening.

☞ **Drain oil only at operating temperature (immediately after a longer operation period).**

Procedure for renewing the oil filling:

- Bring drain plug, filler/level check plug of wheel hub cover into lowermost position and drain oil.
- Position filler hole (reference line in a horizontal position towards the plane of the road) and fill in oil until overflow at the filler/level check hole.

ⓘ **Oil volume per output: approx. 0.3 liters**
Repeat oil filling procedure several times until the required oil level remains constant.

- Provide screw plug with new seal ring and fit it.
  Tightening torque (M10x1) M_A = 18 Nm.

1.2.4 Oil level check

Check oil level every month, in particular, however, when a vehicle is put into service with new or repaired axles or axle parts.

2 Grease lubrication of steering knuckle/control arm

2.1 Grease quality

Approved grease types for the ZF independent wheel suspension RL 85 E/EC/A are specified in ZF List of Lubricants **TE-ML 12**.

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

- at all ZF plants
- at all ZF service organizations
- Internet: http://www.zf.com

2.2 Grease interval

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

2.3 Lubrication

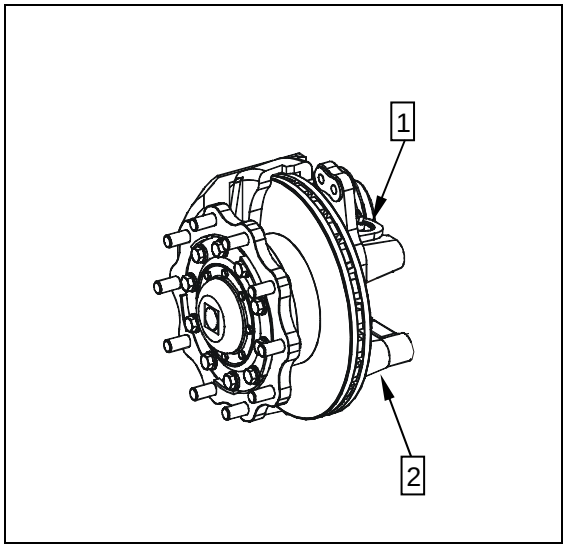
Lubricate greasing points with a grease gun until grease comes out at the seal rings (steering knuckle bearing) and scrapers (control arm bearing) on the whole circumference.

☞ **Always lubricate with the wheels standing on the ground, as this is the only way to ensure a correct grease flow.**

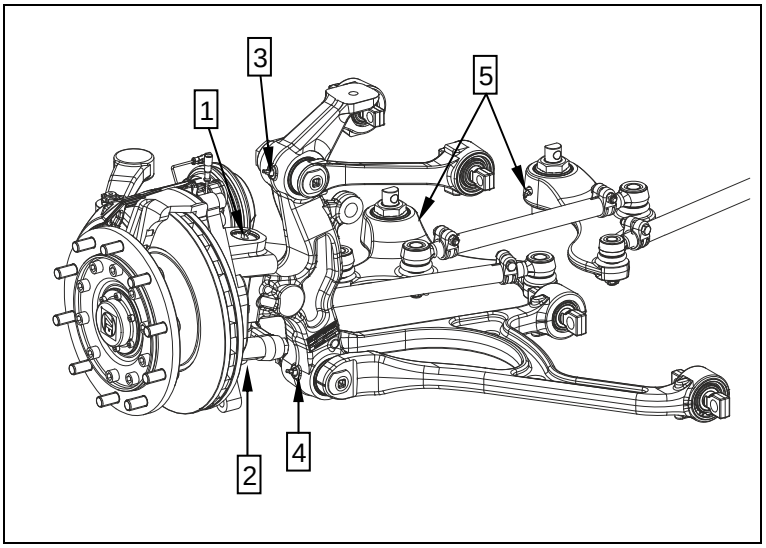
Position of lubricating nipples:

1 = Steering knuckle bearing (top)
2 = Steering knuckle bearing (bottom)
3 = Control arm bearing (top)
4 = Control arm bearing (bottom)
5 = Steering lever bearing

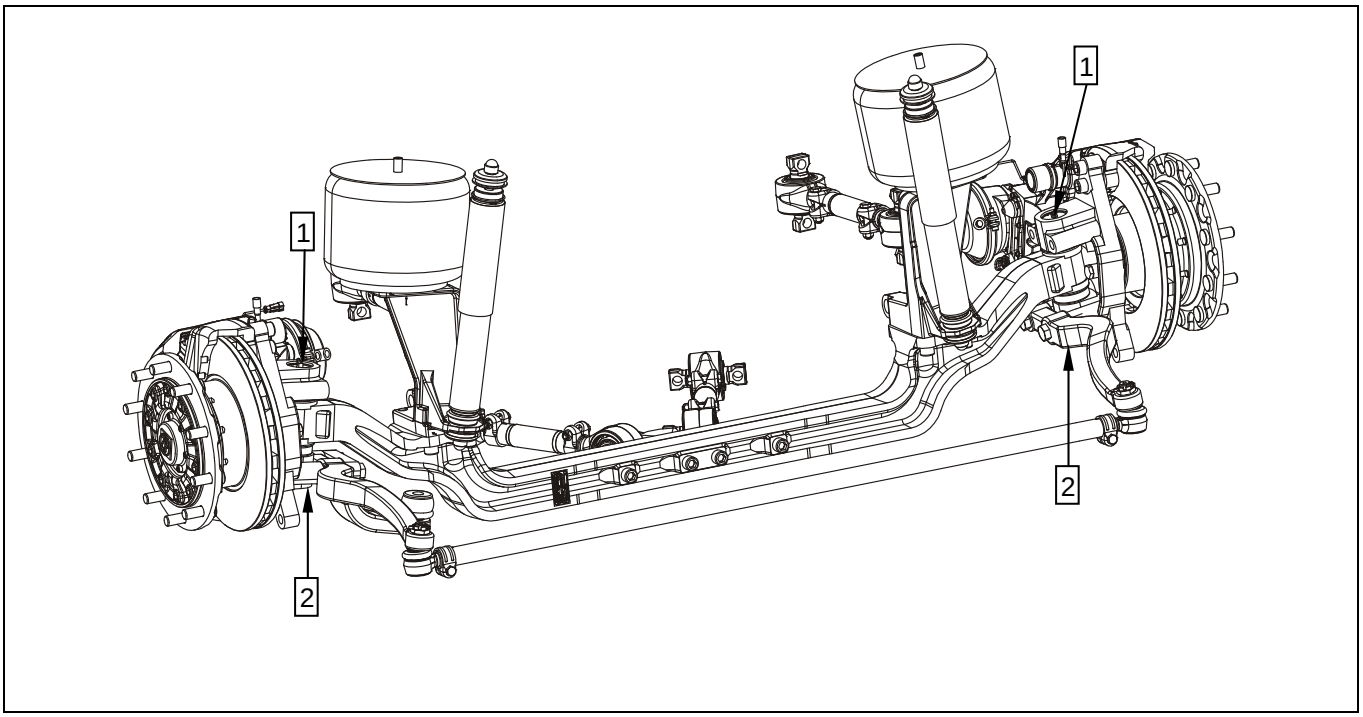
RL 85



RL 85 E/EC



RL 85 A



3 Wheel studs and wheel nuts

We recommend replacing heavily corroded wheel studs.

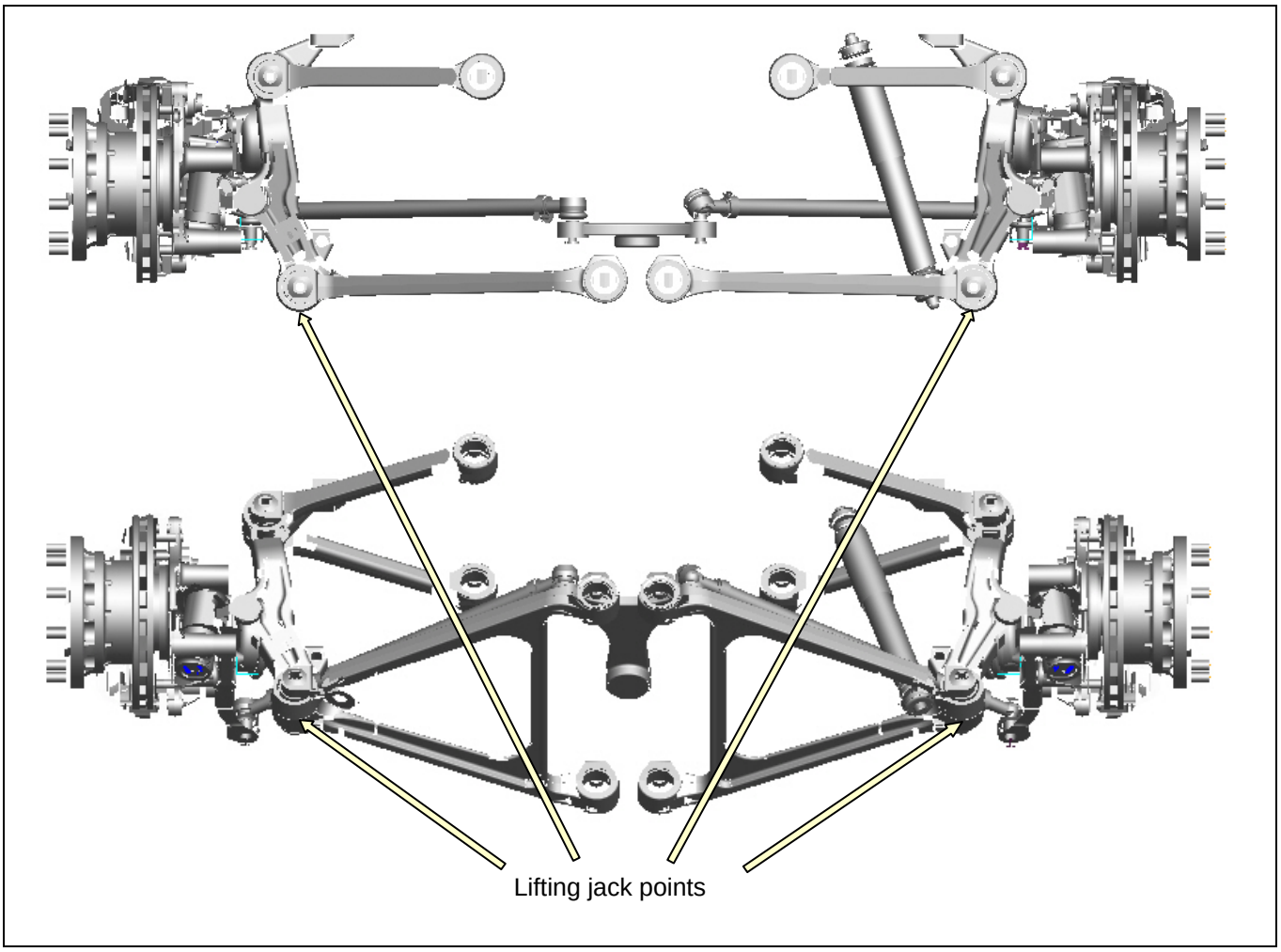
☞ **Tightening torque see vehicle manufacturer’s specifications.**

☞ **Do NOT wet threads with friction-reducing lubricants including Cu-, MoS2-additives or GL5 oil.**

4 Lifting jack points

Do NOT position lifting jacks on other points than those marked below:

RL 85 E



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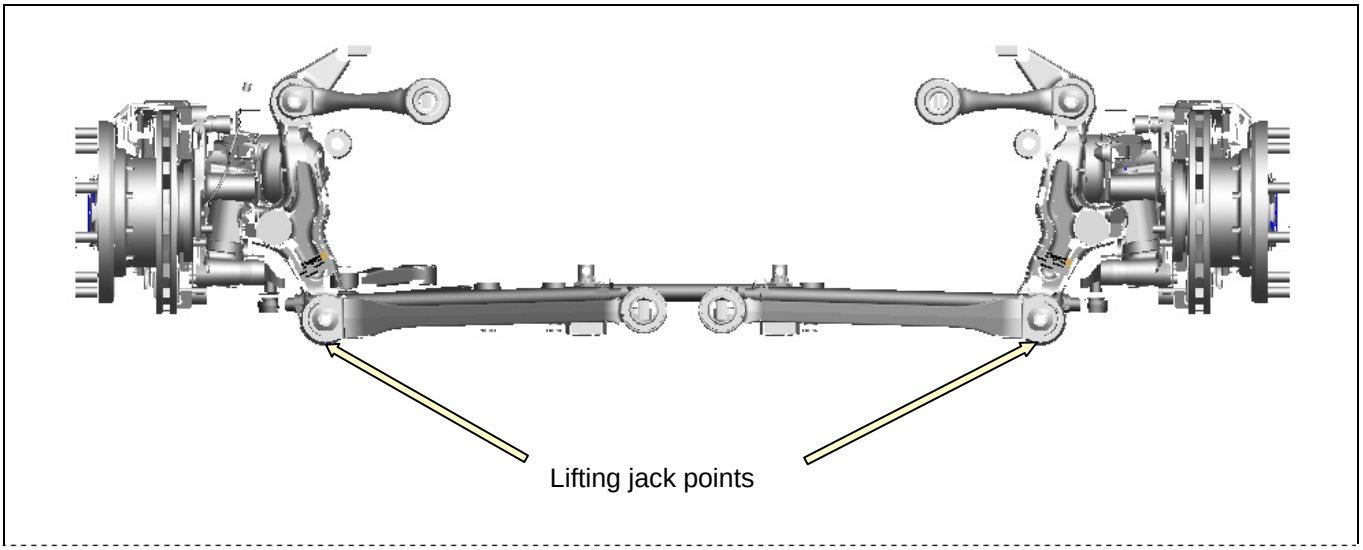

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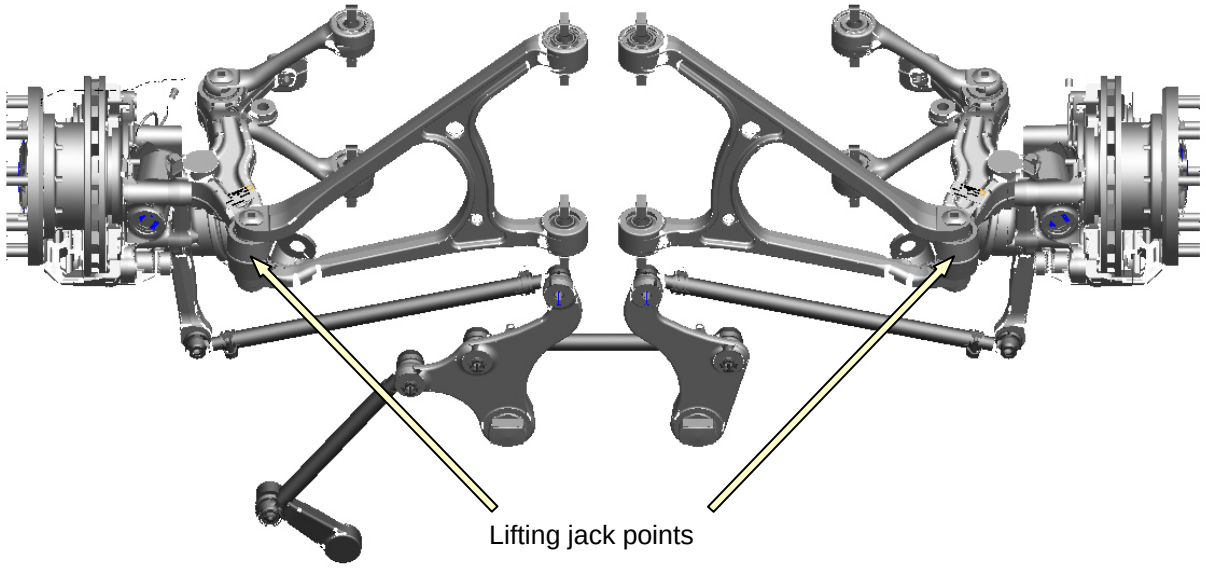

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