



Order no.: 5871 201 902

# **Lubrication and Maintenance Instructions**

## **ZF-Axle Systems**

**Series: RL-85 / RL-85E / RL-85A**



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## **PREFACE**

This documentation has been developed for the skilled Serviceman, trained by ZF Passau for the repair and maintenance operations on ZF-Units.

However, due to further technical developments of the product the maintenance of the unit at your disposal might require deviating operations as well as deviating filling capacities.

For that reason we recommend to rely on masters and service men with your ZF-product, whose practical and theoretical skill is being constantly supplemented in our Service Training Center.

The responsibility to provide training lies with the repairer.

Contractual liability due to incorrectly and improperly carried out works by non-ZF personnel and resulting consequential damage shall be excluded.


This also applies in the event that no genuine ZF Spare Parts are being used.


It is **imperative** to observe the relevant instructions and manuals of the vehicle manufacturer for the maintenance of this unit.

The responsibility to observe safety instructions and to perform maintenance works in accordance with the required specifications lies with the owner and with the user.

ZF Passau GmbH reserves the right to replace the present maintenance instructions at any time without prior notice by an updated version. Upon request ZF Passau GmbH will let you know which version is currently valid.

The present maintenance instructions include the following safety instructions:

 <b>CAUTION</b>	<p>The appearance of this symbol in the maintenance instructions stands for <b>a reference note</b> pointing out special working sequences, methods, information, application of auxiliary means, etc.</p>
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 <b>DANGER</b>	<p>This symbol points out situations where lack of care can lead to <b>endangerment of persons or damage to the product!</b></p>
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## 1. Hub bearing ( roller bearing )

### 1.1 Grease lubrication ( standard version )



Oil lubrication (customer request, only with ZF approval), see 1.2 / page 3!

#### 1.1.1 Grease quality and maintenance interval:

According to ZF List of Lubricants TE-ML 12.



The list of lubricants is being constantly updated and can be ordered or looked up as follows:

- At all ZF-plants
- At all ZF Service Stations
- Internet <http://www.zf.com> Service / Techn. Information



The internal investigation of the wheel bearing and the resulting grease change in addition to the maintenance interval must also be carried out in case of the following preconditions:

- When separating the hub from the knuckle during repair.  
When replacing the shaft seal (hub seal).
- With every brake disk replacement.
- Hot brake parts (e.g. burnt pressure piece bellows).

#### 1.1.2 Requested grease quantity per output: approx. 200 gram

#### 1.1.3 Procedure when replacing grease filling :

- Remove wheel hub. Thoroughly clean hub, both bevel roller bearings as well as knuckle.
- Check bevel roller bearing for wear or damage and if necessary, replace by sets!
- Principally renew sealing elements (shaft seal ring and O-ring)!
- Thoroughly grease both bevel roller bearings



Apply richly grease on bearing rollers, inside, outside and on front sides! Fill in the remaining grease into the central hole of the wheel hub (intermediate space of both bearing holes)!

- Now re-assemble wheel hub.



Detailed information with regard to disassembly and reassembly (setting values, requested special tools etc.) are provided by the relevant Repair Manual.

## **1.2 Oil lubrication (customer request, only with ZF approval)**

**1.2.1 Oil grade/ Oil change interval:** According to ZF List of Lubricants TE-ML 12 !

**General:** Place vehicle in horizontal position!

All drain, filler and level plugs must be cleaned carefully before opening.

Drain oil only at operating temperature, immediately after the vehicle has been operated for an extended period of time.

**1.2.2 Oil drain:** Place drain, filler and level plug of the wheel hub cover into lowest position and drain oil.

**1.2.3 Oil filling:** Position filling hole accordingly (horizontal position of vehicle) and fill in oil until overflow on the filling and level holes.  
Oil quantity each output: approx. 0.3 liters.



Repeat filling procedure several times, until the requested oil level remains constant !  
Then provide screw plugs with new seal ring (Cu) and assemble it.  
Tightening torque (M10x1) ...  $M_A = 18 \text{ Nm}$ .

**1.2.4 Oil level check:** Oil level check once a month, but in particular when putting a vehicle into operation with new or repaired axles or axle components.

## 2. Grease lubrication - knuckle / control arm

2.1 Grease quality: According to ZF List of Lubricants TE-ML 12 !

2.2 Lubrication interval: 80 000 – 90 000 km, however minimum once a year!

2.3 Position of the lubricating nipples

- 1 = Knuckle bearing (top)
- 2 = Knuckle bearing (bottom)
- 3 = Control arm bearing (top)
- 4 = Control arm bearing (bottom)

