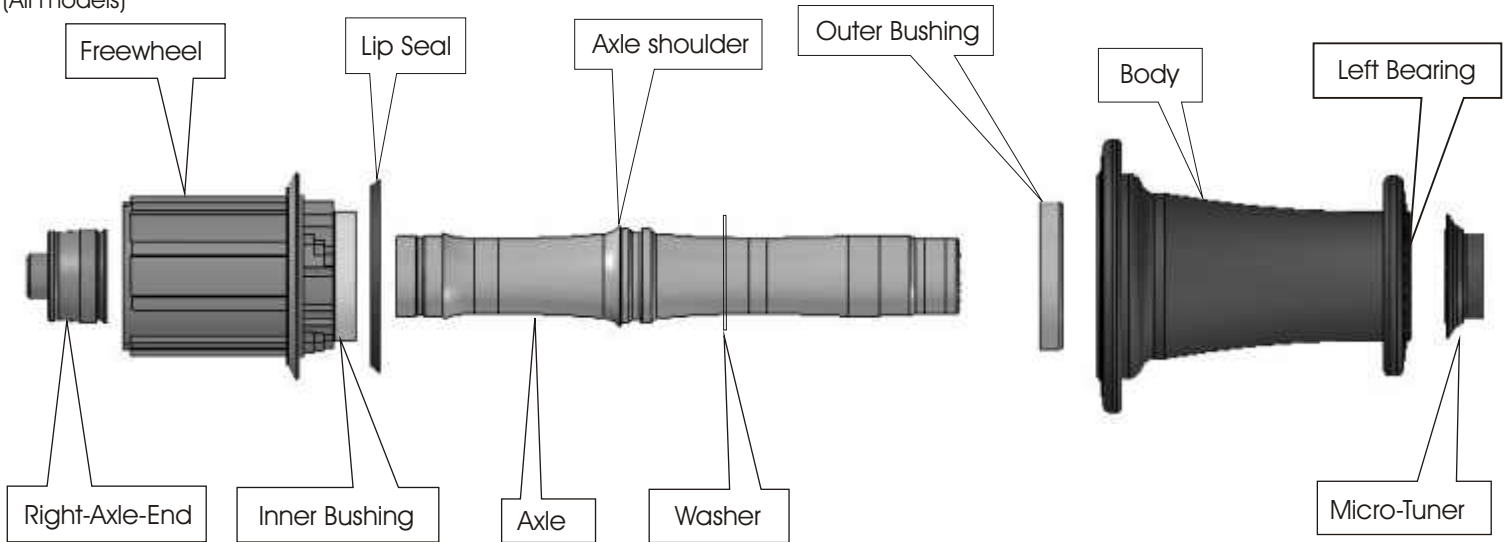


# ULTRAHUBS REAR HUB MAINTENANCE (LEVEL 2)

(All models)



## Introduction

This manual is addressed only to qualified mechanics.  
Special skills and attention are required for tolerance matching.  
Refer to Level 1 maintenance for basic informations.

## Bushing tolerance matching

Chain tension loads are handled by special polymeric bushing.  
To compensate production tolerances we make Inner Bushing in 3 different thickness:

- Medium (Natural white)
- Thin (Blue) -0.02mm
- Thick (Red) +0.02mm

*Avoid scratching or dinging bushings during installation and removal.*

Fully unscrew Miro-Tuner and extract Axle.

Install new Outer Bushing (yellow for Road, dark gray for Mtb models) into Hub Body.

Insert Axle.

Insert Medium Bushing (Natural white) onto Freewheel (without pawls and lip seal).

Insert freewheel and carefully test rotation and eventual radial play.

- If rotation is perfectly free and without noticeable play go to next paragraph.
- If you feel any friction install Thin Bushing (Blue) and test again.
- If rotation is perfectly free but you fell radial play install Thick Bushing (Red) and test again.

*Warning: Even a light friction may damage bushings.*

## Tuning lip seal preload

Insert Axle without washers and fully screw-in Micro Tuner (make sure that Axle shoulder is in contact with Central Bearing).  
Remove pawls from freewheel.

Seat in place freewheel seal (well cleaned) and then lubricate lip.

Insert freewheel (without pawls) and fully screw-in Right-Axle-End.

Test lip seal stiction. If ok go to "Lubrication and reassembly".

If you want less stiction take out freewheel, unscrew Micro Tuner, extract Axle and insert 0.15mm Washer (thinner) between Central Bearing and Axle shoulder.

*Pay attention: washer may get pinched by groove on Axle (use grease to keep washer well centered).*

Insert Axle and fully screw-in Micro Tuner.

Insert freewheel (without pawls) and fully screw-in Right-Axle-End.

Test lip seal stiction. If ok go to "Lubrication and reassembly".

If you want even less stiction replace 0.15mm Washer with 0.3mm Washer (thicker).

It's also possible to combine 0.15 and 0.3mm Washers however it's not recommended for MTB use.

## Lubrication and reassembly

Make sure that contact area between Axle and Left Bearing is sealed with water proof grease.

Grease pawl retainers on freewheel.

Install pawls, check for correct Spring or OR-Spring positioning and functioning.

Apply 2cc. of soft grease on ratchet wheel.

Partially insert freewheel, carefully press pawls one by one, check pawls engagement, insert completely.

Tighten Right-Axle-End at 4-5 Nm.

Pop-in Left-Axle-End and reinstall all external OR.

Repeat preload tuning (see level 1).

Warning: Use only very soft density grease.

Medium or hard density grease may cause un-complete pawl engagement and this will seriously damage freewheel mechanism. Chemical additives may affect physical properties of Lip-Seal, O-ring spring and Bushings.

