

MAG 170 REAR HUB



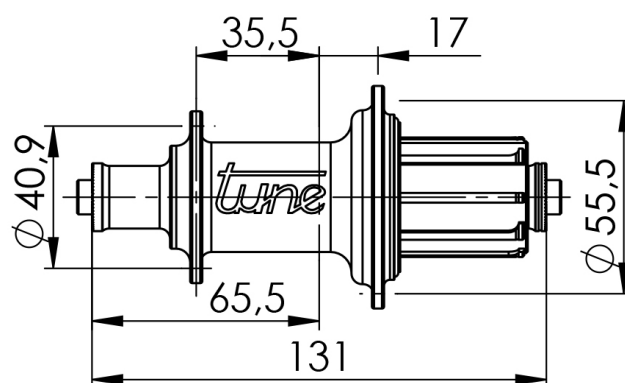
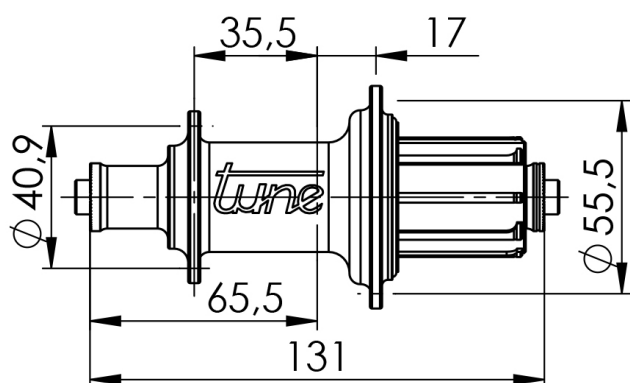
BORN IN THE BLACK FOREST BUILT TO ENJOY NATURE
As of June 2016

Technical Specifications:

Number of holes	16, 20, 24, 28, 32, 36
Disc mount	none
Hub spacing	130 mm (Rennrad); 135 mm (MTB)
Axle diameter	17 mm
Colours	black, silver, red, gold, blue, green, orange, froggy-green and white (powder-coated)
Bearings hub body	2 specific Tune grooved ball bearings right side: 61903 / left side: 61803
Bearings freewheel body	2 specific Tune grooved ball bearings inner side: 61803 full complement / outer side: 61803
Sealing	dust cap, washer and rubber lip seal
Weight limit	none

Material:

Hub body	aluminium, CNC machined
Axle and endcaps	aluminium, CNC machined
Freewheel body	aluminium, CNC machined
Pawl und star ratchet	titanium, CNC machined



Instructions

General:

- Before every ride, make sure that your Tune product is in a good condition and functioning properly. If there seems to be any irregularities the product should not be used. Contact your retailer for help.
- The Quickrelease must be mounted properly.
- Never clean your Tune products directly with high water pressure (pressure cleaner) and do not use aggressive detergents.
- Only use tires that suit the rim, pay attention not to exceed the maximum tire pressure of the rim and tire.

Maintenance:

The hub should be maintained at least once a year. If used in extreme conditions (rain, mud, salted streets, transport in the rain) regularly, the hub should be maintained more often. A regular service supports the technical condition, as well as the durability of the hub.

What does the regular maintenance include?

- The mounted hub, with removed cassette and brake disk, should be cleaned. Afterwards it should be undertaken a detailed visual and technical examination.
- When disassembled, the bearings should be examined and the pawls and star ratchet cleaned and re greased. The maintenance is described in detail below.

Freewheel body:

The freewheel body is made out of aluminium, due to that the sprockets of the cassette will leave indentations in the freewheel body splines. These indentations will cease after a short period of time. The aluminium gets compressed and further wear stops. Burrs should be removed with a file. The functionality of the hub is not impaired by the indentations.

Stuck cassette sprockets can be removed by using two chain whips.

The cassette lock ring shall be mounted with the torque given by the manufacturer.

The **Tune Edelzwicker** cassette lock ring can be purchased separately, it shall be mounted with a tension of max. 40 Nm.

Shimano/Sram 10-speed freewheel body

- The freewheel body width of the Shimano/Sram 10-speed freewheel body can only be used with Shimano/Sram 8-/9-/10-speed road cassettes and 8-/9-/10-/11-speed mtb cassettes.

Shimano/Sram 11-speed freewheel body

- The freewheel body-width of the Shimano/Sram 11-speed freewheel body is designed for Shimano/Sram 11-speed road cassettes. By using a 1,8mm spacer Shimano/Sram 8-/9-/10-speed road cassettes and 8-/9-/10-/11-speed mtb cassettes can be used as well.

Campagnolo freewheel body

- A Campagnolo lock ring with a 27x1 thread is needed (current Campagnolo standard).
- The Tune Edelzwicker cassette lock ring is also available for Campagnolo

Sram XD freewheel body

- Freewheel body for the Sram XD standard. Further informations upon fitting cassettes can be obtained from Sram.

Lacing:

The Tune hub must not be laced radially. Triple crossed spokes are optimal, however they must be crossed at least twice. It's allowed to tie the spoke crossings with carbon. The construction of twisted laced or tied and soldered spoked wheels is forbidden.



MAG 170:

The highest permitted spoke tension is **1100 N**.

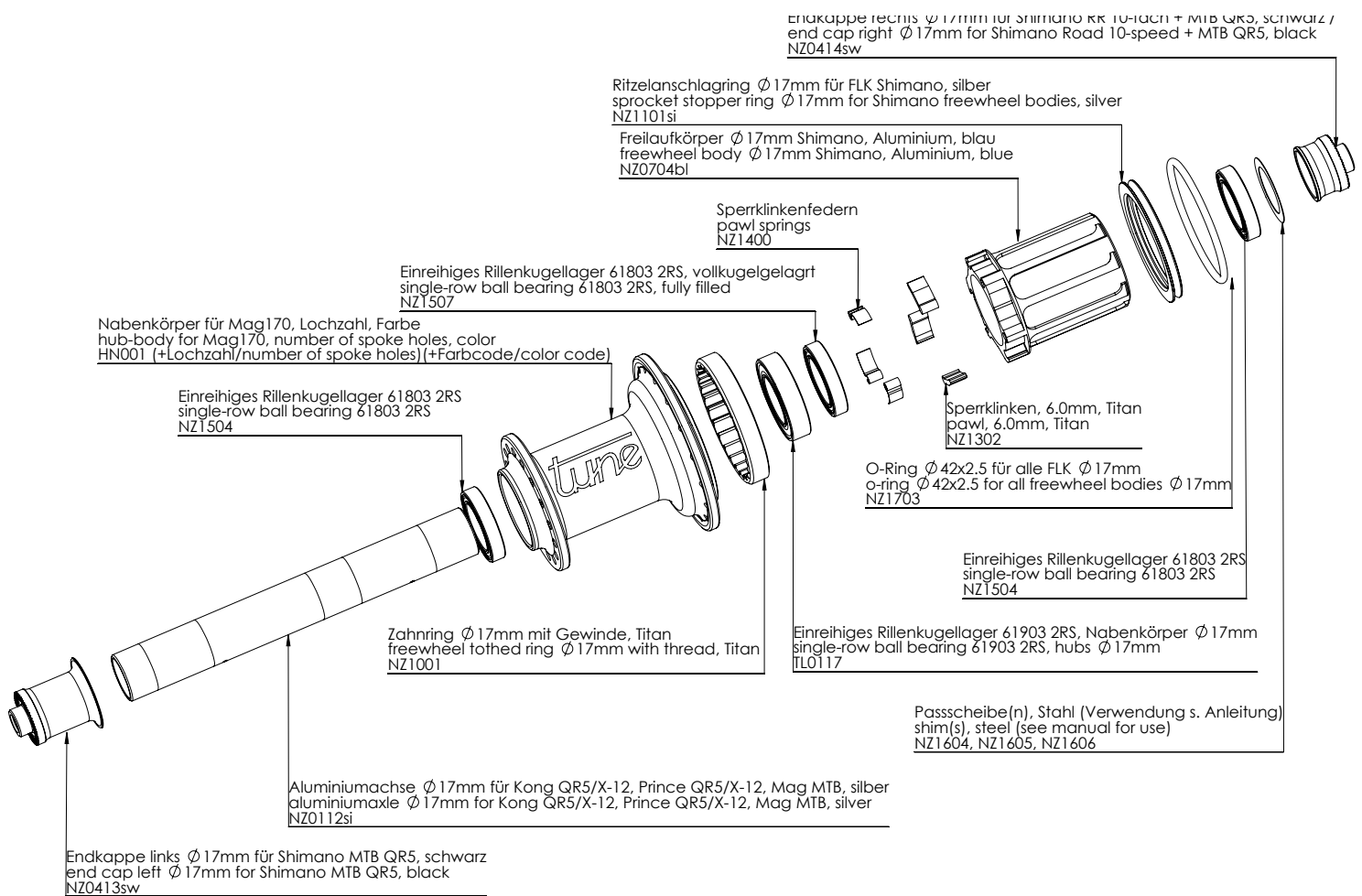
Pitch circle diameter Ø (l / r)	40.9 mm / 55.5 mm
Distance hub flange to wheel centre line (l / r)	35.5 mm / 17.0 mm (130 mm hub spacing / road) 30.0 mm / 22.5 mm (135 mm hub spacing / MTB)
Spoke hole diameter Ø	2.4 mm

Construction of the hub:

This hub is built up from firmly connected parts, i.e. the axle goes all the way through, with endcaps at both sides, and all parts are fixed exactly in place.

Tune uses specific bearings not available from any other manufacturer. The bearings distinguish themselves by their unusual high amount of special grease and a radial play adjusted for the use. The bearings have a double slid sealing, the hub therefore will run comparatively sluggishly when new. This will change after the first rides, when the grease has been dispersed evenly in the ball-bearings and the seals are working optimally.

Spare parts can be ordered through your local Tune retailer.



The construction is identical for hubs with different freewheel body types, only the endcaps differ.

Disassembly and assembly of the hub:



Important notes:

- All contact surfaces, except between the bearings and the hub body, should be greased.
- Always remember the exact position of all parts.
- Please contact your dealer, if you feel insecure, don't have appropriate skills or the needed equipment.



Needed tools / material:

- tool kit **Tune Tool 08** (No. BWZ0000)
- plastic hammer
- an rob (old Quickrelease axle)
- hot air blower
- vernier caliper
- ① Grease (we recommend Molykote Rapid Plus Paste, alternative bearing grease)
- ② Oil (we recommend Power Oil HD 15W/40 SJ-CF, alternative chain oil)
- ③ Glue (e.g. 3M Scotch-Weld TL-70, Loctite 641)

This manual leads you through the complete disassembly, assembly and adjustment of the hub. Not all steps have to be carried out maintaining the hub.

If you only want to adjust the bearing play you can start with the first step „**Removing the endcap**“ and continue with the step „**Setting the bearing play**“.

1 Removing the endcap

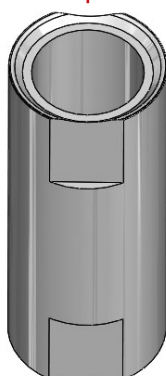


Needed tools:

- plastic hammer
- old Quickrelease axle
- TT08.1 No. WZ0200

The hub is placed on the main tool TT08.1 with the freewheel body pointing down. Then the Quickrelease axle gets pushed through the left endcap into the hub axle, so that it touches the inner side of the right endcap.

The right endcap can now be pushed off the axle by hitting the Quickrelease with the plastic hammer.



TT08.1

fig. 1

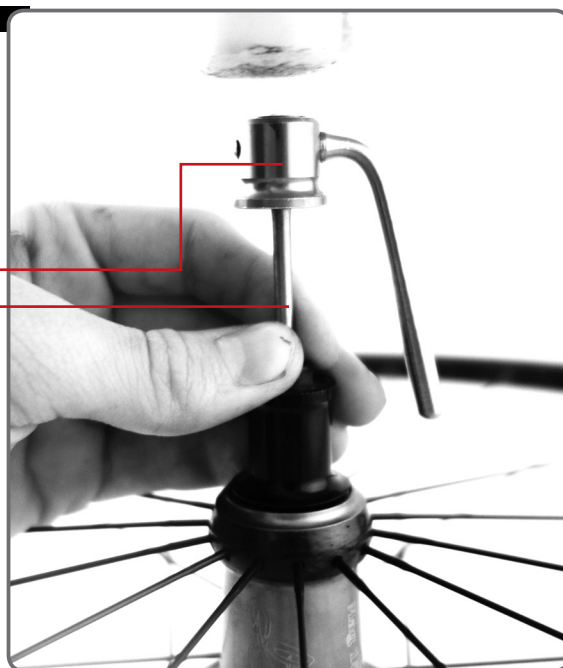


fig. 8



2 Removing the axle



fig. 3



Needed tools:

- plastic hammer
- TT08.3 No. WZ0201
- TT08.2 No. WZ0202
- TT08.1 No. WZ0200

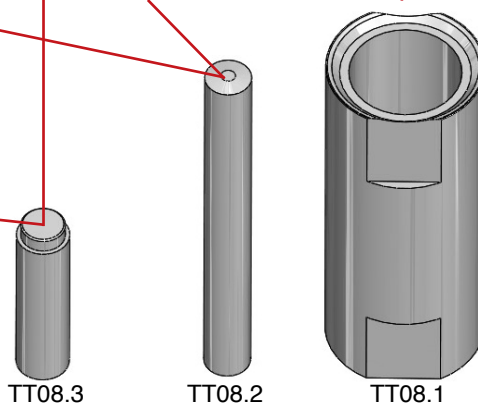


fig. 4

Place the hub on the main tool **TT08.1**, with the freewheel body pointing up, and place the tool TT08.2 with the adapter TT08.3 on the axle. Now the axle can be pushed out by some hits on the tool with a plastic hammer. **fig. 4**

3 Taking of the freewheel body

fig. 5

Now the freewheel body can easily be pulled off the hub body by hand. **fig. 5**

All components can now get examined and replaced if necessary.



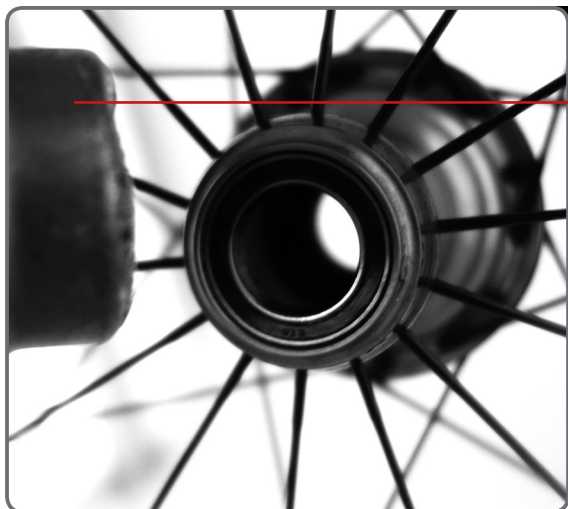


fig. 6

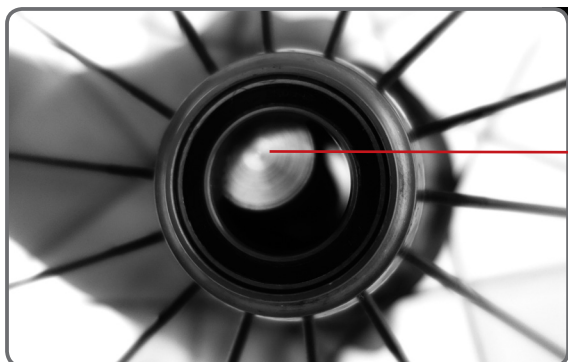


fig. 7

4

Removing the bearings



Needed tools:

- hot air blower
- TT08.2
- TT08.1



TT08.2

For easy removal of the bearing heat the hub body slightly. This loosens the glue and expands the aluminium. **fig. 6**

Now the bearings can be pushed out using the tool TT.08.2 and a plastic hammer. Always dispense the force all around the bearing to not damage both the bearing and the hub body. **fig. 7**

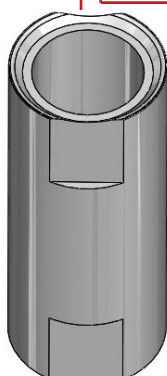
5

Installing a new bearing



Needed tools:

- TT08.1 No. WZ0200
- depending on the bearing size:
TT08.14 No. WZ0209 /
TT08.12 No. WZ0217
- plastic hammer
- glue ③



TT08.1



TT08.14



TT08.12

fig. 8



fig. 9



Tip:

Let the glue ③ dry before installing the axle and freewheel body. By doing so the bearings can not move while assembling.

The cleaned bearing seat gets covered with a thin layer of glue ③. The bearing gets pressed in with some light hits from a hammer **fig. 9**, using the correct sized fitting stamp **fig. 8**.

Pay attention to not cant the bearings and always only strain the outer ring of the bearing.

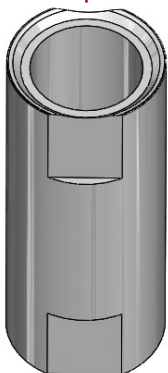
6

Reassembling the hub



Needed tools:

- TT08.1 No. WZ0200
- TT08.5 No. WZ0218
- plastic hammer
- grease ①



TT08.1



TT08.5



Tip:

A drop of oil ② on the freewheel pawls ensures the ease of motion over a longer period.

Put the freewheel pawls back into the freewheel body. Pay attention to the mounting direction. **fig.10**

fig.10



fig.11

The star ratchet on the hub body gets coated with grease ① you don't have to be greedy here.

The freewheel body gets pushed back on to the hub body. **fig.11**

The axle gets slightly covered with grease ① in the contact areas. **fig.12**

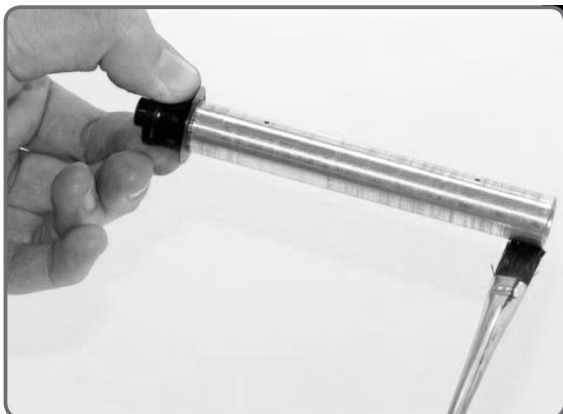


fig.12

fig.13



Now place both parts on the main tool **TT08.1**. With the tool **TT08.5** and the plastic hammer the axle gets pushed back through the bearings. **fig.13**

7 Setting the bearing play

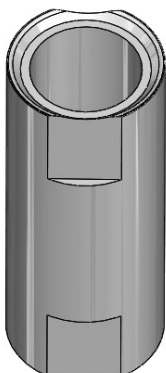
Reasons for bearing play can be worn bearings, a damaged axle or just the adjustment. A certain bearing play is normal and enables a soft and smooth rotation.

The axial bearing play is adjusted with washers. These are available in 0,1mm (NZ1604), 0,15mm (NZ1605) and 0,2mm (NZ1606) width. The washers are placed between the outer freewheel bearing and the right end-cap. We adjust the bearing play during production for every hub in manual labour. With wear, or when new bearings are installed, the bearing play has to be readjusted.

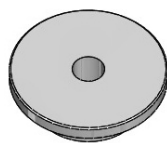


Needed tools:

- TT08.1 No. WZ0200
- TT08.9 No. WZ0204
- TT08.5 No. WZ0218
- plastic hammer
- vernier caliper
- grease ¹



TT08.1



TT08.9



TT08.5

Now the open end of the axle on the right side has to be measured. With the depth gauge of a vernier caliper measure the axle from the inner ring of the bearing to the end of the axle. The measurement has to be extremely precise, we recommend to repeat the measurement a couple of times.

fig.15

Release axle and bearings

Place the hub on the main tool with the extra attachment **T08.9**, that only the left endcap touches the tool. Using the tool **TT08.5** and a plastic hammer hit the axle softly. **fig.14** By doing so, strain is taken of the axle and the bearings.

fig.14



fig.15



From the measured length (e.g.: 9.8 mm) subtract the depth of the endcap (e.g.: 9.2 mm, see chart). The difference is the axial bearing play (here 9.8 - 9.2 = 0.6 mm).

The optimal axial bearing play amounts 0.15 - 0.20 mm. The difference between the measured open end of the axle (e.g.: 9.8mm) and the depth of the endcap (e.g.: 9.2 mm, see chart) has to be adjusted to 0.15 - 0.20 mm using washers. **fig.16**

The axial bearing play is adjusted perfectly, if the length of the open end of the axle with washers is set to the amounts given in the chart.

Endcap (always on the right side)	Depth of the endcap	Overstanding axle end with washers (with adjusted axial play)
10-fach Sihmano / Sram; Campagnolo; XD Freilauf	9,2 mm	9,35 - 9,40 mm
11-fach Shimano / Sram Freilauf	8,5 mm	8,65 - 8,70 mm

To finish of, the endcap is slightly covered with grease **1** on the inside. Now it can be pushed back on using a plastic hammer. **fig.17**

Now the wheel is usable again.



Warranty:

Tune grants a two year warranty from the date of purchase on material defects and production errors. On bearings, rims and spokes we grant a one year Warranty, as these are wear parts. Claims can only be made if a copy of an original dealer invoice is presented.

There is no claim for warranty services in case of:

- normal wear
- improper use or careless treatment
- disregard of service instructions
- inappropriate repair, assembly, or maintenance works or negligence
- defects caused by wrong wheel building (spoke patterns, spoke crossings, spoke tension, etc.)

Warranty claims have to be sent to the local Tune distributor and are subject to the assessment of Tune. Based on this warranty, the company Tune is not liable for compensation, especially not for indirect damage caused by accidents, collateral damage and consequential damage. All anodized parts can bleach in sunlight.

Crash Replacement:

Tune offers a Crash Replacement in addition to the legal warranty. The service can be engaged if your Tune product is damaged and not be rideable any more, due to a crash, accident or overload .

Conditions:

- Due to our huge products variety, the discount we can give, is assessed individually for every case.
- The damaged part is replaced by the same model. Tune reserves the right to replace the damaged part with an equal alternative.
- The damage has to affect the functionality of the component (optical damage is excluded).
- Damaged parts pass into the ownership of Tune.
- The Crash Replacement offer does not cover the costs of transport and labour.

Tune GmbH
Im Mittelfeld 18 | 79426 Buggingen

service@tune.de
www.tune.de

Outside of Germany please contact your local distributor.



BORN IN THE BLACK FOREST BUILT TO ENJOY NATURE