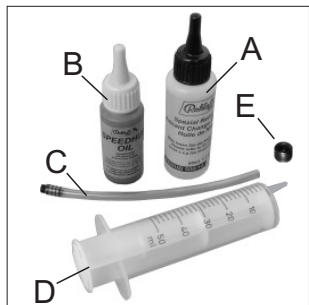


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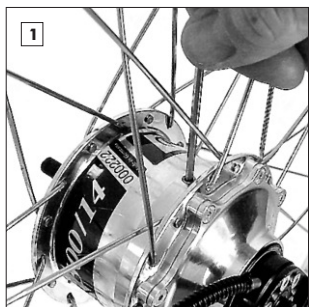
## 1. Oil change

An oil-change must be completed every 5000km or once per Annum to ensure the 25ml quantity of oil is retained and is free from dirt/moisture contamination. This process ensures that the *SPEEDHUB 500/14* will always contain enough oil for lubrication (regardless of oil lost due to sweat oil) and also ensures that any penetrated moisture is rinsed out.



The Oil Change Kit consists of:

- A** 25ml cleaning oil in a 50ml bottle\*
  - B** 25ml *Rohloff SPEEDHUB OIL*
  - C** Oil filling tube
  - D** Non returnable syringe 50ml
  - E** Drain screw with new seal
- The oil filling tube should be placed over the syringe and secured with a drop of super-glue before use.



To change the oil, the *Rohloff SPEEDHUB 500/14* should be left at room temperature (because the oil flows better). Turn the hub, so that the drain screw can be seen on the top. Remove drain screw (3mm allen key).



Draw the 25ml cleaning oil into the syringe, screw the filling tube into the drain screw hole and fill the cleaning oil into the hub. After this, use the syringe to draw out a little air out into the syringe. Remove the filling tube and refit the drain screw.

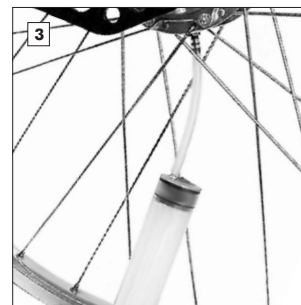
## POINTER

\* There will already be approx. 25ml fluid in the hub (old oil and any penetrated moisture). After the cleaning oil is also filled into the hub then there will be approx. 50ml fluid to drain out. For this reason the cleaning oil comes in a 50ml bottle so that the old fluid can be drained out into this bottle for safe disposal.

To rinse the hub properly, ride approx. 1km or turn the wheel by hand using the cranks for approx. 3min whilst simultaneously swiching between gears #3 and #5. In these gears all planetary gear sets are in use, making sure that the cleaning fluid is well rinsed through in order to thin out the old oil for easier removal.

## TIP

It is important to protect the brake disk/pads (if mounted) with a clean cloth to minimize the possibility that oil could spray out onto them.



Remove the drain screw (3mm allen key) and refit the filling tube and syringe. Turn the wheel, so that the filling point is underneath the hub. Wait approx. 15mins with the wheel in this position, then use the syringe to draw out the old fluid. Remove the syringe and filling tube, use this to empty the fluid into the empty 50ml cleaning oil bottle.

## ATTENTION

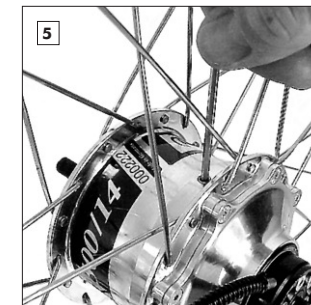
The *Rohloff SPEEDHUB 500/14* must be filled **exclusively with Rohloff oils (gear box/cleaning oils)**. The use of other types of lubricants and/or cleaning fluids could lead to the damage of the inner mechanism's nylon components.

Used oil should be taken to a specialized oil disposal point, so as to keep pollution levels down.

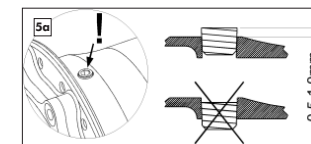
*Rohloff SPEEDHUB OIL* and cleaning oil can be disposed of together with other motor oils.



Draw 25ml *SPEEDHUB OIL* into the syringe and insert this into the hub. Draw out approx. 25ml of air to keep the pressure correct inside and therefore, avoid oil seeping back out, when removing the filling tube.



Fit a new oil drain screw and tighten correctly (Allen Key SW3, tightening torque 0.5Nm). As long as the thread sealant is not worn, then the old oil drain screw may be used repeatedly.



## ATTENTION

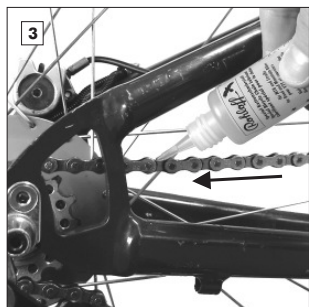
The oil drain screw must not be inserted any further than flush with the hub shell. Any deeper could result in periodic drive loss in certain gears.

## 2. Maintenance and care

The shifter cable tension can be altered by the cable adjusters. When winding the cable adjusters out, the cable tension is increased. For the lightest possible gear change, the tension should be just enough, so that on the twist shifter there is approx. 1/2 gear (2mm) rotational play, when in a selected gear. The dot on the twist shifter body can be aligned to the correct gear number without altering the cable tension, by winding one cable adjuster in and the other out.

### ATTENTION

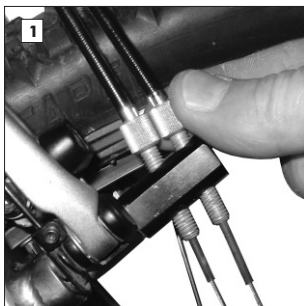
Too much cable tension raises the amount of friction within the shifter cables and in turn, raises the force needed on the twist shifter to select other gears.



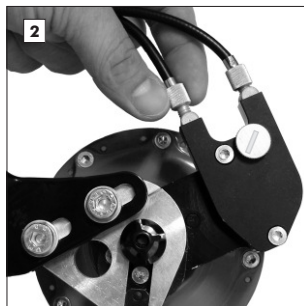
When lubricating the chain, place a thin thread of lubricant on the outside of the chain over the centre rollers. This process is carried out quicker and easier, when running the chain backwards whilst applying the lubricant.

### ATTENTION

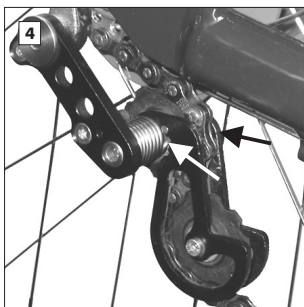
When using a disc brake in conjunction with the Rohloff SPEEDHUB 500/14, the hub cap screws should be checked that they are correctly tightened before every ride. To reduce the chance of a flange breaking due to unequal spoke tension, we recommend that this is regularly checked by a professional bicycle mechanic.



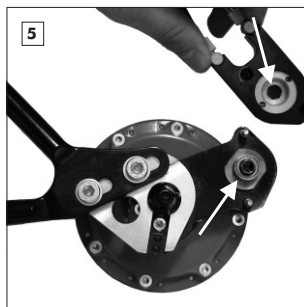
On the versions with an internal gear mech the cable adjusters can be found on the cable guide. This can be found on the left hand chain stay or attached to the left hand brake boss of the frame.



On the versions with an external gear mech the cable adjusters can be found on the cable box. This sits directly on the left hand side of the Rohloff SPEEDHUB 500/14. These cables are either routed along the seatstay or the chainstay of the frame.



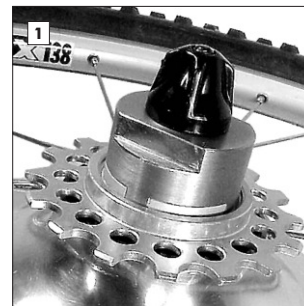
To lubricate the chain tensioner, place a drop of oil on the left and right side of the upper jockey wheel on the pivot point.



Rohloff SPEEDHUB 500/14 versions with external gear mech: To lubricate the cable pulley bearing, remove the cable box and place a little grease on the parts arrowed in the picture above.

## 3. Sprocket reversing/replacing

The sprocket sizes 15, 16 and 17 of the Rohloff SPEEDHUB 500/14 are symmetrical and are therefore reversible, when worn on one side. After reversing the sprocket, fit a new chain. This will now pull on the other, unworn side of the sprocket. Once both sides are worn, the sprocket must be replaced. The 13 tooth sprocket is not reversible, and therefore, must always be replaced once worn.



Check that the seats on the driver are clean so that the tool can be properly seated. Place the sprocket tool over the clean seats of the driver and with a quick release lever (CC) or an axle nut (TS) secure in position, so that the sprocket tool is prevented from springing out of the seats.

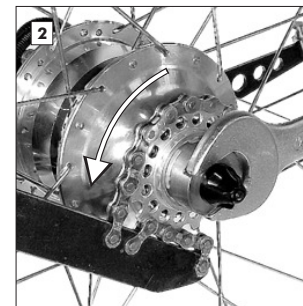
### POINTER

Make sure that the area around the sprocket and hubshell is free from dirt, so that this cannot penetrate into the gear-unit during this

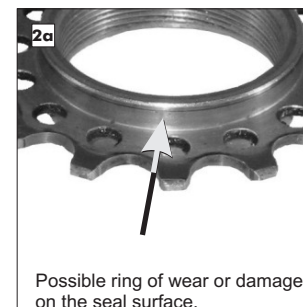
### ATTENTION

Make sure that the sprocket remover tool is properly secured correctly when mounting or dismounting the sprocket. The sprocket should not be removed with the use of a bench-vice mounted sprocket remover tool.

Failure to comply could result in damage to the driver.



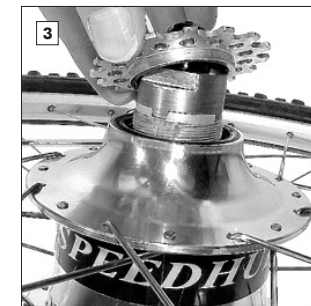
Hold the sprocket tool steady with a 24mm wrench and using a chain whip turn the sprocket anticlockwise in the opposite direction to the 24mm wrench.



Possible ring of wear or damage on the seal surface.

### ATTENTION

Check the sprocket for signs of damage or wear caused by the hub seal. If needed, reverse or replace it for a sprocket with undamaged seal surfaces immediately. This will in turn reduce the possibility that oil could seep out.



The sprocket can be removed over the sprocket tool. When only reversing the sprocket, clean the sprocket turn it over 180° and screw it back onto the cleaned and regreased thread of the driver in a clockwise direction. Tighten up the sprocket using the chain whip. If the sprocket needs to be replaced, simply screw the new sprocket tightly onto the driver.

### POINTER

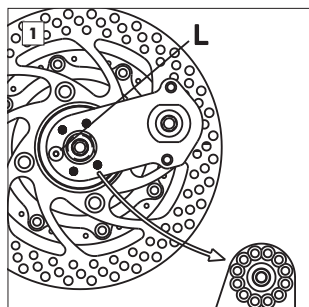
Placing the new/reversed sprocket onto the driver over the sprocket tool helps the sprocket to sit evenly on the thread, so as to eliminate the possibility of cross-threading.

A drop of special Rohloff cleaning oil (Art.No. 8402) through the holes in the new sprocket face can drastically help reduce the effect of the crank rotation while pushing the bicycle

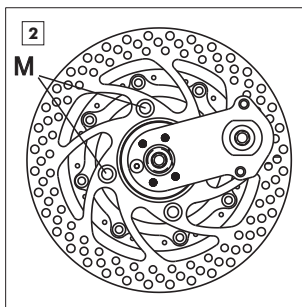


## 4. Changing of brake discs

If the brake disc is worn or needs to be replaced by a different brake type, the rear wheel along with the axle plate will have to be removed before the replacement of the disc can be carried out.



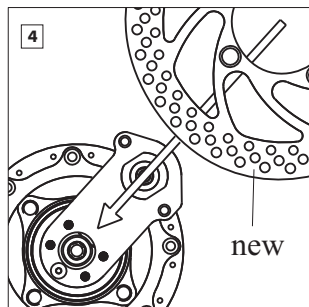
Mark the axle plate, so that it can be replaced later in the same position. Remove the axle plate screws (M4x25 - Torx TX20). Remove the axle plate and secure the external transfer box to the hub with one of these screws **L**.



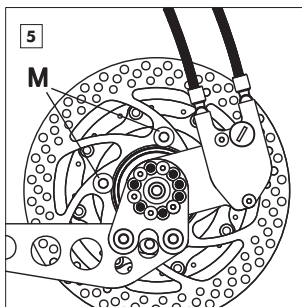
Remove the four mounting bolts **M** (M8x0.75x8.5 - 5mm allen key).

### ATTENTION

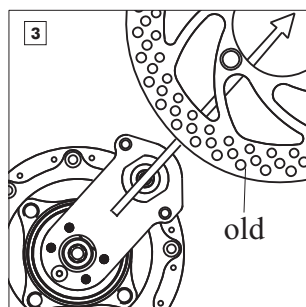
The external transfer box must not be removed as the cogs within the box could fall out of synchroni-zation. See chapter "Service" paragraph 5. "Changing the gear mech".



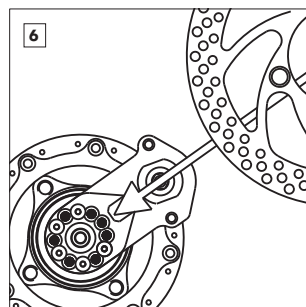
Place the new brake disc over the external transfer box and down onto the center disc mount (pay attention to the rotational direction of the brake disc).



Replace the four mounting bolts **M** (M8x0.75x8.5 - 5mm allen key, tightening torque 7Nm/61in.lbs.). Remove the axle plate screw **L** from the external transfer box. Remount the axle plate in the correct position and secure this in place with the five axle plate screws (M4x25 - Torx TX20, tightening torque: 3Nm/25in.lbs.).



Pull the old brake disc off the center disc mount and remove this over the external transfer box.

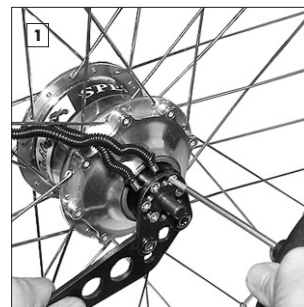


The removal of the axle plate is not necessary on the OEM versions, where the axle plate is secured to the hub in the position shown in the above diagram. The brake disc can simply be removed over the external transfer box and the axle plate together.

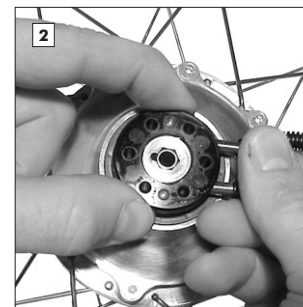
## 5. Changing the gear mech

The replacement of the gear mech is normally only needed, when mounting the hub on a different bicycle frame. It is not routine work and we advise that this work is carried out by a professional bicycle workshop.

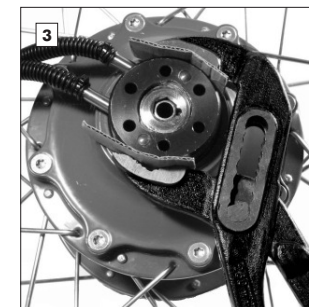
### 5.1 Removal of one-piece axle ring



Regardless of which axle plate is mounted, the axle plate must be removed by unscrewing all six of the axle plate screws (M4x25 - Torx TX20).



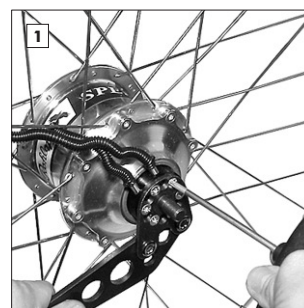
Lie the wheel on a flat surface with the axle ring facing up and the cable guides facing to the right. Rock the axle ring from side to side whilst pulling it upwards in order to loosen it from the hub.



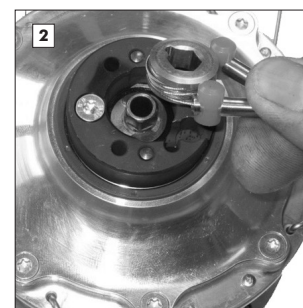
### TIP

Should the axle ring not loosen by hand, use a pipe wrench to hold the axle ring tight (place cardboard between the axle ring and the pipe wrench). Rock the axle ring from side to side with the pipe wrench, whilst pulling it upwards in order to loosen it from the hub.

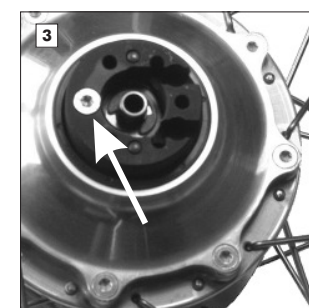
### 5.2 Removal of quick-change axle ring



Regardless of which axle plate is mounted, the axle plate must be removed by unscrewing all five of the axle plate screws (M4x25 - Torx TX20).



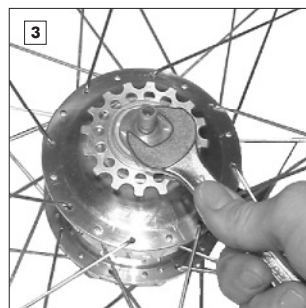
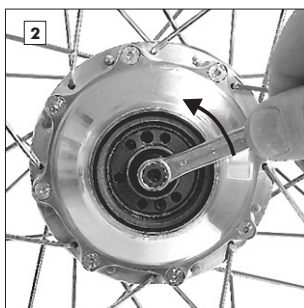
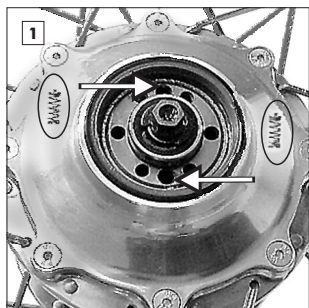
Lie the wheel on a flat surface with the axle ring facing up and the cable guides facing to the right. Pull the cable guides with the nylon cylinders and the cable pulley upwards and out of the axle



Remove the axle ring screw (M4x20 - Torx TX20) and rock the axle ring from side to side, whilst pulling it upwards in order to loosen it from the hub.



## 5.3 Mounting the external gear mech



### ATTENTION

The wheel must not be laid on the axle ring side once the axle ring has been removed because:

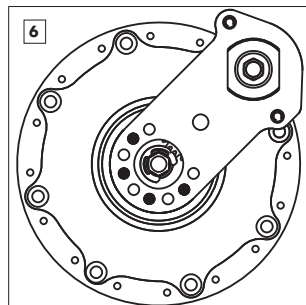
- Oil could leak out of the holes.
- The two freewheel springs could fall out of the locating peg holes.

Shift the gearbox into gear #14 by turning the hexagonal peg with an 8mm wrench carefully in an anti-clockwise direction to the end stop.

Hold the aluminium nut on the sprocket side with a 17mm wrench to prevent the axle from moving, whilst selecting the gear.



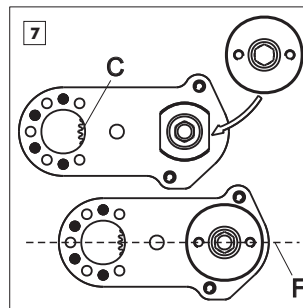
Place a new paper gasket over the locating pegs of the external transfer box, so that all holes meet up with corresponding screw holes of the axle ring. The smaller seal sits in the recess on the rear side of the axle ring.



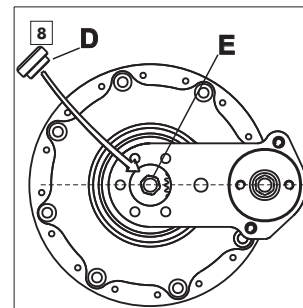
Mount the external transfer box onto the gearbox.

### POINTER

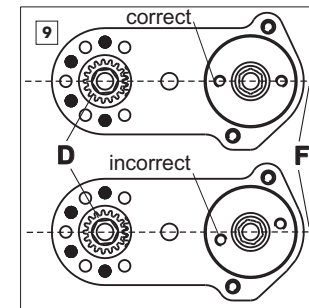
The grub screw under the External Gear Mech should be fitted in the correct position. "Appendix - Grub screw of the External Gear Mech".



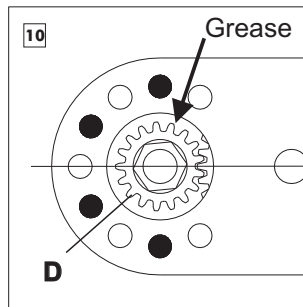
Place the cable pulley over the hexagonal peg of the external transfer box and then rotate it until the two screw holes sit on the center line **F**, as shown in the diagram above. Hold the cable pulley in this position.



Insert cog **D** over the hexagonal peg **E** with the toothing facing outward. There is one mounting position out of the possible six, where the teeth of the cog **D** and the sprocket **C** line up. In this position the screw holes of the cable pulley remain as close as possible along the center line **F**. This position is the correct position. It may be necessary to turn the cable pulley lightly to the left or right to allow for an easier assembly.

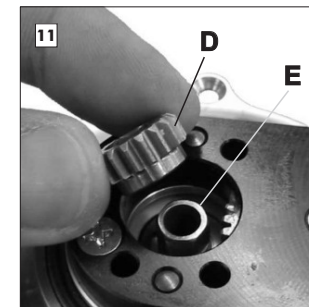


The five other mounting positions result in the screw holes of the cable pulley being substantially more out of line with the center line **F**. In this case, remove the cog **D** and try the next mounting position.



Place a small amount of grease between the cog **D** and the external transfer box. Remount the axle plate and secure it in the correct position with the five axle plate screws (M4x25 - Torx TX20, tightening torque 3Nm/25" lbs.).

Further steps for mounting the external gear mech can be found in chapter "Mounting", paragraph 7.3 "External gear mech".



### ATTENTION

The smaller side of cog **D** must always be mounted into the external transfer box facing inwards. When cog **D** is wrongly mounted, the axle plate will cause functional difficulties within the external transfer box.



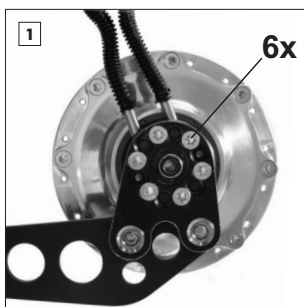
A selection of sprockets and the sprocket tool

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## 1. Changing the hub cable (0.9mm Rohloff special gear cable)

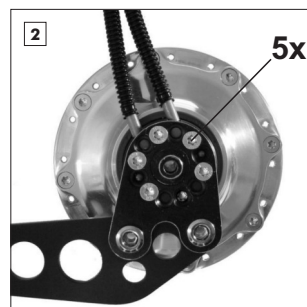
The method of replacement for a worn or broken hub cable can be carried out differently depending on which axle ring type is mounted.

1. Axle ring with pressed-in cable guides (one-piece axle ring with spare parts 'Hub cables' Art. #8271)
2. Axle ring with cable guides seated within nylon cylinders (quick-change axle ring with spare parts 'Hub cable Easy Set' Art. #8573 )



The one-piece axle ring was mounted on all internal gear mech versions until the beginning of 2003. This type of axle ring is secured to the gearbox with six axle plate screws. The cable guides of the one-piece axle ring remain fixed to the axle ring. This can be seen once the axle plate has been removed. To replace the hub cable, the axle ring complete with the cable pulley must be removed.

Replacement procedure  
see paragraph 1.1.



The quick-change axle ring is secured to the gear box with five axle plate screws. The axle ring remains secured to the gearbox with one more screw and the cable guides seated within black nylon cylinders rest in the axle ring. This can be seen once the axle plate has been removed. When replacing the hub cable, the axle ring remains attached to the gearbox.

Replacement procedure  
see paragraph 1.2.

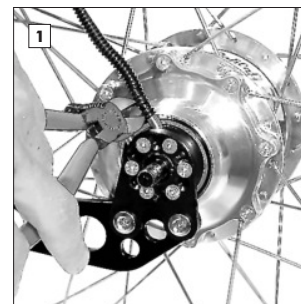
### POINTER



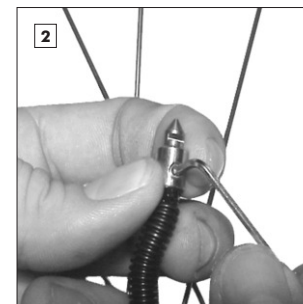
When correctly mounted, the hub cable should last a good 10,000km. Should the cable get damaged and need to be replaced sooner, the reason for this damage should be identified and corrected before mounting a new hub cable. Possible reasons:

1. False alignment of the axle plate or the cable guide can result in the cable rubbing against the metal of the cable adjusters/guides. (see chapter "Mounting", paragraph 4.1.2).
2. Torque not properly secured. The hub axle rotated and stretched the cables to breaking point.
3. Other physical damage (eg. crashes, accidents).

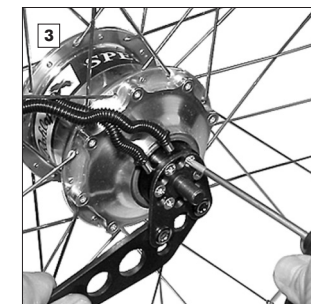
## 1.1 One-piece axle ring



Remove the rear wheel. With good wire cutters, cut off the four cable ties that hold the concertina tubes over the hub cables.



Unscrew both bayonet male connectors from the hub cables (M4x4 - 2mm allen key) and remove the concertina tubes.

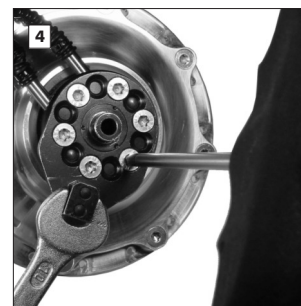


To change the hub cables, the axle plate must be first removed. To do this unscrew the six axle plate screws (M4x25 - Torx TX20).

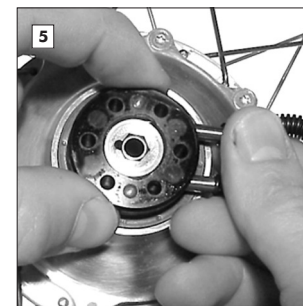
### ATTENTION



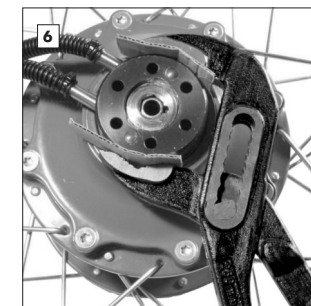
Take note of the position of the axle plate against the hub cable guides for correct refitment later.



To hold the axle steady, grip the long torque arm tightly or hold the OEM or OEM2 axle plate with a 10mm wrench (see chapter "Mounting", paragraph 4.3).



Lie the wheel on a flat surface with the axle ring facing up and the cable guides facing to the right. Rock the axle ring from side to side whilst pulling it upwards in order to loosen it from the hub.



### TIP



Should the axle ring not loosen by hand, use a pipe wrench to hold the axle ring tight (place cardboard between the axle ring and the pipe wrench). Rock the axle ring from side to side with the pipe wrench whilst pulling it upwards in order to loosen it from the hub.





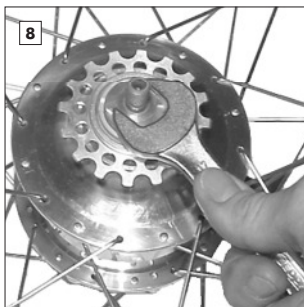
## ATTENTION

The wheel must not be laid on the axle ring side once the axle ring has been removed because:

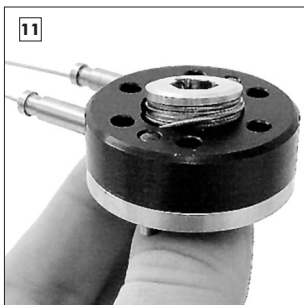
- Oil could leak out of the holes.
- The two freewheel springs could fall out of the locating peg holes.



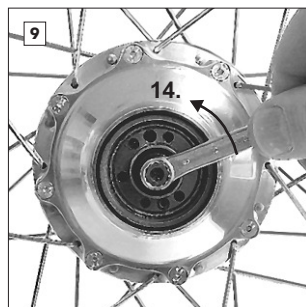
Remove both paper gaskets from the rear side of the axle ring (where applicable). Always use new paper gaskets when remounting the axle ring.



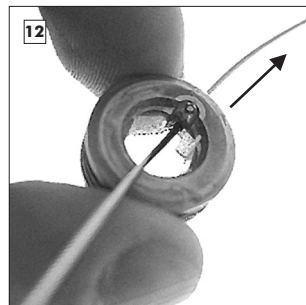
The mounting of the cable pulley must be carried out in gear #14. To do this, the axle has to be held steady with a 17mm wrench on the aluminum nut (sprocket side).



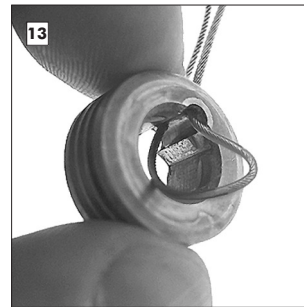
Push the cable pulley out of the axle ring from the rear side. Take care not to tilt the cable pulley for an easier removal. Remove the old hub cable and clean both the cable pulley and the axle ring. **Check cable pulley for burrs and deburr if necessary.**



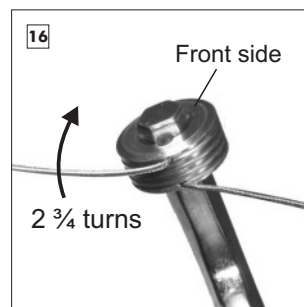
With an 8mm wrench turn the hexagonal peg in an anticlockwise direction until the end stop. Now the hub is in gear #14.



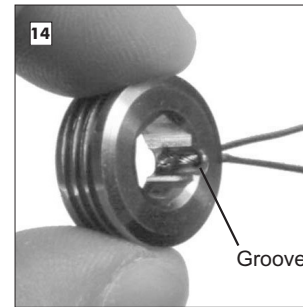
Push the new hub cable approx. half way into the cable pulleys lower hole from the inner side.



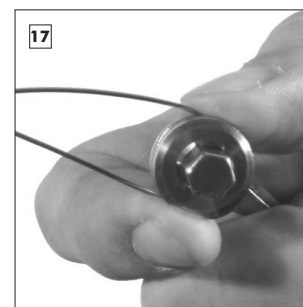
Next push the other end of the cable into the top hole of the cable pulley until both ends of the cable stick approx. the same length out of the other side.



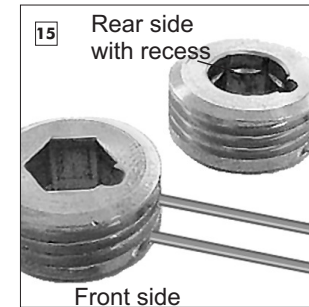
Put the cable pulley onto an 8mm allen key with the front side on top. Bend the hub cables in the direction of the cable runs in the cable pulley. The top cable should be wound approx. 2 3/4 times around the cable pulley.



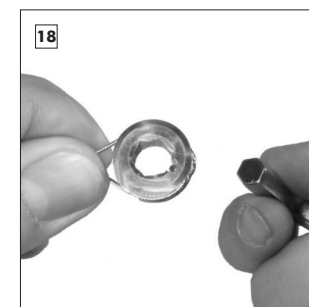
Hold the cable pulley tight and with the other hand grasp the hub cables and pull them quickly until the cable sits properly in the cable pulley without getting kinked.



Hold both ends of the hub cable in position with thumb and index finger.



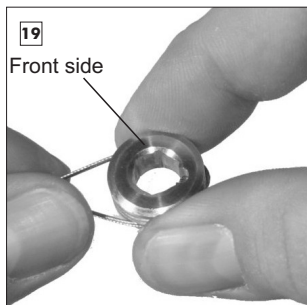
Pay attention to which side of the cable pulley is the mounting side. The back/mounting side has a recess before its hexagonal hole. The front side is without this



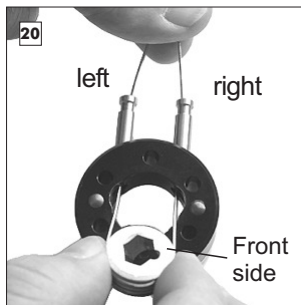
Press both ends of the hub cable together with the thumb and index finger of the other hand. Remove the cable pulley from the 8mm allen key.

## POINTER

The inward groove of the cable pulley should be sitting facing in the opposite direction to the gear cable. The runs of the cable pulley must be completely filled by the gear cable.



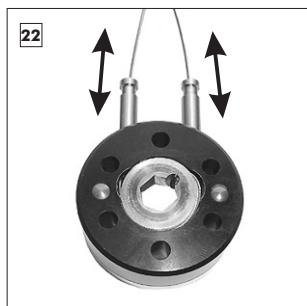
Grip the cable pulley with a free hand so that both ends of the hub cable are held in position. Hold this so that front side of the cable pulley faces up.



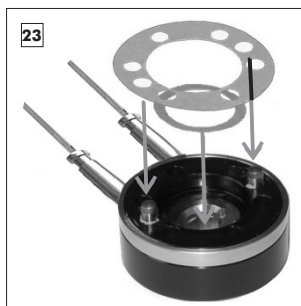
Thread the right end of the hub cable (long end) through the right hand cable guide. Thread the left end of the hub cable (short end) through the left hand cable guide. This procedure works a lot easier when the axle ring is held by a third hand.



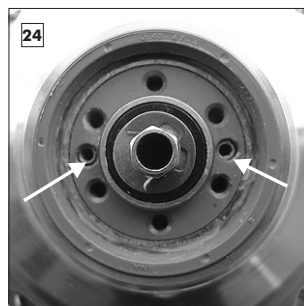
Pull the cable pulley up to the axle ring by pulling both ends of the hub cable equally. Push the cable pulley into a parallel position with the axle ring using the thumb (from outside) and index finger (from inside) whilst keeping the tension applied to both hub cable ends. The cable pulley then springs into the axle ring hole.



The cable pulley must rotate freely within the axle ring when pulling each end of the hub cable. Prevent the cable pulley from springing out of the axle ring with the thumb and index finger.



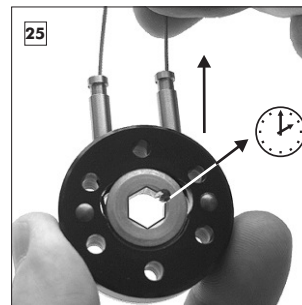
Place a new paper gasket over the locating pegs of the axle ring so that all holes meet up with the corresponding screw holes of the axle ring. The smaller gasket sits in the recess on the rear side of the axle ring.



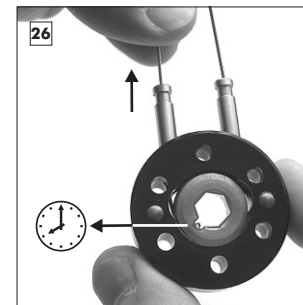
Lay the wheel on a flat surface so that the two locating peg holes (not threaded) lay at positions 3 and 9 o'clock (arrowed).

## ATTENTION

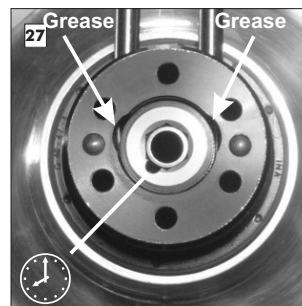
Make sure the two freewheel springs remain in the locating peg holes.



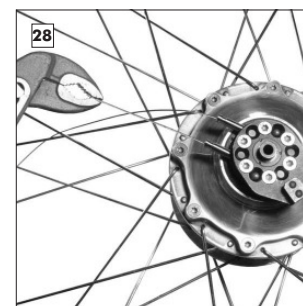
Hold the axle ring in the left hand and pull the right end of the hub cable until the end stop (groove rotates to about 2 o'clock).



Pull the left end of the hub cable so that the groove rotates approx. 1/2 revolution. The groove in the cable pulley should now sit between the 7 and 8 o'clock positions. This is the position of gear #14. Hold the axle ring and the cable pulley securely in this position and place this onto the gearbox with the locating pegs in the correct holes.



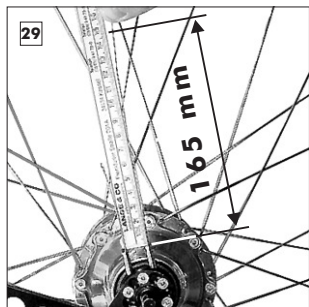
Make sure that the hexagonal peg sits correctly within the hole of the cable pulley (groove between the 7 and 8 o'clock positions). It may be necessary to alter the position of the cable pulley by a minimal amount. Place some grease between the cable pulley and the axle ring (arrowed). Replace the axle plate and secure into position with the six axle plate screws, tightening them in cross formation (Torx TX20, tightening torque: 3Nm/25"lbs.).



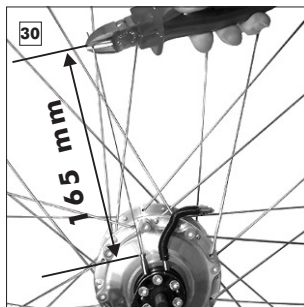
Check the function of the axle ring by gripping one end of the hub cable with pliers and pulling this out to the end stop. Repeat this process with the other end of the hub cable. At the end stops, both ends of the hub cables should protrude from the cables guides by the same amount.

## POINTER

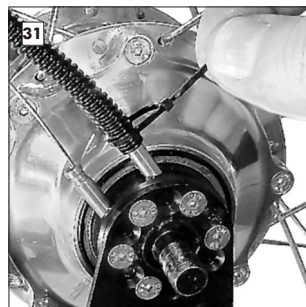
Should one end of the hub cable be pulled completely round to the end stop, the bend in the hub cable (between the cable hole of the cable pulley and the cable run) will straighten out. This bending and straightening of the hub cable will considerably shorten the cable life. Therefore, the cable pulley must always have an end position approx. half a turn away from the cable guides. This way the hub cable is guaranteed to run smoothly as it always sits in the cable run and the bend remains in place.



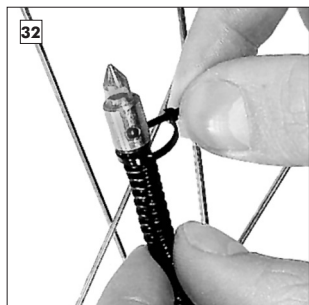
Check the rear (14) side cable is pulled out to its end stop. Measure\* this rear (14) cable and cut it at 165mm with sharp wire cutters. Place a new concertina tube carefully over the cable and place the male bayonet connector onto the end of the cable.



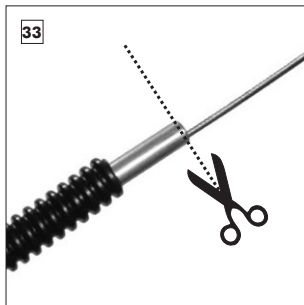
Push the cable up into the male bayonet connector as far as it will go and tighten both 4mm headless screws (2mm allen key, tightening torque: 1.5Nm/12"lbs.). Pull the front (1) side cable with pliers through the 13 clicks of the gearbox until the endstop (gear #1). Measure\* this front (1) cable and cut it at 165mm with sharp wire cutters.



Place a new concertina tube and male bayonet connector over the cable. Tighten up the connector as with the other. Pull the shorter cable until both of the hub cables are approx. the same length. Place the two new concertina tubes over the cable guides and secure with cable ties. Make sure that the cable ties clamp the concertina tubes over the recess in each of the cable guides.



The top ends of the concertina tubes must be placed over the ends of the male bayonet connectors and secured with cable ties. Make sure that the cable ties clamp the concertina tubes over the recesses.

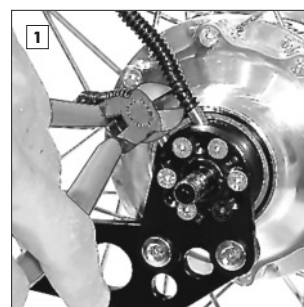


## TIP

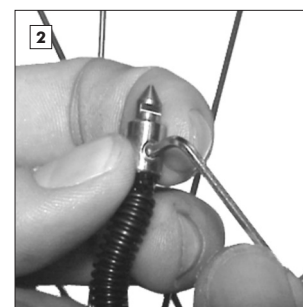
\* For easier measurement of the correct cable length the special measuring pipe (Art. #8711) can be ordered. Simply place the measuring pipe as far down as possible over the cable. Cut the cable at the end of this pipe, then slide the new concertina tube over the pipe. Remove the measuring pipe, secure the male connector and the concertina tube in the correct positions.

## 1.2 Quick-change axle ring (after Serial Number 25300)

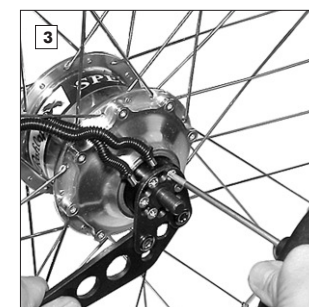
A Hub Cable Easy Set (Art. #8573) is available for a quick replacement. A Hub Cable including all needed parts can simply be slotted into the axle ring as a complete unit (See included instruction sheet for mounting instructions).



Remove the rear wheel. With good wire cutters cut off the four cable ties that hold the concertina tubes over the hub cables.



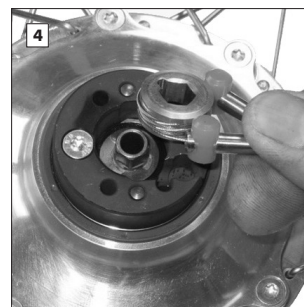
Unscrew the bayonet male connectors from the hub cables (M4x4 - 2mm allen key) and then remove the concertina tubes.



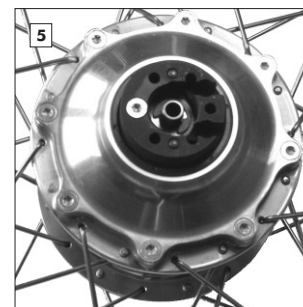
To change the hub cables the axle plate must be firstly removed. To do this, unscrew the five axle plate screws (M4x25 - Torx TX20).

## ATTENTION

Take note of the position of the axle plate against the hub cable guides for correct refitment later.

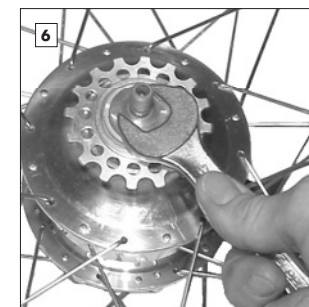


The axle ring remains attached to the axle by one more countersunk head bolt underneath the axle plate. Lie the wheel on a worktop with the axle ring facing upwards. Remove the two cable guides with the nylon cylinders and the cable pulley by rocking the cable guides from side to side until they are released from their seats within the axle ring.



## ATTENTION

Do not lie the wheel on the axle ring side, as it is possible that oil could leak out of the bolt holes.

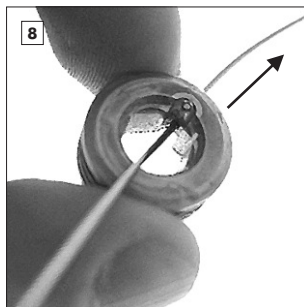


The mounting of the cable pulley must be carried out in gear #14. To do this, the axle has to be held steady with a 17mm wrench on the locking nut on the sprocket side.





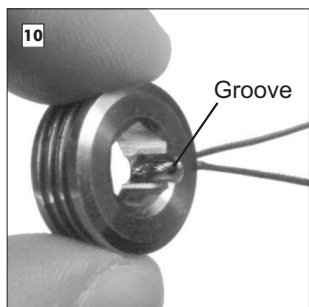
With an 8mm wrench turn the hexagonal peg in an anticlockwise direction until the end stop. Now the hub is in gear #14.



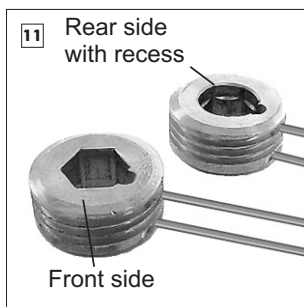
Remove the old hub cable from the cable pulley. **Clean and deburr cable pulley if necessary.** Insert the new hub cable (0.9mm) approx. half way into the cable pulleys lower hole from the inner side.



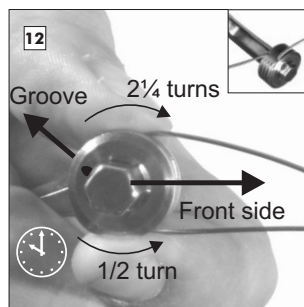
Next push the other end of the cable into the top hole of the cable pulley until both ends of the cable stick approx. the same length out of the other side.



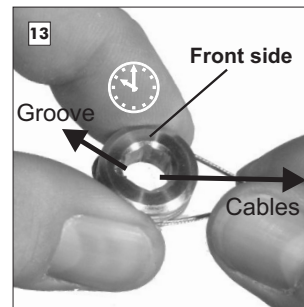
Hold the cable pulley tightly and with the other hand grasp the 0.9mm hub cables and pull them quickly until the cable sits properly in the cable pulley without getting kinked.



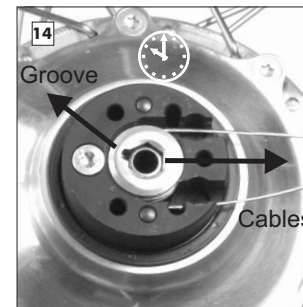
Pay attention to which side of the cable pulley is the mounting side. The back/mounting side has a recess before its hexagonal hole. The front side is without this recess.



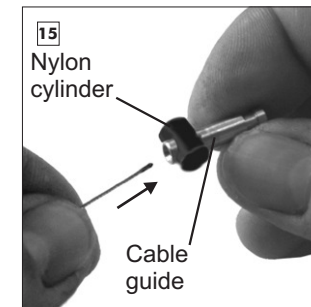
Bend the hub cables in the direction of the cable runs in the cable pulley (this is easily achieved by placing the cable pulley onto an 8mm allen key). The top cable should be wound approx.  $2\frac{1}{4}$  times around the pulley. The bottom cable approx.  $\frac{1}{2}$  of a turn in the opposite direction.



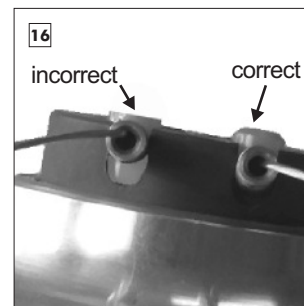
The picture shows the cable pulley with the correctly wound hub cables. The cable runs are completely filled with the gear cable and the groove faces toward the 10 o'clock position.



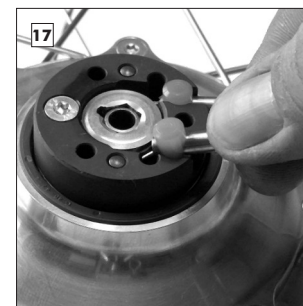
The cable pulley should be placed over the hexagonal peg of the shifting shaft with the groove facing towards the countersunk axle bolt (or as near to it as possible approx. 9-10 o'clock position). Both ends of the hub cable should be placed through the seats of the cable guides.



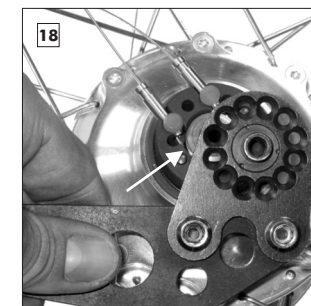
Place the cable guides over the hub cables, nylon cylinder end first!



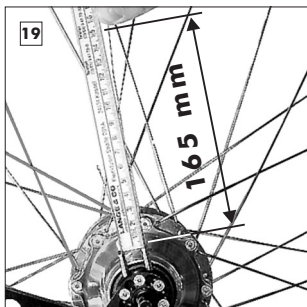
The cable guides are sitting properly in their seats of the axle ring when the rounded top of the nylon cylinder is facing upwards (as shown in the above picture).



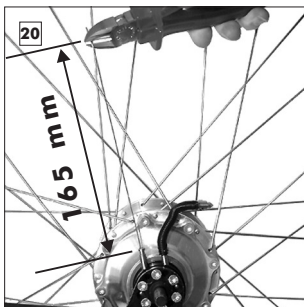
Press the nylon cylinders firmly into their seats of the axle ring.



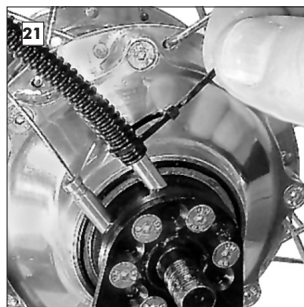
**Place a little grease between the axle ring and the cable pulley.** Remount the axle plate checking that it is at the same angle against the cables guides as it was before. Tighten up the five countersunk bolts (Torx TX20 - tightening torque: 3Nm/25"lbs.).



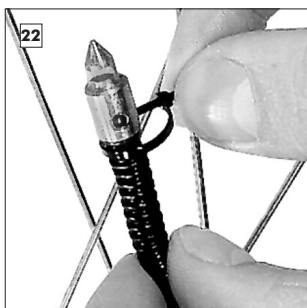
Check the rear (14) side cable is pulled out to its end stop. Measure\* this rear (14) cable and cut it at 165mm with sharp wire cutters. Place a new concertina tube carefully over the cable and place the male bayonet connector onto the end of the cable.



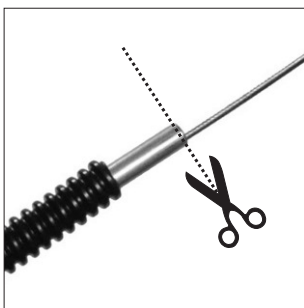
Push the cable up into the male bayonet connector as far as it will go and tighten the two 4mm headless screws with a 2mm allen key (tightening torque 1.5Nm/12"lbs.). Pull the front (1) side cable with pliers through the 13 clicks of the gearbox until the end stop (gear #1). Measure\* this cable and cut it at 165mm with sharp wire cutters.



Place a new concertina tube and male bayonet connector over the cable. Tighten up the connector as with the other. Pull the shorter cable until both of the hub cables are approx. the same length. Place the two new concertina tubes over the cable guides and secure them with cable ties. Make sure that the cable ties clamp the concertina tubes over the recess in each of the cable guides.



The top ends of the concertina tubes must be placed over the ends of the male bayonet connectors and secured with cable ties. Make sure that the cable ties clamp the concertina tubes over the recesses.



### TIP

\* For easier measurement of the correct cable length the special measuring pipe (Art. #8711) can be ordered. Simply place the measuring pipe as far down as possible over the cable. Cut the cable at the end of this pipe, then slide the new concertina tube over the pipe. Remove the measuring pipe, secure the male connector and the concertina tube in the correct positions.

## 1.3 Bajonet connector

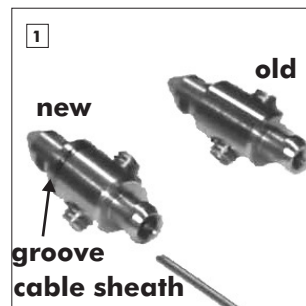
### ATTENTION

The new male bayonet connector (after-2005/Serial Number 43100) differs from the former as discribed below:

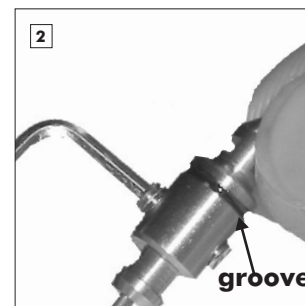
- 3mm Drilling (cable mount)
- Ring shaped groove (distinction characteristic)
- Cable end sheath

### POINTER

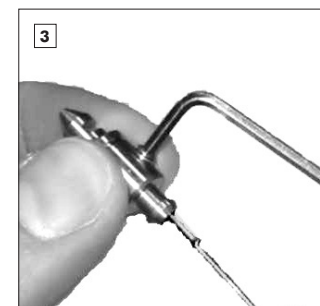
Do not use the new cable sheaths together with the old bayonet connectors (2mm drilling) to clamp the cables. In this case, the cable sheaths will be squeezed flat and it will no longer be possible to remove them from the 2mm bayonet connectors.



The bayonet connectors should be mounted together with the cable sheaths onto the 0.9mm hub cable. This way, damage to the cable by pinching it with the grub screws can be easily prevented.

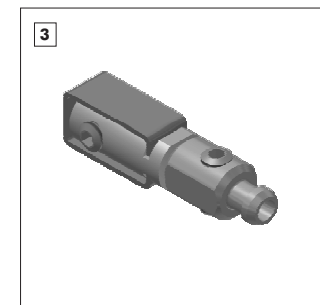
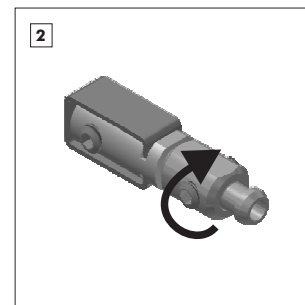
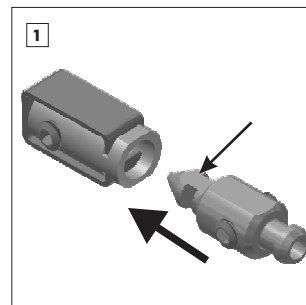


Insert the hub cable including the new cable sheath completely until the bedstop into the bayonet connector (3mm drilling). Fix the grub screws with a 2mm allen key.



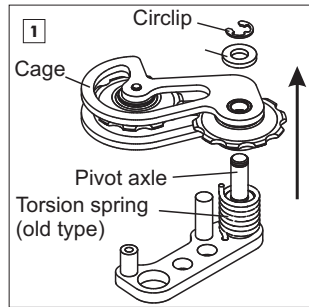
Use the 2mm allen key to secure the cable inside the bayonet connector with 0.8Nm. Secure the concertina tubes with cable ties. For further help, refer to "Repairs" 1.2.

### 1.3.1 New Bajonet version 2014

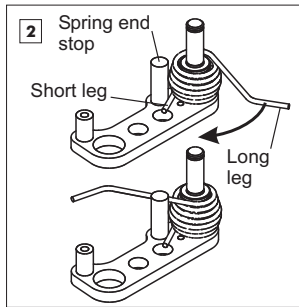


## 2. Changing the chain tensioner spring

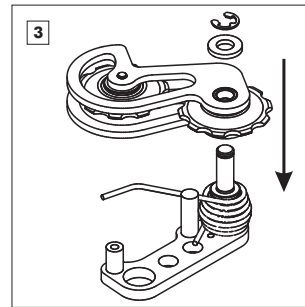
Since the end of 2002 the *Rohloff* chain tensioner has been equipped with a modified spring. With the conversion kit (Art. #8248) all the older *Rohloff* chain tensioners can be equipped with the new spring.



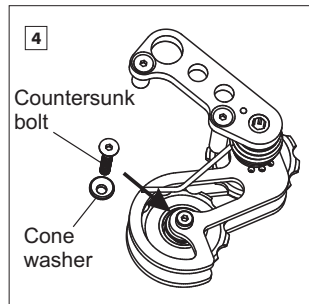
Remove the safety clip from the pivot axle using a flat screwdriver. Do not reuse this clip. Pull the cage and the washer off the pivot axle in the direction of the arrow. Remove the old torsion spring.



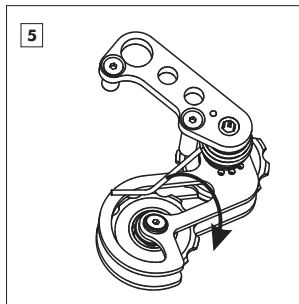
Clean and grease the pivot axle. Mount the new torsion spring over the pivot axle as shown. Turn the torsion spring until its short leg lies against the spring end stop. Hold the torsion spring in its position on the pivot axle whilst swinging the long leg over the spring end stop.



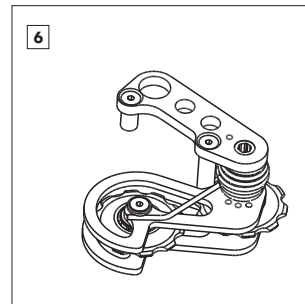
Push the cage completely onto the pivot axle. Replace the washer and fit the new safety clip into position.



Bring the cage and the long leg of the spring together into a position similar to that shown in the diagram. Swap the old jockey wheel bolt for the new countersunk bolt (M4x20 - Torx TX20, tightening torque 3Nm/25in.lbs.) and cone washer.



Push the long leg of the spring in the direction of the arrow over the new bolt and let it spring back.



The long leg of the spring now sits against the cone washer and holds the cage back creating the tension.

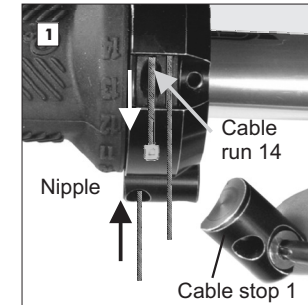
### POINTER

To replace the jockey wheels, remove the cage from the pivot axle (as in stage #1). Remove the lower jockey wheel bolt and replace the jockey wheels. Remount the chain tensioner (stages #3 and #4).

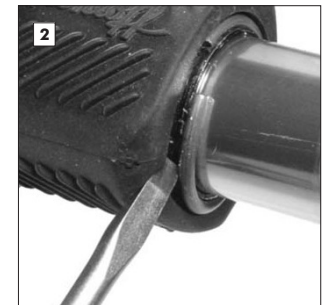
## 3. Changing the grip rubber

### POINTER

The shifter cables have to be removed from the twist shifter first before it is possible to replace the rubber grip. Before the shifter cables are removed, the ends that were clamped in the female connectors (internal gear mech) or the cable pulley (external gear mech) must be cut so that the frayed ends of these cables do not damage the nylon liners when being removed.



Remove cable stop 1 and rotate the twist shifter until the nipple of shifter cable 14 can be seen. Pull the cable out of the twist shifter. Repeat this process for the removal of shifter cable 1.

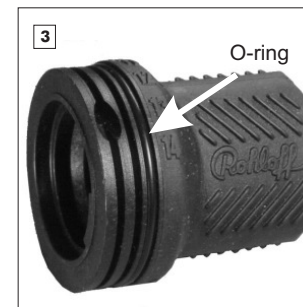


With a flat screwdriver, remove the safety ring. The rubber grip can now be removed. Clean the twist shifter housing.

### TIP

**Should only the rubber grip need to be replaced.**

Firstly shift into gear #14. Disconnect the Bayonet Connectors or the External cable box. Screw both of the cable adjusters completely in and remove the two screws on the cable stops of the shifter. Remove the safety circlip and slide the complete rubber grip out of the shifter housing and off of the handlebars. Hook both the cables out of their seats in the rubber grip, transfer these and re-hook them into the new, lightly greased rubber grip (Art.N° 8201). Wind these cables roughly 3/4 (270°) around the new grip in their respective runs and slide this new complete unit back inside the shifter housing and refit both of the cable stops. Replace the safety circlip and lightly test the shifter functions correctly. Reconnect the Gear mech in gear #14.



Lightly grease the twist shifter housing. The arrowed "O ring" must also be lightly greased and checked that it is sitting in the correct position before remounting.



The safety ring can now be remounted. Check that the twist shifter rotates smoothly and freely. Refit new shifter cables (see chapter "Mounting", paragraph 6. "Twist shifter").



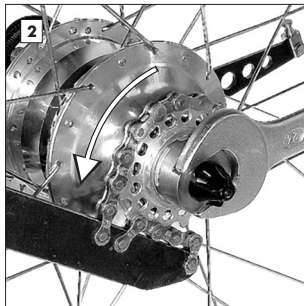
## 4. Exchanging the gear unit

With the *Rohloff SPEEDHUB 500/14*, the 14 speed gearbox can be removed completely from the hub casing allowing for a quick and easy replacement of the gearbox.

### 4.1 Gear unit removal



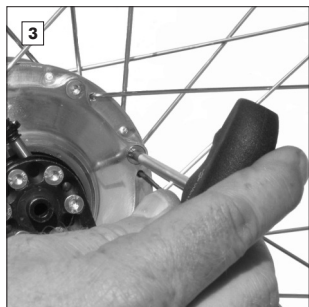
The removal procedure must start with the rinsing and draining of the oil from within the hub (see chapter "Oil change"). The drain screw must not be reused.



Remove the sprocket using a chain whip and the sprocket tool (see chapter "Service", paragraph 3. "Sprocket reversing/replacing").

### ATTENTION !

When mounting or dismounting the sprocket, always check that the sprocket tool is properly secured. The driver could get severely damaged, when attempting this removal/assembly procedure with an unsecured sprocket tool.



Remove the axle nuts or Q/R skewer and the sprocket tool. Now remove the 8 hub cap countersunk bolts (M4x10 - Torx TX20).



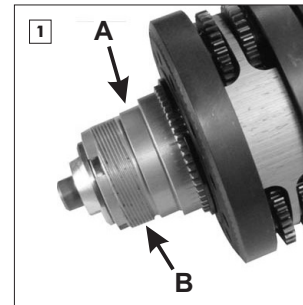
Draw the gearbox out of the hub casing. If this proves to be difficult, then gently tap the sprocket side of the gearbox with a rubber mallet to ease the process. CAREFUL! Excess oil could still leak out of the hub casing!



Lie the gearbox on its side and remove and dispose of the excess oil that is sitting in the hub casing.

## 4.2 Gear unit installation

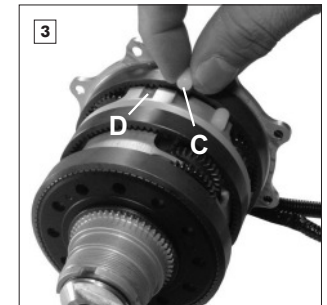
When remounting the gearbox, new joints and a new paper gasket must be fitted.



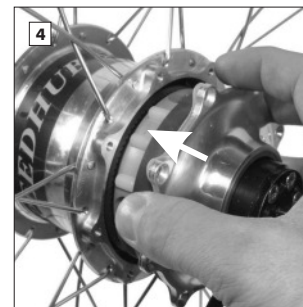
The bearing seat **A** and the sprocket thread **B** of the driver must be lightly greased before remounting the gearbox.



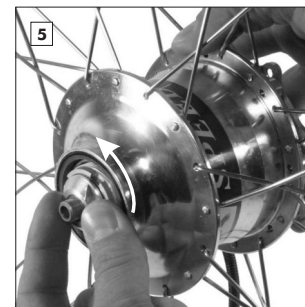
The new paper gasket (arrowed) must be fitted over the centering ridge of the hub cap. This is better accomplished when lightly greased. Align the holes in the paper gasket with those in the hub cap ready for the bolts later.



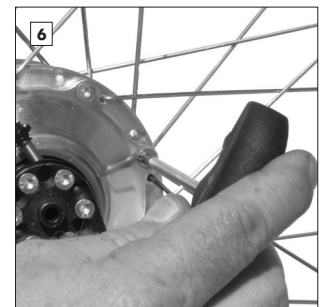
The new joints **C** must also be lightly greased before being placed into their respective seats **D**. These joints are what transfer the power from the gearbox to the hub casing.



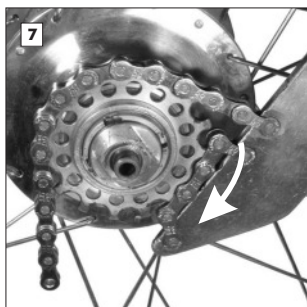
Hold the hub cap and the gearbox firmly and feed the gearbox into the hub casing until the hub cap touches the hub casing.



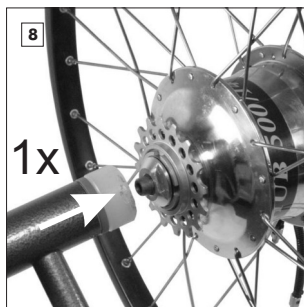
The gearbox only sits properly once the joints sit in their correct positions against the hub casing. To ease the process, rotate the driver in an anticlockwise direction whilst pushing the two parts together.



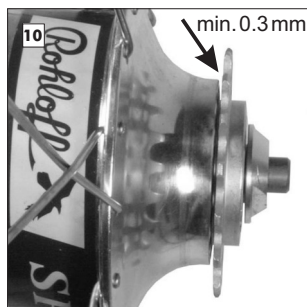
Once the hub casing touches the cap, the 8 countersunk screws can be replaced. Tighten these screws in a cross formation, so as to evenly distribute the pressure between the two parts whilst securing them together (M4x10 - Torx TX20, tightening torque:



Refit the sprocket with the use of a chain whip.



Check that the sprocket runs smoothly by spinning the sprocket backwards. If not, then hit the axle peg firmly with a rubber mallet. Once from the sprocket side (right) and once from the axle plate side (left). This will loosen-up the tension on the bearings.



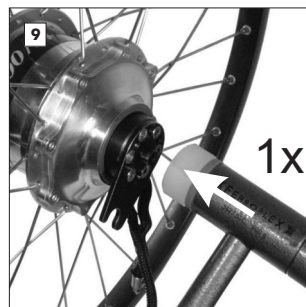
There must be a minimum of 0.3mm between the sprocket and the hub casing. If not, then remove the sprocket and push the hub seal as far back as possible. Refit the sprocket and check that the sprocket runs smoothly.



Refill the Rohloff SPEEDHUB 500/14 with 25ml of Rohloff SPEEDHUB OIL (see chapter "Service", paragraph 1. "Oil change") and refit a new drain screw (3mm allen key, tightening torque: 0.5Nm/4in.lbs.).

## ATTENTION

The oil drain screw must not be inserted any further than flush with the hub shell. Any deeper could result in periodic drive loss in certain gears.



## POINTER

The hub bearing within the hubshell is a fixed bearing and the hub bearing on the sprocket side is a movable bearing. During the replacement of the gearbox, the movable bearing could get strained (the outer race does not move parallel with the inner race due to friction created against the hub casing). By hitting the axle pegs with a rubber mallet, the inner and outer races of the bearing will be brought back into line. The sprocket should spin freely when rotated backwards once it is correctly seated.

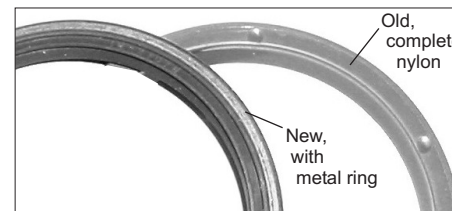
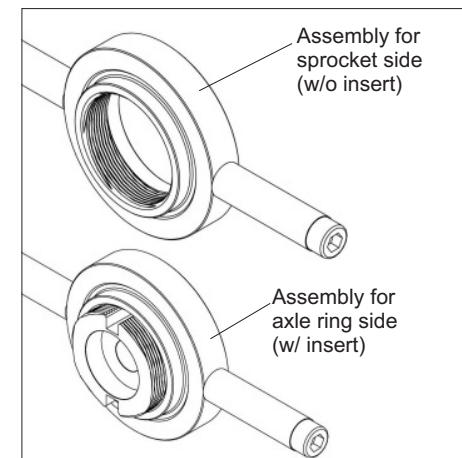
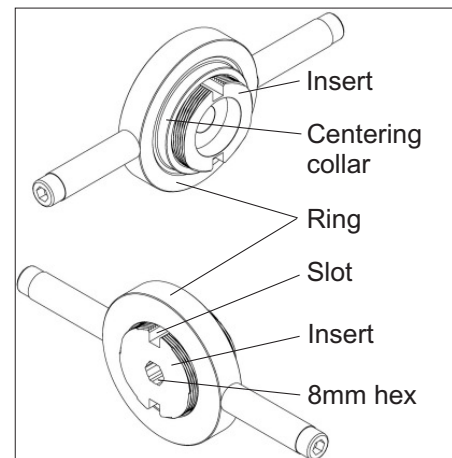
## POINTER

Further disassembly past the removal of the gear unit from the hub shell is not permitted. Failure to comply will result in the loss of warranty/guarantee.

## 5. Hub seal replacement with Shaft seal replacement tool (Art. #8503) and removal hook (Art. #8507)

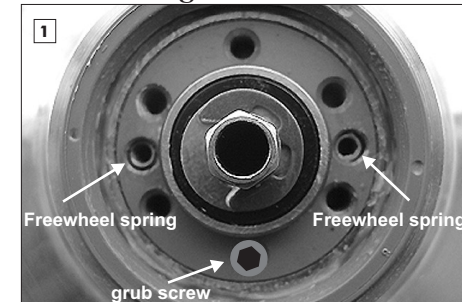
The hub seals should only be replaced by a professional bicycle workshop in the case of oil leakages. The new hub seals (after Serial Number 25400) with an outer metal ring can only be replaced by Rohloff dealers with the hub seal replacement tools.

### Shaft seal press-in tool



Check which type of hub seal is mounted within your hub. Hubs produced after Serial Number 25400 are equipped with the new hub seal. To be sure: The new hub seals have an outer metal ring and can therefore be replaced with the tools shown. The older types are completely formed from nylon, hubs needing these types of seals to be replaced, must be sent back to Rohloff Service department to be replaced.

### 5.1 Axle ring side:



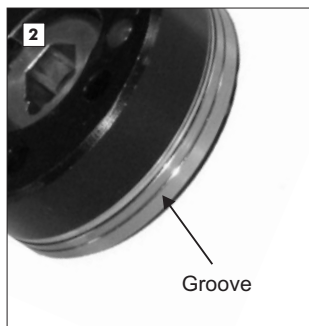
Lie the wheel on a flat surface with the sprocket side facing down. Remove the axle plate and the corresponding gear mech - a brake disc may have to be removed for this procedure.

## ATTENTION

Make sure the two freewheel springs stay in the locating peg holes.

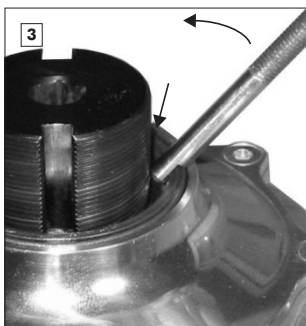
The grub screw mounted on hubs produced after Serial Number 47000 must be removed before replacing the hub seals and replaced again afterwards. See "Appendix" Grub screw, external gear mech.





## ATTENTION !

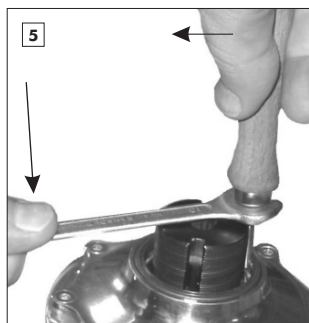
If the rub-ring of the axle ring shows signs of damage (grooves within the outer surface, noticeable with a fingernail), then please post the axle ring to the Rohloff service department so that a new rub-ring can be mounted.



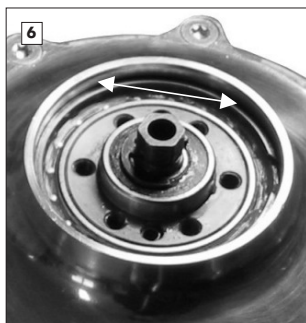
Remove the old hub seal from the hub shell. To do this place the insert onto the hub and hook the removal tool under the old hub seal. Lever the removal tool into the upright position as shown in the picture.



Remove the old hub seal by sharply pulling the removal tool upwards. If this doesn't remove the seal from the hub shell, then follow the method shown below.



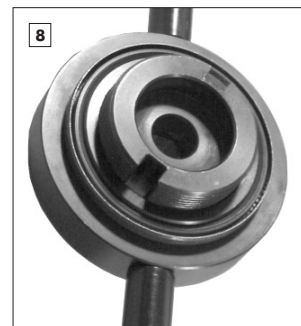
Lay a 10mm wrench flat over the insert with the open end hooked under the wooden grip of the removal tool. Secure the removal tool by pushing it against the insert. Force the wrench down onto the insert in order to lever the removal tool with the old hub seal upwards and out of the hub shell. Remove the insert.



Use a cottonbud to clean and degrease (petroleum/brake cleaner) the mating surface ready for the new hub seal.



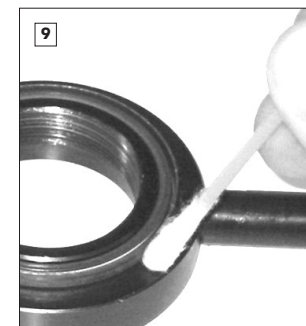
Prepare the hub seal press tool as shown in the picture.



Place the new hub seal around the centering collar of the press tool.

## POINTER

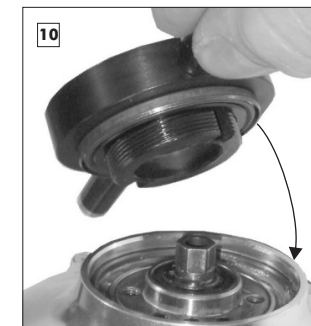
The closed side of the new hub seal faces towards the tool itself, the open side is visible.



Using a cottonbud, cover the outside edge of the new hub seal with a thin coat of Loctite 641.

## ATTENTION !

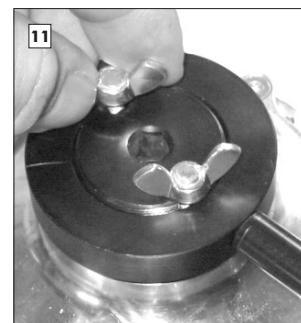
Make sure that none of the Loctite finds its way into the groove of the new hub seal.



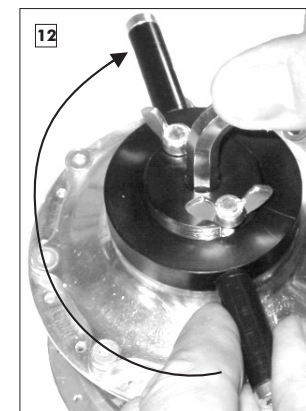
Place the press tool onto the hub with the new hub seal facing inwards.

## POINTER

The grub screw on hubs after Serial No. 47000 must be removed in order to guarantee a flush mounting of the Hub Seal.



Thread the two included wingbolts through the square slots on opposite sides of the press tool, secure these in the holes of the hub left and right of the axle.

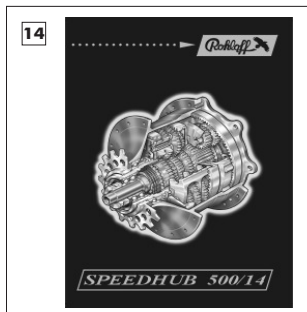


Turn the press tool clockwise as far as possible whilst holding the insert still with an 8mm allen key. The new hub seal will now be pressed firmly into the correct position.



Wind the press tool back to its normal position. Remove the press tool and wing bolts. Clean away any Loctite that has overspilled onto the hub shell.

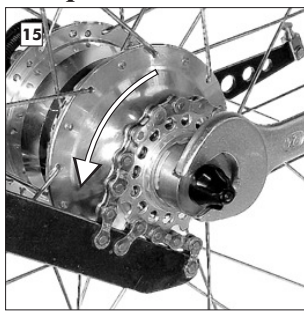




Replace the axle plate and the gear mech using new paper gaskets as shown in the Owners Manual.

Axle plate position  
"Mounting 4"  
Internal gear mech  
"Repairs 1.1 + 1.2"  
External gear mech  
"Service 5.3"

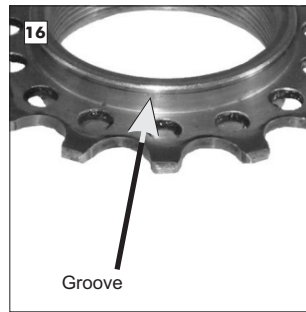
## 5.2 Sprocket side:



Remove the sprocket as shown in the Owners Manual. Lie the wheel on a flat surface with the sprocket side facing up (Service 5.3)

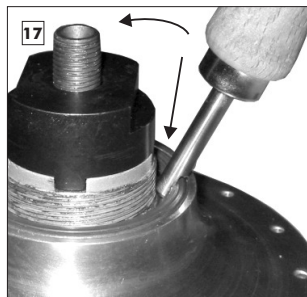
### ATTENTION

Oil could leak out once the sprocket is removed.

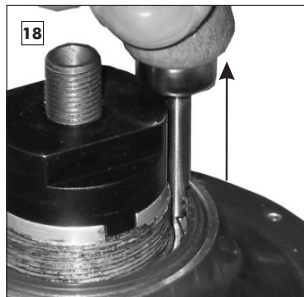


### ATTENTION

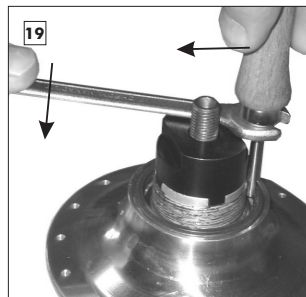
Check the sprocket for signs of wear. If it is worn then rotate it before remounting (see Owners Manual). When both sides are worn then replace it for an unworn sprocket with undamaged seal surfaces.



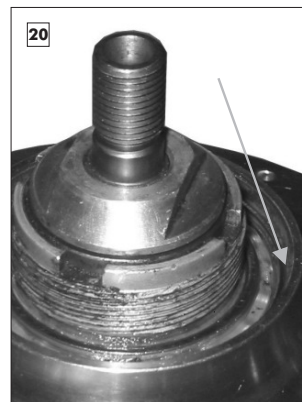
Remove the old hub seal from the hub shell. To do this place the sprocket tool onto the driver and hook the removal tool under the old hub seal. Lever the removal tool into the upright position as shown in the picture.



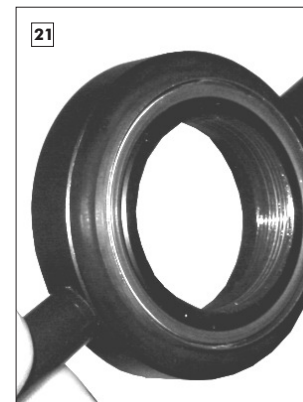
Remove the old hub seal by sharply pulling the removal tool upwards. If this doesn't remove the seal from the hub shell, then follow the method shown below.



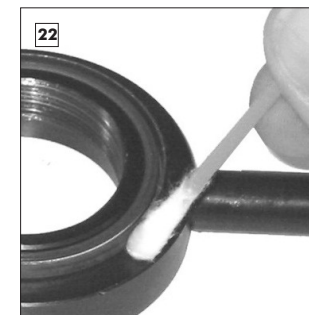
Lay a 10mm wrench flat over the sprocket tool with the open end hooked under the wooden grip of the removal tool. Secure the removal tool by pushing it against the sprocket tool. Force the wrench down onto the sprocket tool in order to lever the removal tool with the old hub seal upwards and out of the hub shell. Remove the insert.



Clean and degrease (petroleum/brake cleaner) the mating surface ready for the new hub seal.



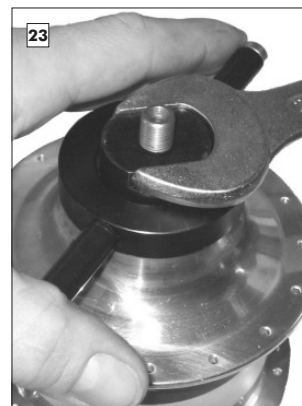
Place the new hub seal around the centering collar of the press tool. The closed side of the new hub seal faces towards the tool itself, the open side is visible.



Using a cottonbud, cover the outside edge of the new hub seal with a thin coat of Loctite 641.

### ATTENTION

Make sure that none of the Loctite finds its way into the groove of the new hub seal.



Place the sprocket tool onto the driver and secure it in position with the Q/R skewer or an axle nut. Set the ring over the sprocket tool and thread it clockwise as far as possible over the thread of the driver whilst holding the sprocket tool still with an 24mm wrench. The new hub seal will now be pressed firmly into the correct position.



Remove the ring and the sprocket tool.



Replace the new/rotated sprocket (with undamaged seal surfaces) as shown in the Owners Manual.

### POINTER

The metal part of the hub seals should be flush with the edge of the hub shell and/or hub cap.

## Trouble shooting

Problems and possible reasons	Solution
<b>1. Too much play in the twist shifter (more than 2mm)</b>	Readjust the cable tension, see "Service" 2.
<b>2. Gear display is not aligned correctly</b>	Alter the cable adjusters, see "Service" 2.
<b>3. Twist shifter will not turn through all 14 gears (14 gears = 13 clicks)</b>	Cut cables to the correct length: - Internal gear mech, see "Mounting" 7.2.1 - External gear mech, see "Mounting" 7.3.1
<b>3.1 Shifter cables cut at the wrong length</b>	
<b>3.2 Falsely altered cable adjusters</b>	Alter the cable adjusters, see "Service" 2.
<b>3.3 For external gear mech: Hexagonal peg of the gear transfer box in an incorrect position</b>	Correctly align the hexagonal peg  see "Riding with the SPEEDHUB 500/14" 3.2
<b>4. Twist shifter does not turn freely</b>	Reduce the shifter cable tension, see "Service" 2.  Check the internal gear mech: Open the bayonet connectors and (holding a cable in each hand) pull the cables in turn. They run smoothly, see points 4.2 - 4.6. They do not run smoothly, see point 4.7.  Check the external gear mech: Select gear #14. Remove the cable box just enough so that the twist shifter can be turned without force and the cables keep their normal routing bends. Turn the twist shifter back and forth. It does not turn smoothly, see points 4.2 - 4.6. It turns smoothly, see point 4.8.
<b>4.1 Cable tension is too high</b>	

## Problems and possible reasons

## Solution

4.2 Shifter cables worn, dirty or damaged

4.3 Incorrect shifter cables fitted (not original Rohloff)

4.4 Cable routing has too many bends or kinks

4.5 Inner nylon liners have penetrated into the twist shifter or the cable box (due to a false fitment)

4.6 Twist shifter rubs against the grip itself

4.6.1 Twist shifter degreased by weather

4.7 Hub cable broken and frayed

4.8 Gear transfer box (external gear mech) is bent

4.8.1 Changing between gears 8 and 14 is not possible or only possible with extreme force

4.9 Hexagonal peg of the external gear mech does not turn freely (due to corrosion)

4.9.1 The cable pulley of the external gear mech doesn't turn freely (after the conversion from an internal to an external gear mech)

Fit new shifter cables:  
 - Internal gear mech, see "Mounting" 7.2  
 - External gear mech, see "Service" 2.

Leave a small gap between the twist shifter and the grip or insert a teflon washer between the two parts.

Remove the twist shifter grip rubber, clean it, and regrease it. See "Repairs" 3.

Check the shifter cables:  
 Loosen the concertina tubes at the hub and pull them up towards the bayonet connectors. Check the condition of these cables in gear positions 1 and 14. If the hub cable is damaged, it will need replacing:  
 - One-piece axle ring, see "Repairs" 1.1  
 - Quick-change axle ring, see "Repairs" 1.2

Replace the gear transfer box

Mounting, see "Service" 5.3

Grub screw (after hub Nr 47000 with an external gear mech) is threaded too far into the axle. This must be unscrewed approx. 2mm. See "Appendix".

Checking:  
 Place an 8mm wrench over the hexagonal peg of the external transfer box. When using the wrench to switch gears, the changing of gears must have a light and positive feel. If not, remove the external transfer box. Regrease the hexagonal peg and the sprocket ("Service" 5.3).

Check:  
 The correct position of the cog **D** over the hexagonal peg **E**. See "Service" 5.3

Problems and possible reasons	Solution
<b>5. Twist shifter fails to turn in 0° temperatures.</b>	
<b>5.1</b> Water has penetrated into the twist shifter and has frozen	Remove the rubber grip. Clean, regrease this and when necessary replace the seal, see <i>"Repairs"</i> 3.
<b>5.2</b> Water has penetrated into the shifter cables and has frozen	Replace the shifter cables and the nylon liners: - Internal gear mech, see <i>"Mounting"</i> 7.2 - External gear mech, see <i>"Mounting"</i> 7.3
<b>5.3</b> Water has penetrated into the cable box and has frozen	Open the cable box, clean this and replace the cable pulley with a little light grease. Fitment, see <i>"Mounting"</i> 7.3.1
<b>6. Shifter cable is loose from the cable clamp</b> (Bayonet connectors on internal gear mech or cable pulley on external gear mech)	Cut off the frayed ends of the shifter cable and trim the cable housing/nylon liner by the same amount. Alternative: fit new cables: - Internal gear mech, see <i>"Mounting"</i> 7.2 - External gear mech, see <i>"Mounting"</i> 7.3
<b>7. Male bayonet connector is loose from the hub cable</b>	Replace hub cable: - One-piece axle ring, see <i>"Repairs"</i> 1.1 - Quick-change axle ring, see <i>"Repairs"</i> 1.2
<b>8. Chain springs over the teeth of the sprocket</b>	
<b>8.1</b> Chain defect (stiff chain link)	Loosen up the stiff link or replace the chain
<b>8.2</b> Worn sprocket or chain	Rotate or replace the sprocket, replace the chain, see <i>"Service"</i> 3.
<b>8.3</b> Not enough tension in the chain	Correct the chain length/tension, see <i>"Mounting"</i> 5.3
<b>9. On bikes with a chain tensioner, the chain springs off the sprockets</b>	
<b>9.1</b> Chain tensioner runs dry and turns with difficulty	Grease the chain tensioner or replace the jockey wheels, see <i>"Service"</i> 2. or <i>"Repairs"</i> 2.
<b>9.2</b> Chain tensioner spring is defect	Replace the chain tensioner spring, see <i>"Repairs"</i> 2. Check the min. chain length on full suspension bikes, see <i>"Mounting"</i> 5.3.1
<b>9.3</b> No chain guide in use	Mount a chain guide, see <i>"Mounting"</i> 5.4 All bikes fitted with a chain tensioner need to be fitted with a chain guide (eg <i>Rohloff</i> chain guide CC Art. #8290). This prevents the chain from springing off the chainring.

Problems and possible reasons	Solution
<b>10. Freespinning (after a gear change)</b>	
<b>10.1</b> Axle nuts (CC/TS axle) too firmly tightened	Tighten axle nuts to the correct tightening torque (CC 7Nm/ 60in lbs / TS 35Nm/310in.lbs.)
<b>10.2</b> Shifter cable tension is too high. No positive feel to the gear change	Adjust shifter cable tension, see <i>"Service"</i> 2.
<b>10.3</b> Gearbox oil too thick	Test: Add <i>Rohloff</i> special oil change assistant fluid to the oil within the hub and go for a test ride No more freespinning? Carry out an oil change, see <i>"Service"</i> 1.
<b>10.4</b> Axle fixation with a PITLOCK or allen key system	Tighten the axle to 7Nm /60 in.lbs.max. torque (pay attention to the manufacturers advice)
<b>10.5</b> None of the above: Contact the <i>Rohloff</i> Service team	
<b>11. Freespinning (after a gear change) below 0°C</b>	
<b>11.1</b> Gearbox oil too thick	Carry out an oil change with an intensive rinsing, see <i>"Service"</i> 1.
<b>11.2</b> Riding the bike below -15°C	Rinse the gear-unit and refill the hub with a 50:50 mixture of All Season Oil and Cleaning Oil (total fill quantity - 25ml)
<b>12. Freespinning of gears #1 to #7 after removing the axle ring or the external transfer box</b>	Check that the two freewheeling springs are there and sitting in the correct holes, see <i>"Repairs"</i> 1.1 and <i>"Service"</i> 5.3
<b>13. Freewheel does not rotate smoothly</b>	Test: The sprocket must rotate backwards freely without restriction
<b>13.1</b> Hub seal rubs against the sprocket	Push the hub seal back (until Serial.No. 25299 possible) see <i>"Repairs"</i> 4.2
<b>13.2</b> Strained hub bearings (crash or accidents)	Destrain the hub bearings, see <i>"Repairs"</i> 4.2
<b>13.3</b> Chain Tension too high	Reduce the chain tension to about 5mm of vertical slack, replace or reverse untrue chainrings.



## Problems and possible reasons

## Solution

### 14. Oil leaks

14.1 Oil traces (no droplets)

This is not an oil leak. This is sweat oil, which forms around the hub bearing, the paper gasket and the oil drain screw due to variations in air temperature and pressure.

14.2 Oil leaks following horizontal transportation

See *"Riding with the SPEEDHUB 500/14"*

14.3 Oil traces on the quick release skewer

The ventilation functions through the axle hole for the quick release skewer. Oil traces on the quick release skewer are, therefore, normal

14.4 Oil drops out of the hollow quick release axle

Please contact the Rohloff Service team

14.5 Oil droplets on the axle ring, the axle plate or the concertina tubes

Check the axle plate screws are all in place and tightened to the correct tightening torque. (see *"Mounting"* 4.3) Renew the paper gaskets between the axle ring and the axle (see *"Service"* 5.3 or *"Repairs"* 1.1) Only use Rohloff axle plate screws with thread sealant

14.6 Oil droplets between the hub casing and the hub cap

Check the hub cap screws are all in place and tightened to the correct tightening torque, see *"Repairs"* 4.2

14.7 Oil traces around the oil drain screw

Use new thread sealant on the oil drain screw (Loctite thread sealant 511) or a new oil drain screw with Rohloff thread sealant, see *"Service"* 1.

14.8 Oil droplets on the hub bearings  
(Both ends of the hub smeared with oil)

Please contact the Rohloff Service team

### 15. Complete blockage of the gear system after

#### working on the external gear mech

The grub screw (mounted in hubs after Serial Number 47000 with an external gear mech) is screwed too far into the axle. This must be unscrewed approx. 2mm. See *"Appendix"*, Grub screw external gear mech.

## ATTENTION

Too much oil within the gearbox increases the risk of oil leaks. Therefore, when an oil leak is discovered, new replacement oil must not be added (risk of overfilling). Reduced oil level by leakage through the seals will not cause problems and riding further until the next oil change (annually or every 5000km) is possible (see *"Service"* 1.).

## Tools and bolts

Below is a list of all tools and bolts (along with their corresponding tightening torques) for the mounting of the Rohloff SPEEDHUB 500/14 and its accessories.

### Torx TX20 wrench (Art. #8504)\*

Rohloff SPEEDHUB 500/14:

8 or 9 Hub cap screws: M4x10 (3Nm/25"lbs.)

5 or 6 Axle plate screws: M4x25 (3Nm/25"lbs.)

2 Cable box cover bolts: M4x10 (3Nm/25in-lbs.)

External gear mech:

2 Guide pin bolts: M4 (3Nm/25in-lbs.)

Twist shifter:

2 Cable guide bolts: M4x16 (3Nm/25in-lbs.)

Rohloff chain tensioner/DH chain tensioner:

2 End stop bolts (DH: just one): M4x10 (3Nm/25in-lbs.)

Jockey wheel axle bolt: M4 (3Nm/25in-lbs.)

Rohloff chain guide CC:

Bolt (rear distance bush): M4x20 (3Nm/25in-lbs.)

Bolt (rear threaded bush): M4x20 (3Nm/25in-lbs.)

Bolt (rear threaded bush): M4x35 (3Nm/25in-lbs.)

2 Clamp bolts: M4x35 (3Nm/25in-lbs.)

### 2mm allen key

Internal gear mech:

8 Bayonet connector bolts: M4x4

External gear mech:

2 Cable pulley bolts: M4x4

Rohloff DH chain guide:

3 Mounting bolts: M4x8

### 2.5mm allen key

Rohloff SPEEDHUB 500/14:

Twist Shifter (old version) Art. #8200 (0,5Nm/4in-lbs.)

### 3mm allen key

Rohloff SPEEDHUB 500/14:

Oil drain screw (0,5Nm/4in-lbs.)

### 4mm allen key

Rohloff SPEEDHUB 500/14:

Cable guide mounting bolt: M6 (6Nm/51in-lbs.)

TS versions:

Torque arm clamp bolt: M6x12 (6Nm/51in-lbs.)

Rohloff SPEEDBONE / MonkeyBone:

2 Mounting bolts: M6x25

### 5mm allen key

Rohloff SPEEDHUB 500/14:

4 or 5 Chainring bolts: M8x0.75 (7Nm/61in-lbs.)

DB versions:

4 brake disc mounting bolts: M8x0.75 (7Nm/61in-lbs.)

Retrofit versions (not OEM or OEM2):

2 Torque arm mounting bolts: M8 (7Nm/61in-lbs.)

Rohloff chain tensioner/DH chain tensioner:

Mounting bolt (8Nm/70in-lbs.)

Pivot axle (8Nm/70in-lbs.)

(Attention: Turning clockwise unscrews)

### 7mm wrench

Rohloff chain guide CC:

M4 Nut, rear distance bush

### 8mm wrench

Shifting shaft

### 10mm wrench

TS versions:

Torque arm clamp nut

Cable guide 0°

Frame clamp nut

### 13mm wrench

Internal gear mech:

Cable guide

### 15mm wrench

TS versions:

2 TS axle nuts: M10 (35Nm/310in.lbs.)

### Screw driver

CC versions:

2 clamps (5Nm/43in.lbs.)

### 17mm wrench

Locking nut (holding the axle steady)

### 24mm wrench

for sprocket tool

### Sprocket tool (Art. #8501)

Sprocket removal

### Chain whip

Sprocket removal

### Brass tube 165mm (Art. #8711)

Cutting hub cables (internal gear mech)

### Brass tube 200mm (Art. #8712)

Cutting shifter cables (external gear mech)

### Shifter cable measurement tool (Art. #8506)

Cutting shifter cables (internal gear mech)

## POINTER

\* The use of Torx screws/bolts as opposed to the common allen key bolts allows a more safe and nondestructive mounting and dismounting without the heads rounding out after several times usage. To avoid damaging the heads of the screws/bolts, the Torx key must be securely pressed into the head. We suggest the use of a T-grip key to keep the pressure central over the bolt (the use of other tools could result in damage to the bolts).

## Wheel lacing for rims with a European spoke-hole pattern

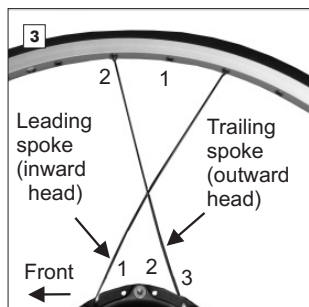
The following written wheel lacing method always concentrates itself around the directional rotation of the wheel, the method also only applies to wheels with a two cross lacing pattern. For simple one cross lacing patterns, pay attention to the numbers in brackets.

### POINTER

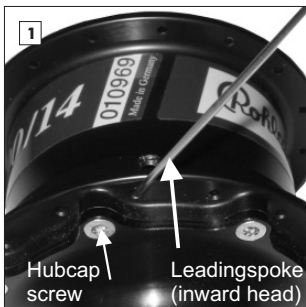
Trailing spokes cross in front of Leading spokes. Leading spokes cross behind the Trailing spokes.

### ATTENTION

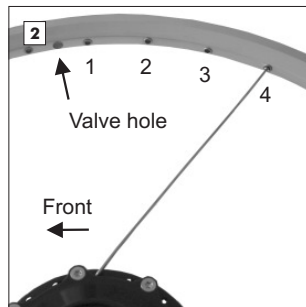
Further information on correct spoke lengths and tension (mind. 1000N with inflated tire) can be found in the section 'The Wheel' and also in the Appendix.



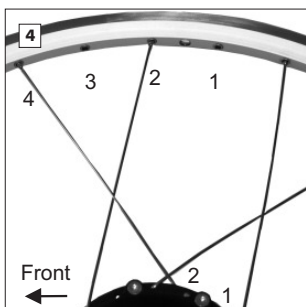
Three holes (one hole) behind this first spoke is where the trailing spoke should be inserted, this spoke is to be inserted from the outside of the hub flange (spoke head facing outwards). This spoke is to be crossed over the first spoke and inserted into the nipple hole of the rim that is two holes before that of the first spoke.



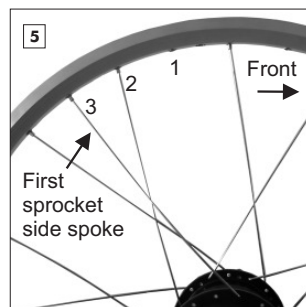
Start to lace up the wheel from the hubcap side of the hub. The first leading spoke should be inserted from the inside of the hub flange behind a hubcap screw (spoke head facing inwards).



The end of this spoke should be inserted into the nipple hole of the rim that is 4 holes away from the valve hole.



The next trailing and leading spokes are laced into the rim in exactly the same way. The only difference being that they enter the hub flange two holes away from the last respective leading or trailing spoke, and that they enter the rim four holes away from the last respective spokes. Continue this process in pairs of leading and trailing spokes until all the spokes have been laced into the hubcap side of the wheel. Turn the wheel



The valve hole is to be found opposite from a hubcap screw. The spoke hole of the flange opposite from this is where the first spoke on the sprocket side is to be inserted from the inside (spoke head facing inwards). This spoke is to be inserted into the nipple hole of the rim that is 3 holes behind the valve hole. Lace all the remaining spokes in the same pattern as with the other side of the wheel (Fig. 3 and

## Wheel lacing for rims with a French spoke-hole pattern

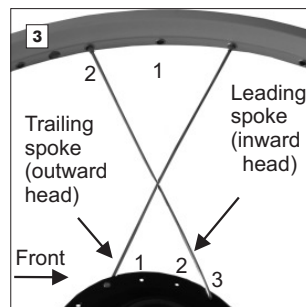
The following written wheel lacing method always concentrates itself around the directional rotation of the wheel, the method also only applies to wheels with a two cross lacing pattern. For simple one cross lacing patterns, pay attention to the numbers in brackets.

### POINTER

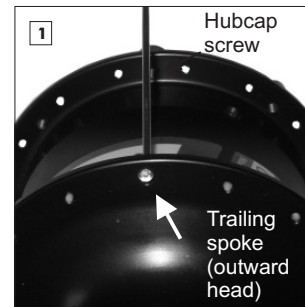
Trailing spokes cross in front of Leading spokes. Leading spokes cross behind the Trailing spokes.

### ATTENTION

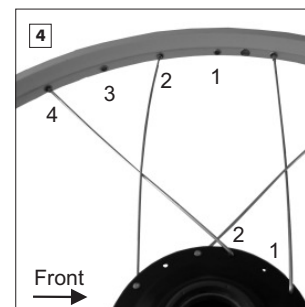
Further information on correct spoke lengths and tension (mind. 1000N with inflated tire) can be found in the section 'The Wheel' and also in the Appendix.



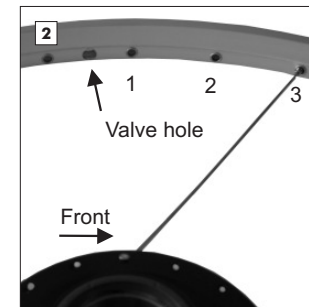
Three holes (one hole) behind this first spoke is where the leading spoke should be inserted, this spoke is to be inserted from the inside of the hub flange (spoke head facing inwards). This spoke is to be crossed over the first spoke and inserted into the nipple hole of the rim that is two holes behind that of the first spoke.



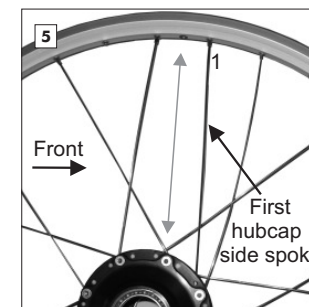
Start to lace up the wheel from the sprocket side of the hub. The first trailing spoke should be inserted from the outside of the hub flange opposite a hubcap screw (spoke head facing outwards).



The next trailing and leading spokes are laced into the rim in exactly the same way. The only difference being that they enter the hub flange two holes away from the last respective pull or cross spoke, and that they enter the rim four holes away from the last respective spokes. Continue this process in pairs of leading and trailing spokes until all the spokes have been laced into the sprocket side of the wheel. Turn the wheel



The end of this spoke should be inserted into the nipple hole of the rim that is 3 holes away from the valve hole.



The valve hole is to be found opposite from a hubcap screw. The spoke hole of the flange that is two holes behind this, is where the first spoke on the hubcap side is to be inserted from the outside (spoke head facing outwards). This spoke is to be inserted into the first nipple hole of the rim that lies behind the valve hole. Lace all the remaining spokes in the same pattern as with the other side of the wheel (Fig. 3 and 4).

## Technical data

Number of gears:	14
Gear increases:	even 13.6%
Range of gears:	526%
Frame spacing:	135mm (XL Version = 170mm)
Number of spoke holes:	32/36 (XL Version = 32 hole only)
Spoke flange distance:	60mm, symmetrical (XL Version = 93mm)
Spoke hole circle diameter:	Ø100mm
Spoke hole diameter:	Ø2.7mm
Spoke flange width:	3.2mm
Axle diameter at dropout:	9.8mm
Axle overall width CC:	147mm (XL Version = 182mm)
Hollow axle inner diameter:	Ø5.5mm, for quick release lever
Total axle width TS:	171mm / TS long 179mm
Total axle width TS (XL Version):	206mm / TS long 214mm
Axle thread TS:	M10x1
Center disc mounting diameter:	Ø52mm
Mounting bolt hole circle diameter:	Ø65mm
Brake disc mounting bolts:	4 x M8x0.75
Distance between dropout and center disc mount:	16.3mm (IS1999)
Weight:	1700g (CC), 1800g (CC EX), 1825g (CC DB)
Weight (XL Version)	1980g (CC DB)
Oil volume:	25ml max.
Sprocket thread:	M34x6 P1, tolerance 6H
Sprocket type:	for bicycle chain 1/2" x 3/32" (ISO Nr. 082)
Number of sprocket teeth:	16 (optional: 13, 15 and 17)
Chainline:	54mm (58mm with 13tooth sprocket)
Chainline (XL Version):	71.5mm (75mm with 13tooth sprocket)
Smallest permissible gear ratios (26"):	36/17,34/16,32/15,28/13 (transmission factor ~ 2.10)
(Riders over 100kg/tandem):	42/17,40/16,38/15,34/13 (transmission factor ~ 2.50)
Gates Carbondrive beltline:	54.75mm (XL Version = 72.25)
Smallest permissible belt sprocket ratios (26"):	42/19,42/20,46/22,55/24 (transmission factor ~ 2.10)
(Riders over 100kg/tandem):	46/19,50/20,55/22,60/24 (transmission factor ~ 2.50)
Maximum input torque:	100Nm
Gear control:	by twist shifter (version right or left)
Twist shifter angle per gear change:	21°/273°
Gear control transfer:	via two shifter cables (pull-pull system)
Shifter cable movement per gear change:	7.4mm/96,2mm

Inner gear ratios (hub rotation per sprocket rotation):

Gear #1:	0.279
Gear #2:	0.316
Gear #3:	0.360
Gear #4:	0.409
Gear #5:	0.464
Gear #6:	0.528
Gear #7:	0.600
Gear #8:	0.682
Gear #9:	0.774
Gear #10:	0.881
Gear #11:	1.000
Gear #12:	1.135
Gear #13:	1.292
Gear #14:	1.467

The Rohloff AG reserves the right to change the technical specifications without prior warning.

## Reference to Serial Number of the Rohloff SPEEDHUB 500/14

### ATTENTION

### Serial Number

Each **Rohloff SPEEDHUB 500/14** is provided with a **consecutive Serial Number** which is found on the sticker band around the hub shell. SPEEDHUBs built after Serial Number 75000, have the Serial Number engraved directly into the hub shell.



### TIP

### Sticker

If the tape around the hub shell should be removed at any time, we recommend to separate first the Serial Number with a sharp carpet knife from the tape and then to leave just this Serial Number on the hub. If the tape should be removed completely, the Serial Number should be saved and/or stuck onto the warranty card. Alternatively, the Serial Number can be engraved on the hub cap!

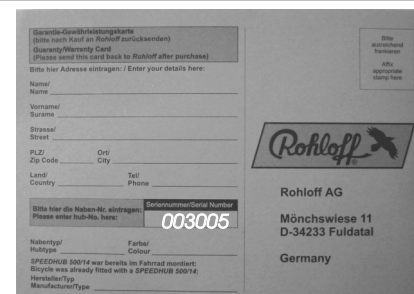
### POINTER

### Warranty Card

Each **SPEEDHUB 500/14** and each complete bicycle equipped with the **SPEEDHUB 500/14** comes complete with an orange **Rohloff** warranty card attached.

This orange **Rohloff** warranty card must be:

- completed in full (with Serial Number!)
- stamped by the dealer
- returned to **Rohloff AG**, Germany



This Rohloff warranty card is vital to ensuring we can provide your hub with the best possible service.

### ATTENTION

### Warranty

This Serial Number informs us about the production year and is important for guarantee or warranty claims, as well as acting as proof of ownership.

Only with knowledge of the appropriate Serial Number can an optimal service can be completed by **Rohloff**.

#### Consecutive Serial Number - Production Year

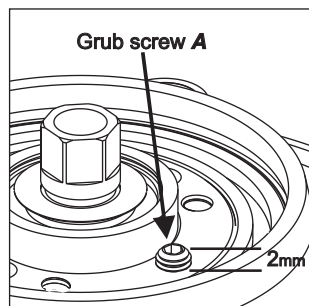
000000 - 000400	1998
000401 - 002700	1999
002701 - 006500	2000
006501 - 012000	2001
012001 - 018800	2002
018801 - 027700	2003
027701 - 038500	2004
038501 - 050049	2005
050050 - 065000	2006
065001 - 081600	2007
080601 - 100000	2008
100001 - 115900	2009
115901 - 135800	2010
135801 - 152800	2011
152801 - 172499	2012
172500 - 191398	2013
191399 - _____	2014

We expressively point out that the **Rohloff AG** does **not accept any warranty claims** for **Rohloff SPEEDHUB 500/14 gearhubs** **without a Serial Number**. Service, repairs, and the spare parts service will also only be carried out on hubs when the hub is presented with the corresponding Serial Number (either on the sticker, engraved into the hub shell, or on the warranty card).

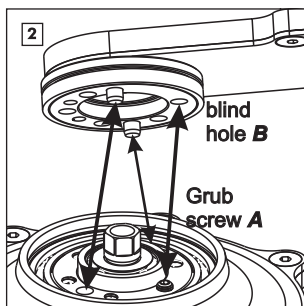


## Grub screw of the External Gear Mech

All gear hubs built after Serial Number 47000 and equipped with an external gear mech have an M4x8 grub screw mounted into the sixth threaded hole of the axle (it helps to prevent potential oil leaks). Therefore, the external gear mech can only be properly fitted in one position (PFig. 2) over the axle.

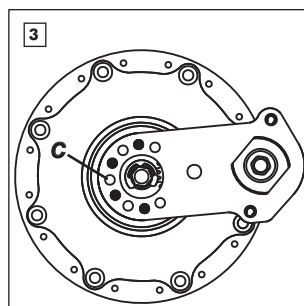


The grub screw on hubs with a Serial Number between 47000 and 48500 lies flush (external gear mech without a blind hole). On hubs with the Serial Number 48501 and over, this grub screw protrudes by approx. 2mm (external gear mech with a blind hole).



The blind hole (B) must be located directly over the grub screw (A). When using an external gear mech without a blind hole (B), the grub screw must be screwed flush into the axle.

**The paper gaskets should then be fitted so that all the holes meet up with the corresponding screw holes of the axle.**



To control that the mounting is correct, the screw (C) must be screwed smoothly approx. 4 complete turns into the hub without force. Afterwards, the installation of the axle plate including all the screws can be completed (3Nm).

### POINTER

If an axle plate screw cannot or only with force be screwed into hole (C), then it must be checked that the grub screw (A) is not sitting directly behind this hole. If this is the case, then the external gear mech must be disassembled turned around 180° and mounted again in this position. The grub screw stays in its original position (2mm protruding).

### ATTENTION

If the external gear mech should be falsely mounted, then the fitting of an axle plate screw into hole (C) would cause the grub screw (A) to be forced into the axle. This in turn will lead to a complete blockage of the gearbox.

The removal of the grub screw is only necessary when converting the external to an internal gear mech, or when working with the hub seal replacement tools. The external gear mech should never be removed from the gearbox without good reason!

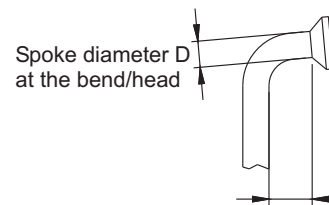
## The correct spoke choice

There are a confusing amount of different spokes currently available on the market. These differ not only by their length and diameter, but also more importantly by the differences in the spoke bend at the head. To accomplish the optimal longevity of both the hub flange, the spoke itself and the entire wheel, the spoke bend dimensions must be harmonized with both the hub flange and the spoke holes.

It is not sufficient enough to simply choose a spoke according to its length and diameter (eg. 2.0-256mm), the spoke bend itself must additionally be harmonized with the spoke hole so that the spoke can find its optimal sit within the spoke holes of the hub flange.

### Pointer

Because retrofit spokes for the Rohloff SPEEDHUB 500/14 with the required head length are only available in 2.0mm diameter, we generally recommend the use of DD 2.0/1.8/2.0mm spokes for lacing SPEEDHUB wheels.



D	BL
2.0	2.9 +/-0.1

### Problem 1

If the spoke bend is too long and/or the diameter of the spoke at this bend be too small, then this will result in the spoke having an amount of axial play after the wheel has been trued. The spoke bend can now be bent open, resulting in a possible spoke failure.

### Problem 2

If the spoke bend is too short and/or the diameter of the spoke at the bend be too large, then the hub flange could become slightly deformed as the spokes are threaded into the hub shell or as the spokes are tensioned. The damage caused here could possibly lead to a flange breakage.

### Checking the correct sit for the Rohloff SPEEDHUB

The hub flange and the spoke hole diameter on the SPEEDHUB 500/14 are designed so that an optimal sit can be achieved with the following spoke dimensions:

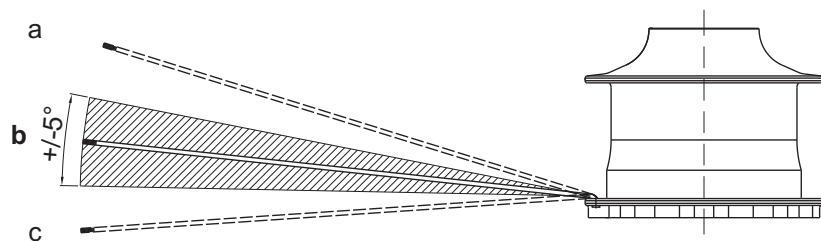
### ATTENTION

As the required spoke head length is currently only available on 2.0/1.8/2.0mm spokes, we generally advise the use of DD spokes of this size. Bicycle manufacturers who utilise thick spokes with an oversized head diameter when lacing SPEEDHUB wheels, must guarantee the correct length of each spoke head (3.7mm).

The spokes should then be tensioned to a minimum of 1000N measured with an inflated tire or 1300N without tire.

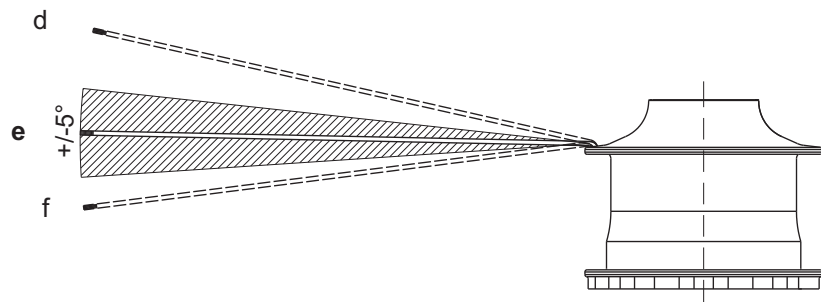
## The correct spoke geometry can be easily identified as follows:

Thread a spoke from outside through the hub flange of the hub cap side so that the spoke head finds its seat within the countersink of the spoke hole. This should be possible without requiring any noticeable force. Hold the hub so that the flanges are horizontal and the sprocket side faces upwards. The spoke should be facing radially outwards. The threaded end of the spoke should now find itself within the shaded area shown on the diagram below. Fig. b.



- a) Spoke bend is too short and/or the spoke bend diameter is too large.
- b) Spoke bend and spoke bend diameter are correct.
- c) Spoke bend is too long and/or the spoke bend diameter is too small.

Repeat this process. This time thread the spoke from the inside, outwards through the spoke flange on the sprocket side of the hub. Again, the spoke head should be seated within the countersink of the spoke hole and this without requiring a noticeable amount of force. Hold the hub so that the flanges are horizontal with the spoke facing radially outwards. The threaded end of the spoke should now find itself within the shaded area shown on the diagram below. Fig. e.

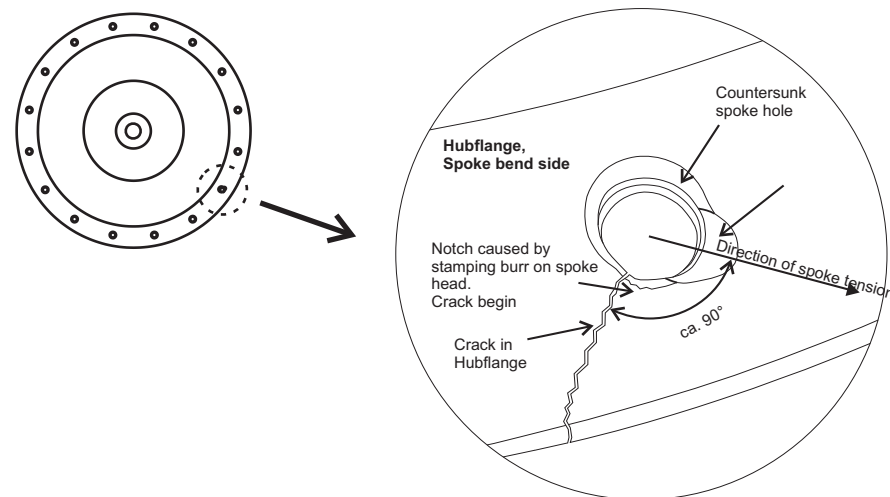


- d) Spoke bend is too short and/or the spoke bend diameter is too large.
- e) Spoke bend and spoke bend diameter are correct.
- f) Spoke bend is too long and/or the spoke bend diameter is too small.

## Possible causes for flange breakages on bicycle hubs

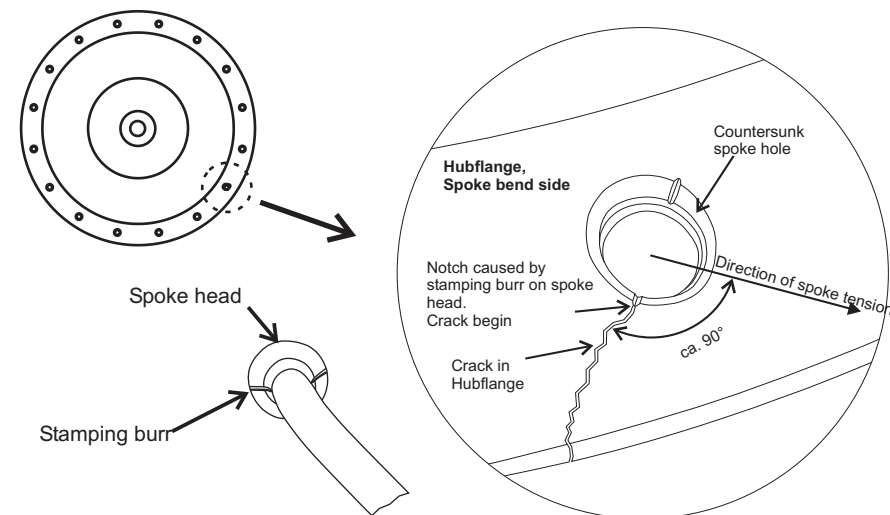
**Cause:** Spoke bend length is too short and/or the spoke diameter at the bend is too large.

**Effect:** The spoke slightly deforms the flange as they are threaded and aligned into the hub shell or as the spokes are tensioned. This could lead to a flange breakage if this damage occurs at approximately 90° to the direction of the spoke tension. The source of the crack is the damage.



**Cause:** Stamping burr on the spoke head.

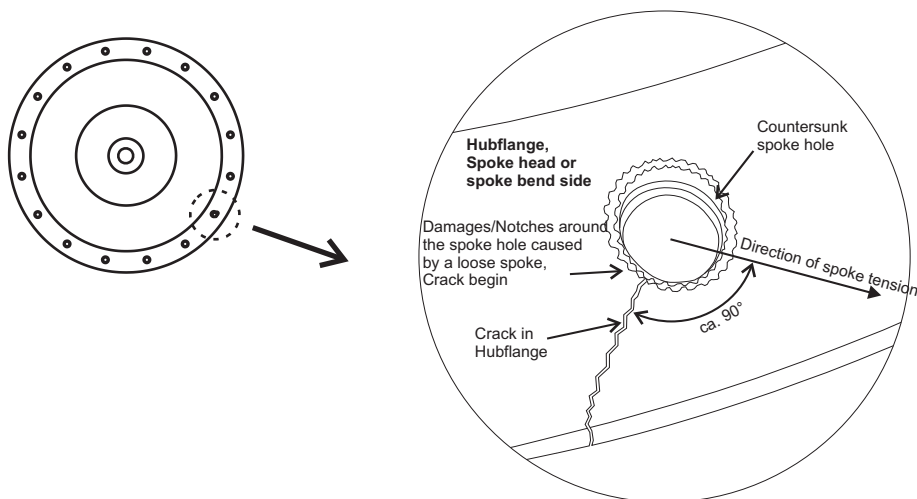
**Effect:** The burr on the spoke head stamps itself into the hub flange leaving a notch at the countersunk spoke hole. If this notch is to be found at an angle of approximately 90° to the direction of the spoke tension, then the flange could crack. The source of the crack is the burr on the spoke head.



## Possible causes for flange breakages on bicycle hubs

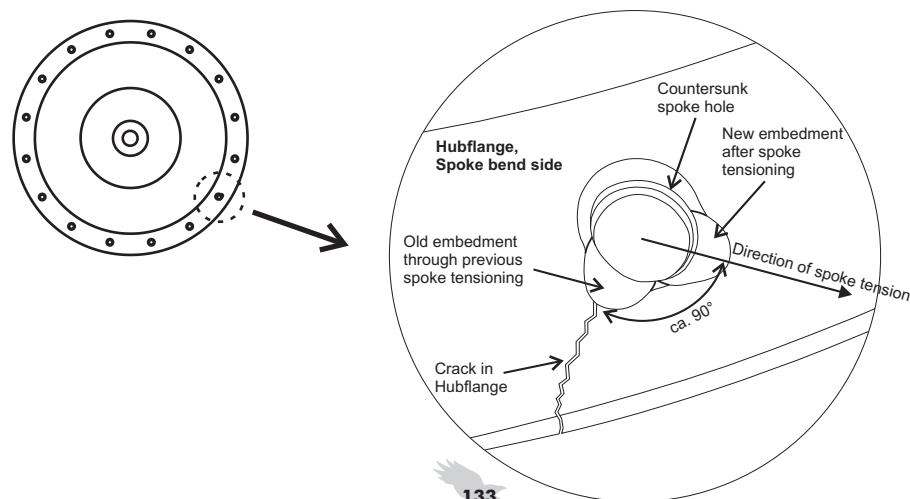
**Cause:** Loose spokes due to too long spoke bend length and/or too small diameter of the spoke at the bend. Spoke tension to low.

**Effect:** The spoke head of the unloaded spoke can move freely within the spoke hole of the hub flange, this in turn damages the inner surface of the spoke hole and leaves notches. The damage that can be found at approximately 90° to the direction of the spoke tension could lead to the hub flange cracking at this Point.



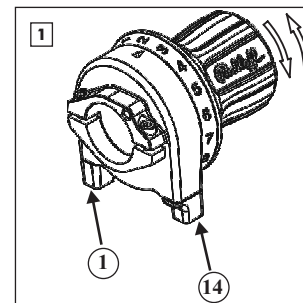
**Cause:** Re-lacing with alternative spoke alignment (second lacing of the hub).

**Effect:** The old embedment acts just like a notch or previous damage to the spoke hole. As this previous notch lies at an angle of approximately 90° to the new direction of the spoke tension, this could lead To the hub flange cracking at this point.

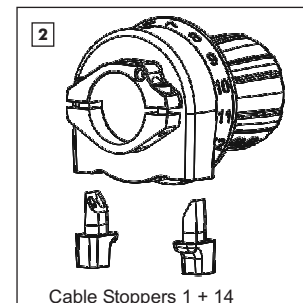


## Twist Shifter 'light' - Right-Hand (Art. #8206)

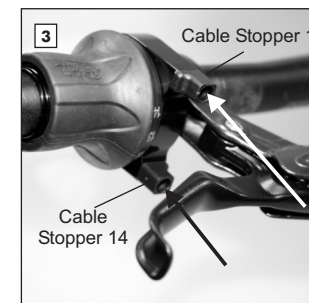
### Mounting the Twist Shifter



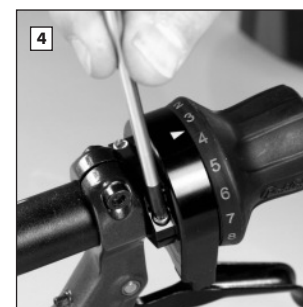
The Twist Shifter works with two shifter cables. When the Twist Shifter is rotated forward (direction of gear #14), then then the rear shifter cable #14 is pulled. When the Twist Shifter is rotated backwards (direction of gear #1), then then the rear shifter cable #1 is pulled.



The Cable Stoppers for both shifter cables are identical and are simply inserted into the shifter housing facing in opposing directions. The Cable Stoppers can only be fully inserted if fitted correctly. An incorrect mounting is therefore impossible.



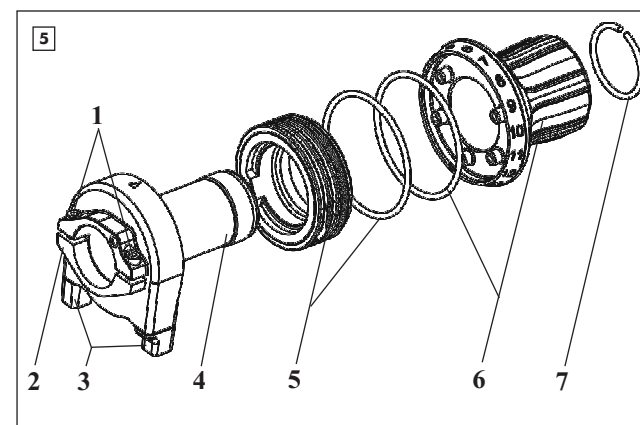
Slide the Twist Shifter over the right-hand handlebar end (handlebar diameter 22 - 22.3mm / 7/8"). Rotate the Twist Shifter so that the Cable Stoppers are evenly distanced above and below the brake lever.



Both Clamp Screws (M3x12 - Torx TX20) should be lightly fitted so that the gap between both clamp elements is identical.

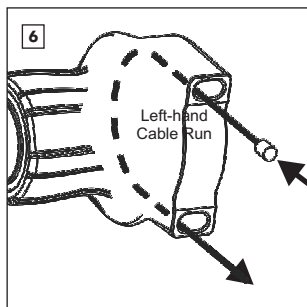
Insert the screws using the pressure of just two fingers on the TX20 tool. Finally tighten each screw by max. 1/2 rotation. The Twist Shifter should now be tightly secured to the handlebars.

**ATTENTION** Over tightening of the Clamp Screws can cause damage to both Twist Shifter and/or handlebars.



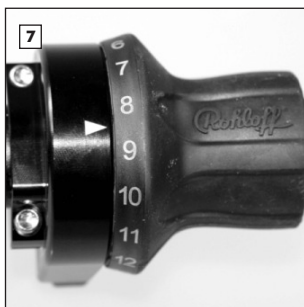
- 1 = Clamp Screws (Art. #8192)
- 2 = Clamp with Clamp Screws (Art. #8193)
- 3 = Cable Stoppers (Art. #8191)
- 4 = Shifter Housing (Art. #SA 01)
- 5 = Cable Pulley with O-Ring/Rubber Seal (Art. #8194)
- 6 = Rubber Grip with O-Ring/Rubber Seal (Art. #8190)
- 7 = Circlip (Art. #SA 18-N)





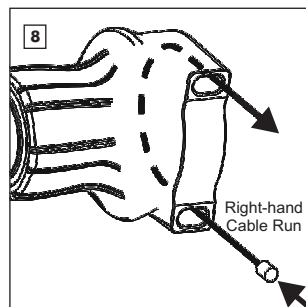
#### Fitment of Shifter Cable 14:

Remove both Cable Stoppers from the Shifter Housing. Insert **Shifter Cable 14** into the Cable Pulley as illustrated above, until the cable end exits the Shifter Housing.

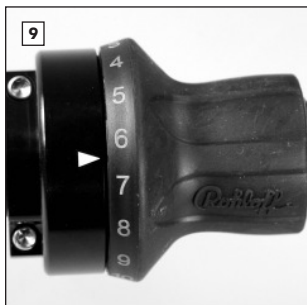


Rotate the Grip Rubber so that the gear indicator arrow falls **between gears #8 and #9**. Hold the Shifter in this position.

**Pull Shifter Cable 14** completely into the Shifter Housing until the Nipple is seated correctly in the Cable Pulley.

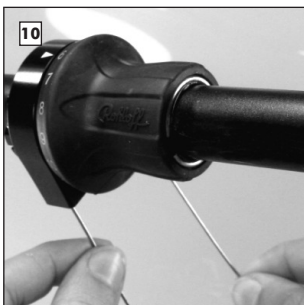


Insert **Shifter Cable 1** into the Cable Pulley as illustrated above, until the cable end exits the Shifter Housing.

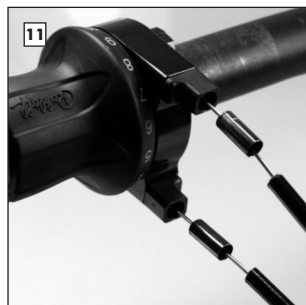


Rotate the Grip Rubber so that the gear indicator arrow falls **between gears #6 and #7**. Hold the Shifter in this position.

**Pull Shifter Cable 1** completely into the Shifter Housing until the Nipple is seated correctly in the Cable Pulley.



Check that the Shifter Cables run smoothly by pulling on each cable end alternatively. The Grip Rubber should rotate freely between both bed-stops slightly beyond gears #1 and #14.



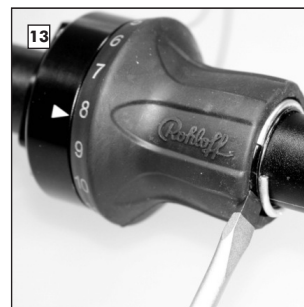
#### Mounting of Cable Housings with integrated liners:

Thread the Cable Stoppers back over each Shifter Cable and push these firmly into the Shifter Housing facing in the correct position. Make sure to fit Ferrules between Cable Housing and Cable Stoppers.

#### ATTENTION

**Pushing the Cables without the Cable Stoppers fitted could result in the Nipple becoming clamped on one of the Shifter Cable exits or within the Shifter Housing itself.**

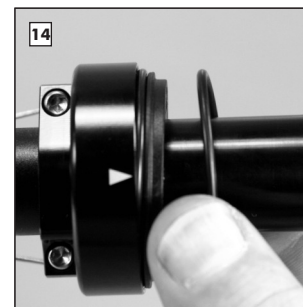
## Rubber Grip replacement - Right-hand (Art. #8190)



#### Replacement:

When replacing the Grip Rubber, it is not necessary to remove or replace the shifter cables.

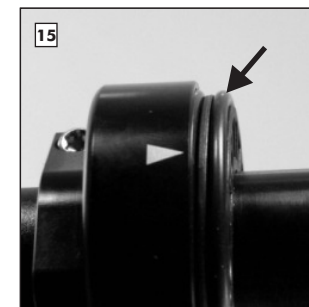
Using a small, flat screwdriver prise the Circlip out of position and remove from the Shifter Housing.



Before fitting the replacement Grip Rubber, check that the O-ring is seated correctly on the Cable Pulley.

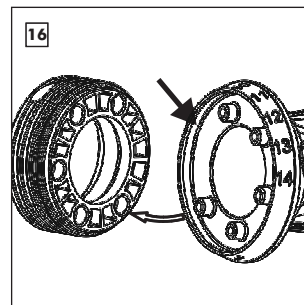
#### ATTENTION

**Remove Shifter from Carbon Fiber Handlebars to avoid potential damage when removing the Circlip.**



#### TIP

**Lightly grease both the O-ring and the inside of the Cable Pulley to ensure easy operation.**

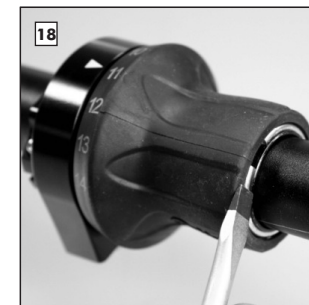


The Grip Rubber and the Cable Pulley will only marry in one position. The Cable Pulley has 5 blind holes which correlate with the 5 pins found on the Grip Rubber. It is therefore impossible to re-mount the Grip Rubber incorrectly.

Lightly grease the inside of the Grip Rubber prior to mounting back over the Shifter Housing.



When connecting both components, slide the Grip Rubber fully over the Shifter Housing and lightly rotate until it falls into position in the Cable Pulley.

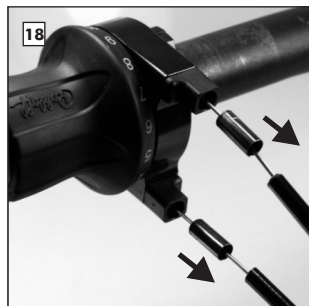


Replace the Circlip back onto the Shifter Housing. Check that the Shifter rotates freely.

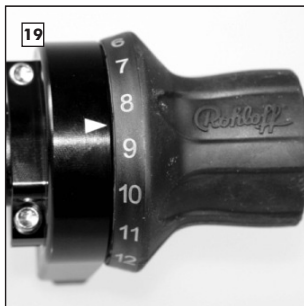
#### TIP

**Push the Rubber Grip lightly into the final position over the pre-greased O-ring until it reaches the bedstop.**

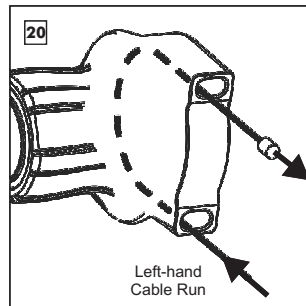
## Removing Shifter Cables for Replacement (Repair) Right-Hand Twist-Shifter



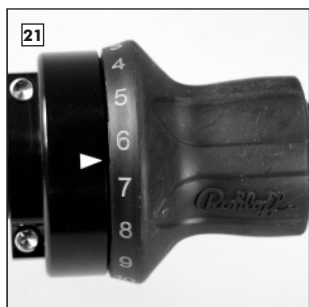
Remove both Shifter Cables and corresponding Ferrules from the Shifter Housing.



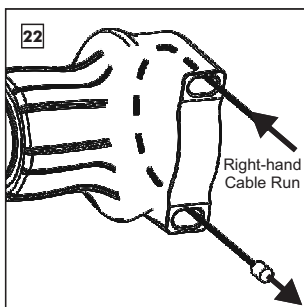
Rotate the Shifter (with fitted Cable Stoppers) until the gear indicator on the Shifter Housing is positioned **between numbers 8 and 9**. Hold the Shifter in this Position.



Remove both Cable Stoppers. **Push Shifter Cable 14** out of the Shifter Housing until the Nipple is free. Pull the Cable Nipple to completely remove the Shifter Cable.

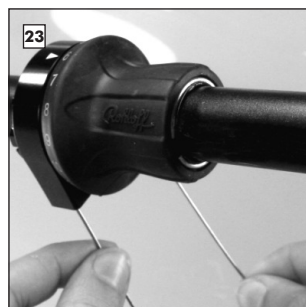


Rotate the Shifter (with fitted Cable Stoppers) until the gear indicator on the Shifter Housing is now positioned **between numbers 6 and 7**. Hold the Shifter in this Position.



Remove both Cable Stoppers. **Push Shifter Cable 1** out of the Shifter Housing until the Nipple is free. Pull the Cable Nipple to completely remove the Shifter Cable.

## Mounting Shifter cables:



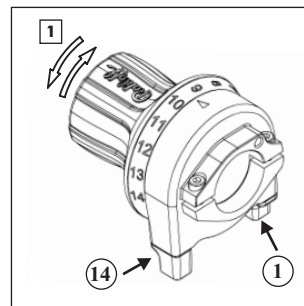
Refit the Shifter Cables into the Twist Shifter as described in the mounting instructions - Fig. 6 - 11.

## ATTENTION

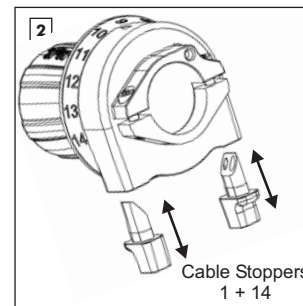
**Pushing the Cables without the Cable Stoppers fitted could result in the Nipple becoming clamped on one of the Shifter Cable exits or within the Shifter Housing itself.**

## Twist Shifter 'light' - Left-hand (Art. #8207)

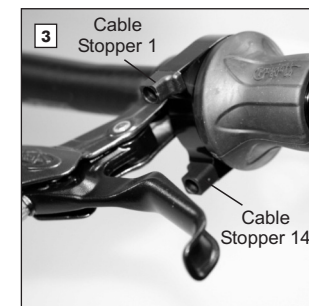
### Left-hand Twist Shifter Mounting



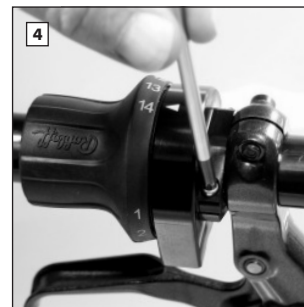
The Twist Shifter works with two shifter cables. When the Twist Shifter is rotated forward (direction of gear #14), then the rear shifter cable #14 is pulled. When the Twist Shifter is rotated backwards (direction of gear #1), then the rear shifter cable #1 is pulled.



The Cable Stoppers for both shifter cables are identical and are simply inserted into the shifter housing facing in opposing directions. The Cable Stoppers can only be fully inserted if fitted correctly. An incorrect mounting is therefore impossible.



Slide the Twist Shifter over the left-hand handlebar end (handlebar diameter 22 - 22.3mm / 7/8"). Rotate the Twist Shifter so that the Cable Stoppers are evenly distanced above and below the

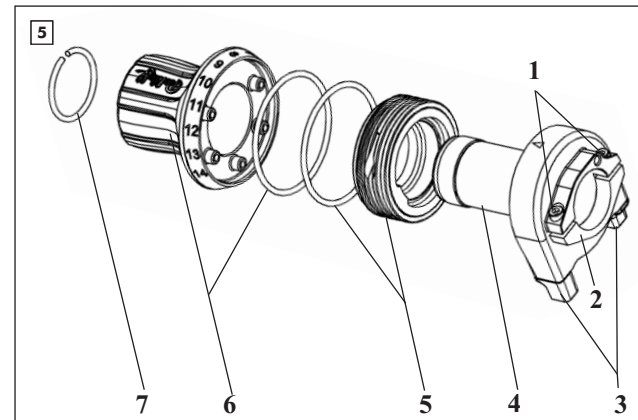


Both Clamp Screws (M3x12 - Torx TX20) should be lightly fitted so that the gap between both clamp elements is identical.

Insert the screws using the pressure of just two fingers on the TX20 tool. Finally tighten each screw by max. 1/2 rotation. The Twist Shifter should now be tightly secured to the handlebars.

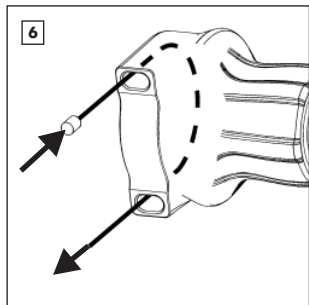
## ATTENTION

**Over tightening of the Clamp Screws can cause damage to both Twist Shifter and/or handlebars.**

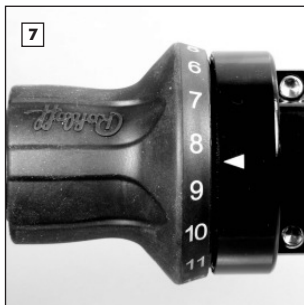


- 1 = Clamp Screws (Art. #8192)
- 2 = Clamp with Clamp Screws (Art. #8193)
- 3 = Cable Stoppers (Art. #8191)
- 4 = Shifter Housing (Art. #SA 01)
- 5 = Cable Pulley with O-Ring/Rubber Seal (Art. #8194)
- 6 = Rubber Grip with O-Ring/Rubber Seal (Art. #8195)
- 7 = Circlip (Art. #SA 18-N)

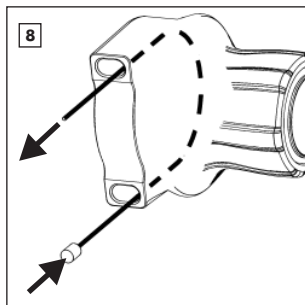
## Fitment of Shifter Cables



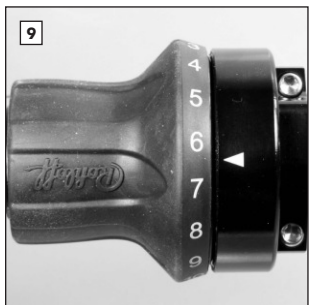
**Fitment of Shifter Cable 14:** Remove both Cable Stoppers from the Shifter Housing. Insert **Shifter Cable 14** into the Cable Pulley as illustrated above, until the cable end exits the Shifter Housing.



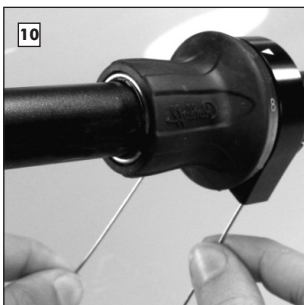
Rotate the Grip Rubber so that the gear indicator arrow falls **between gears #8 and #9**. Hold the Shifter in this position. **Pull Shifter Cable 14** completely into the Shifter Housing until the Nipple is seated correctly in the Cable Pulley.



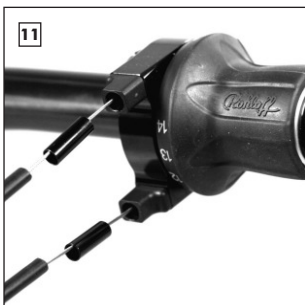
Insert **Shifter Cable 1** into the Cable Pulley as illustrated above, until the cable end exits the Shifter Housing.



Rotate the Grip Rubber so that the gear indicator arrow falls **between gears #6 and #7**. Hold the Shifter in this position. **Pull Shifter Cable 1** completely into the Shifter Housing until the Nipple is seated correctly in the Cable Pulley.



Check that the Shifter Cables run smoothly by pulling on each cable end alternatively. The Grip Rubber should rotate freely between both bed-stops slightly beyond gears #1 and #14.

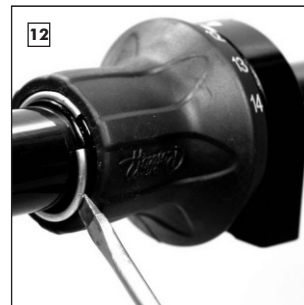


**Mounting of Cable Housings with integrated liners:** Thread the Cable Stoppers back over each Shifter Cable and push these firmly into the Shifter Housing facing in the correct position. Make sure to fit Ferrules between Cable Housing and Cable Stoppers.

### ATTENTION

**Pushing the Cables without the Cable Stoppers fitted could result in the Nipple becoming clamped on one of the Shifter Cable exits or within the Shifter Housing itself.**

## Rubber Grip replacement - Left-hand (Art. #8195)

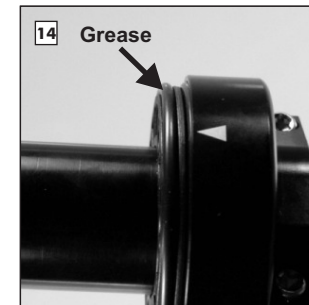


**Replacement:** When replacing the Grip Rubber, it is not necessary to remove or replace the shifter cables.

Using a small, flat screwdriver prise the Circlip out of position and remove from the Shifter Housing.

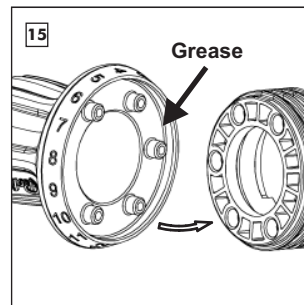


Before fitting the replacement Grip Rubber, check that the O-ring is seated correctly on the Cable Pulley.

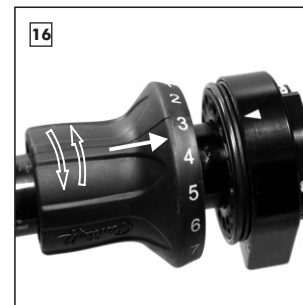


### TIP

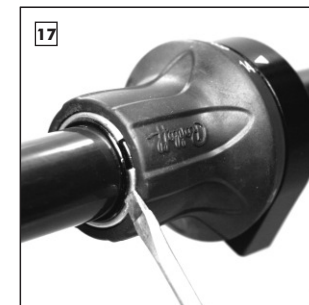
**Lightly grease both the O-ring and the inside of the Cable Pulley to ensure easy operation.**



The Grip Rubber and the Cable Pulley will only marry in one position. The Cable Pulley has 5 blind holes which correlate with the 5 pins found on the Grip Rubber. It is therefore impossible to re-mount the Grip Rubber incorrectly.



When connecting both components, slide the Grip Rubber fully over the Shifter Housing and lightly rotate until it falls into position in the Cable Pulley.



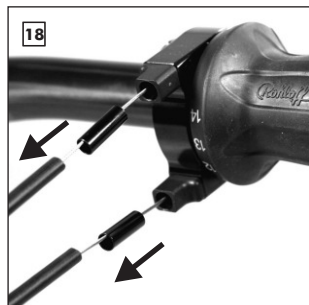
Replace the Circlip back onto the Shifter Housing. Check that the Shifter rotates freely.

### TIP

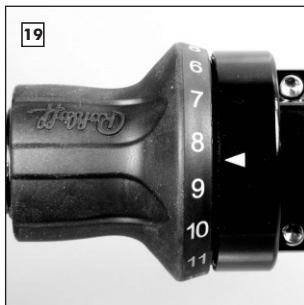
**Push the Rubber Grip lightly into the final position over the pre-greased O-ring until it reaches the bedstop.**



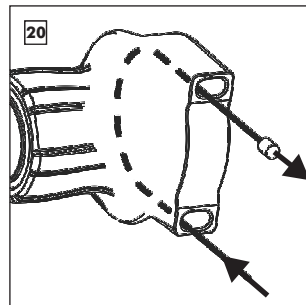
## Removing Shifter Cables for Replacement (Repair) - Left-Hand Twist Shifter



Remove both Shifter Cables housings and corresponding Ferrules from the Shifter Housing.

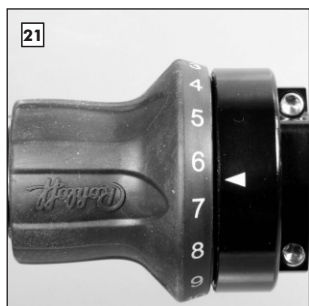


Rotate the Shifter (with fitted Cable Stoppers) until the gear indicator on the Shifter Housing is positioned **between numbers 8 and 9**. Hold the Shifter in this Position.

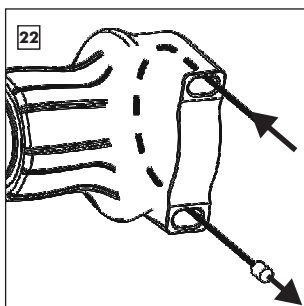


Remove both Cable Stoppers. **Push Shifter Cable 14** out of the Shifter Housing until the Nipple is free. Pull the Cable Nipple to completely remove the Shifter Cable.

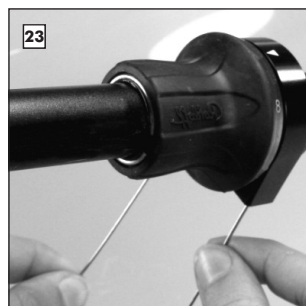
## Mounting Shifter Cables:



Rotate the Shifter (with fitted Cable Stoppers) until the gear indicator on the Shifter Housing is now positioned **between numbers 6 and 7**. Hold the Shifter in this Position.



Remove both Cable Stoppers. **Push Shifter Cable 1** out of the Shifter Housing until the Nipple is free. Pull the Cable Nipple to completely remove the Shifter Cable.



Refit the Shifter Cables into the Twist Shifter as described in the mounting instructions - Fig 6 to 11.

## ATTENTION

Pushing the Cables without the Cable Stoppers fitted could result in the Nipple getting clamped on one of the Shifter Cable exits or within the Shifter Housing itself.











**This Owners Manual is also available in a variety of other languages. Should you require a different version, you can download it from our homepage under:**

**www.rohloff.de > download > description > owners manual**

**The following languages are available:**

- English**
- German**
- French**
- Dutch**


**TIP**


- Owners Manual - Newest version
- Films
- Technology Presentation CD

The newest version of this Manual is available on the web under:  
www.rohloff.de > download > description > owners manual

Further to the manual, the most important work, service and repairs on the *Rohloff* SPEEDHUB 500/14 are shown in short films on the web.  
www.rohloff.de > videos > workshop ...

The technology Presentation CD (Art. #8296) explains the function and build of the *Rohloff* SPEEDHUB 500/14 with the use of various animations and further in-depth technical details



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