vivax

assist

ASSEMBLY INSTRUCTION

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INTRODUCTION

Incorporating the 200 watts drive unit into a bicycle so that it cannot be seen, not only requires the use of the highest quality components but also extremely careful and accurate installation. Please observe these instructions closely and use the checklist to avoid premature wear or even damage to the drive or individual components.
No liability is accepted for such errors. A completed checklist must be presented in the case of a warranty claim!

Before installation please make sure the delivery is complete and verify that all parts have been included. Also check the function of the drive components before assembly. Before this, connect the motor with electronic control and the electronic control with the switch. Plug in the battery, but not until the very end. After a short press of the switch the drive should start and switch off again after a second press. This is also part of the quality check from Gruber Antrieb GmbH & Co KG, but it could help to find out faults because of transportation. Please check also, if you got the correct variant (outside diameter 31,6 mm or 30,9 mm)!
Caution when separating the connectors – never pull on the wires and always detach the connectors carefully (see Checklist).

Information: Installation must done by a – from Gruber Antrieb GmbH & Co KG - trained dealer and with the special tools. Otherwise the warranty claim will be no valid.

CHECKLIST

Name of tester: _____ Date: _____

Serial no. motor: _____ Serial no. charger: _____ Frame number: _____

Serial no. battery: _____ Serial no. electronic control: _____

DELIVERY COMPLETE AND FULLY FUNCTIONAL BEFORE ASSEMBLY	✓
ASSEMBLY	
Screws for the bottle holder removed	
Seat tube cleaned after drilling and grinding	
Drive unit is easily inserted	
Motor mounting screw is well seated and does not protrude	
Intervention of the screwed on bevel gear mounting tool has been checked	
Feed screw of the bevel gear mounting tool has been tightened to 55 Nm	
Motor-gear greased (yellow special grease)	
Clamp tighten	
When backpedalling: · Gentle, constant resistance; no jerking · No visible movement of the screw heads	
Max. insertion measurement for seat post: _____ cm	
Fixing ring mounted at the correct distance	
Bottle holder holes sealed	
Any other openings sealed	
Seat post greased	
Slot in the seat tube sealed with grease	
Drive unit works also after raising and lowering the seat post	
Speed sensor mounted (optional), distance checked, connected	
Drive unit cuts out at 25 km/h (optional)	
Drive unit runs with displaced solenoid for only ____ seconds (optional)	
FINAL TEST	
Drive unit runs – can be switched on and off	
With gentle breaking, noise gets louder, speed stays the same	
After controlled breaking (slow blocking) the drive unit switches off after 1.5 seconds	
Speed storage in the lowest gear with raised rear wheel > 80 rpm	
OUTDOOR TEST RUN - CUSTOMER INSTRUCTION AS PER INSTRUCTION CHECKLIST	

CONTENT AND DELIVERY

1. Truvativ Husselfelt seat post with integrated electronic control
2. 33.6 V charge voltage, for Lithium-Ion manganese battery including power cable
3. Lithium-Ion manganese battery
4. Motor-gear-unit with freewheel and clamping
5. Spiral-toothed bevel gear with the cone for shaft assembly
6. Saddle bag
7. Switch housing incl. 1 function switch, cable

Not shown on the photo but included in delivery:

- Fixing ring and grub screw
- Two hex socket countersunk screws (M5x8) to mount the motor-gear-unit
- Special adhesive film, cable ties, screws

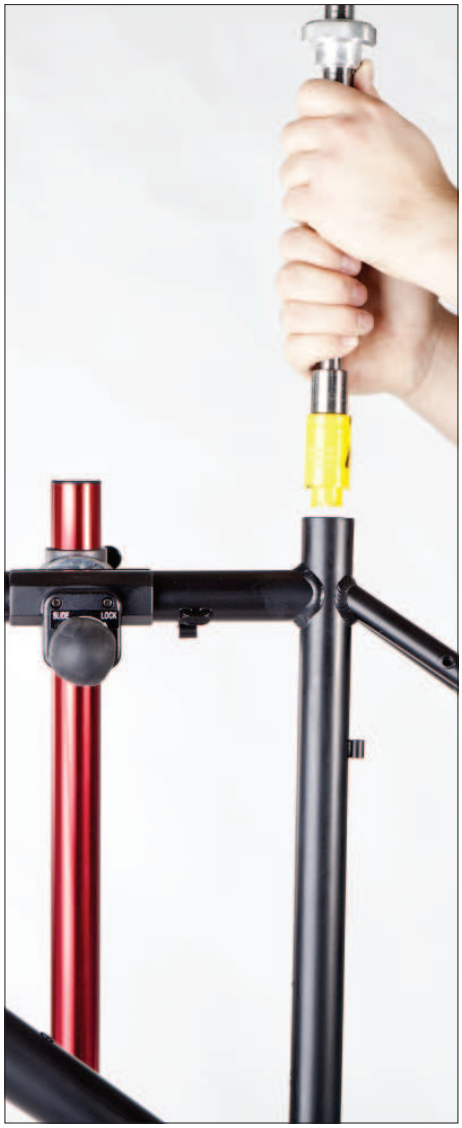
PATENT-PROTECTED SPECIAL TOOLS

1. Cylindrical grinder ø 32 mm (abrasive belt with internal piece)
2. Bevel gear mounting tool (a) incl. bevel gear dismounting tool (b)
3. Drilling jig ø 4,2 mm incl. specialdrill with 4,2 mm countersink
4. Centering tool for insertion and removal tool and drill
5. Nut M 16
6. Calibration tool for reamer
7. Insertion and removal tool
8. Drill bit for seat tube ø 31.6 mm or 30.9 mm and ø 22 mm
9. Drill- and reamer shaft (can be combined with 8. and 10.)
10. Reamer ø 31.6 mm or 30.9 mm with attachment for drill and reamer shaft
11. Grease for bevel gear pair

ADAPTING FRAME

1. Remove the screws of the bottle holder on the seat tube – dismantle the derailleur clamp. The derailleur should not be fixed on the frame by screws or by a notch – there could be a restriction in the seat tube, what makes installation impossible.

2. Modify the seat tube using a 31.6 mm or 30.9 mm drill bit (tool no. 11 and 12 as drills), use a hand drill (Caution: the drill might twist in the bottle holder holes – it's a good idea to grip the drill with both hands!) – drill the bottom bracket until drill bit ø 22 is visible in the bottom bracket. Make sure you also use the centering tool (tool no. 4) – see arrow middle picture!

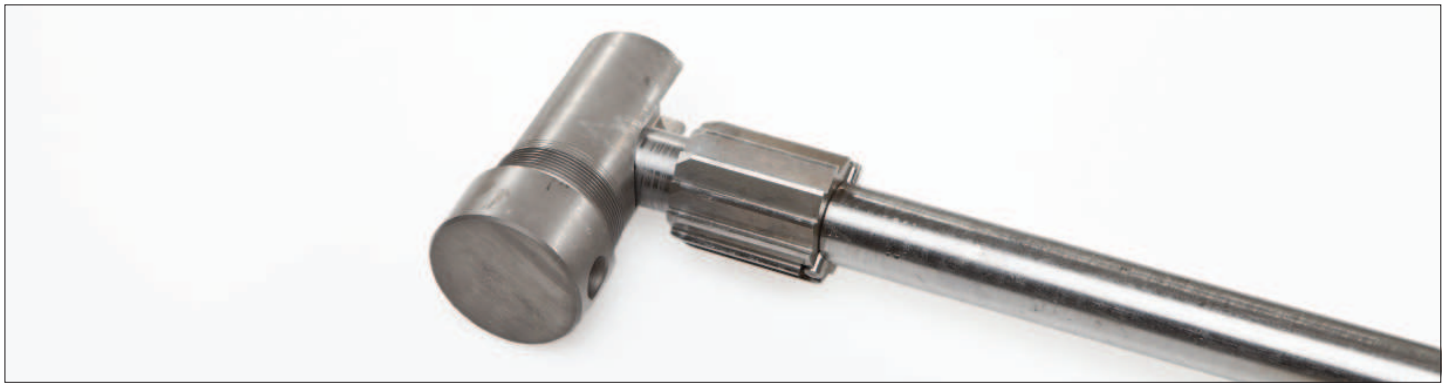


3. Spot drill at a slight angle the bottle holder holes (eyelets) on the seat tube with a drill bit (normally 8 mm – possibly smaller drill bits so as not to damage the frame) – Caution: do not drill all the way through – only until the eyelets come loose. See Checklist.

4. Then thoroughly clean seat tube, hole, drill and bottom bracket with compressed air and a towel. Dirt and filings can affect the smooth operation and damage the bevel gears.

5. Modify the bottom bracket (Caution: only between the threads) using the cylindrical grinder (tool no.1) until the calibration tool (tool no. 6) can be screwed in from the right or from the left. Only then it can be guaranteed that the bevel gear on the Hollowtech II axle has enough space to turn without restriction in operation. If after installation the bevel gear still drags on the bottom bracket (resistance when turning the crank), it will need a re-tooling!

6. Finish the seat tube using a reamer (tool no. 9 and 10) and centering tool (tool no. 4 to avoid twisting) until the central part of the reamer is in the recess of the calibration tool (tool no. 9) centered on the flat part – see arrow. Only then a smooth operation is guaranteed.

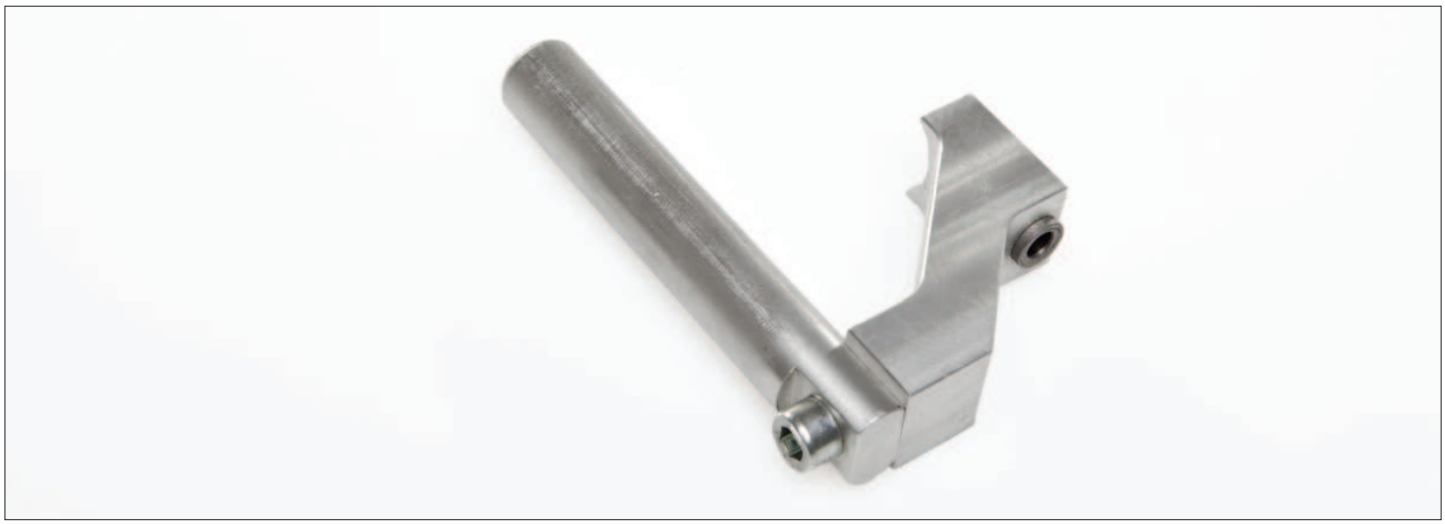


7. Turn the frame and clean it.

8. Remove any filings. Clean the seat tube and bottom bracket with compressed air and a towel. Please pay attention to the step that goes from 31.6 mm or 30.9 mm in the seat tube to 22 mm to the bottom bracket – here the tube must also be free of filings; it could damage the bevel gear pair and prevent accurate positioning of the drive unit, which inevitably leads to premature wear of the bevel gears. This kind of deterioration as a result of faulty assembly is not covered by the warranty! See Checklist!

9. Assemble the Shimano Hollowtech II bearing cups with the corresponding spacers.

10. Inserting the drilling jig (tool no. 3) – please make sure that the shaft, which is inserted into the bottom bracket, is well bolted to the jig – see arrow. Screw M10x30 on the underside!



11. Drill and sink the seat tube only with the included countersink (specialdrill 50 mm with countersink – tool no. 3) through the drilling jig as far as it will go (until bedstop). Put the drilling jig on the other side and repeat the process. So the mounting hole is on the exact place and the drop so deep that the screw head even not protrudes. Please note the exact dimension of 50 mm from drill bit to bedstop.

12. Dismantle the bearing cups and clean everything again with compressed air and a towel.

13. Assemble the right Shimano Hollowtech II bearing cup with the corresponding spacers. Important: tighten with the same clamping torque as in final assembly.

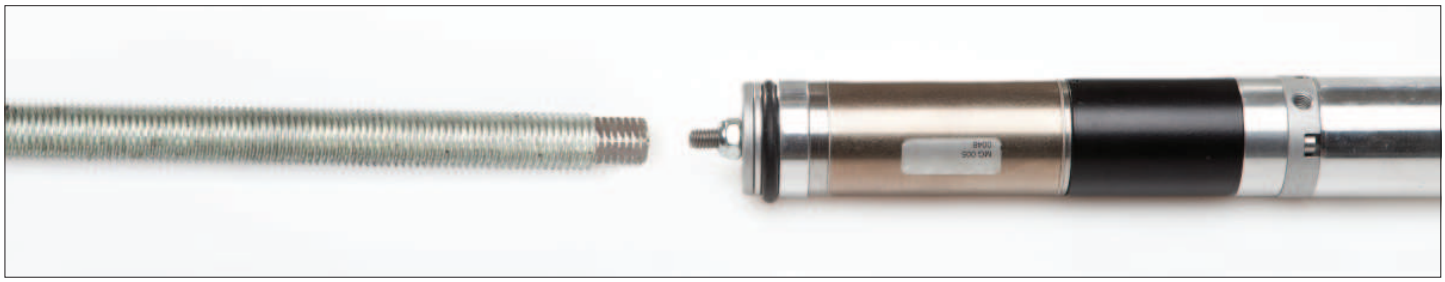
ASSEMBLY

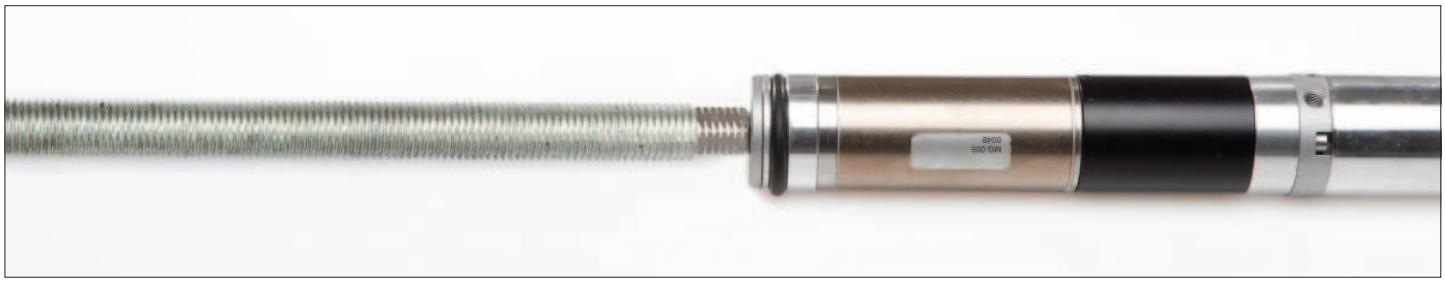
1. Insert the Shimano Hollowtech II crankaxle until it stops!

2. The clamping on the upper end of the motor gear-unit-must be loose – adjustment with self-locking M6 nut. Release the nut only so far that the distance between the end of the drive unit and the aluminum ring is 4.6 mm (delivery status) so that the O-ring is loose in between. The openings for the cables must be in a straight line and on top of each other. Grease the O-ring and make sure it does not get damaged when it is inserted into the seat tube. Hold the cables up to keep them from getting caught!

3. Grease the motor gear (yellow grease).

4. Screw on the insertion and removal tool.





5. Rotate the drive unit using the insertion/removal tool (tool no.7) to guide it into the seat tube until the motor flange holes (arrow) line up with the two holes in the frame. Make sure that none of the wires are damaged and that the plastic stopper is fitted in the front opening of the motor-gear. The drive unit must go in easily otherwise you will need to modify the seat tube once again with the reamer. A drive unit that sits too tightly, will break with high probability. Checklist.

6. Fix the drive unit using the M5x8 countersunk screws – torque (3 Nm). See Checklist.

If the screws are not under the derailleur clamp but are above or below, they should be attached again with a little bolt adhesive (low strength), (Caution: do not glue the drive unit inside), to ensure they do not come loose with vibrations while operation – the mounting screws should be unscrewed in no case -> warranty void!

7. Release the insertion/removal tool from the grub screw of the drive unit.

8. Use the insertion/removal tool (tool no. 7) and insert with the hexagon socket in the seat tube.

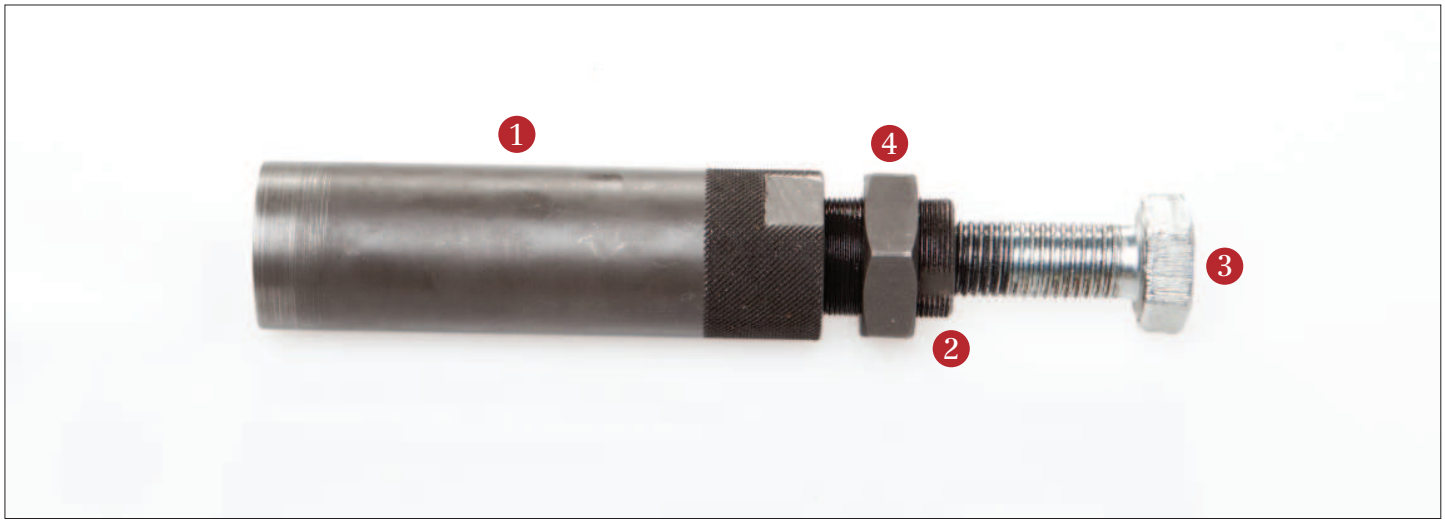
9. At the other end of the removal tool is a hexagon in order to apply the 13 mm screw-wrench.

10. Tighten the clamping using the self-locking M6 nut.

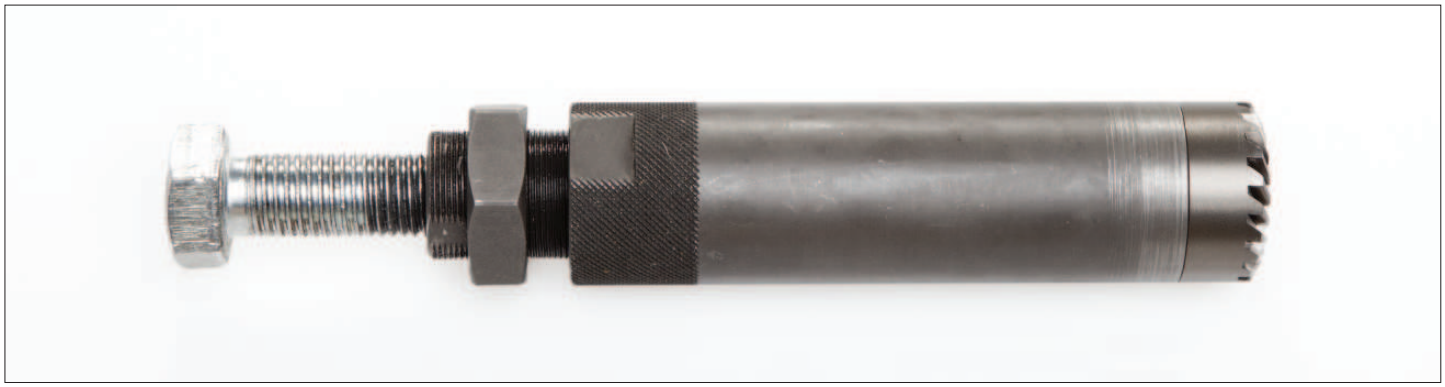
11. Close with three full rotations.

BEVEL GEAR MOUNTING TOOL

1. Sleeve of the gear mounting tool
2. Bolt
3. Feed screw
4. Lock nut



12. Insert the cone (with the inward groove) in the gear mounting tool. Screw the gear onto the gear mounting tool.



13. Turn out bolt 2 and feed screw 3 of the gear mounting tool as far as possible.

14. Insert the gear mounting tool with the bevel gear on the forward on the Shimano Hollowtech II axle to the end. During reverse rotation of the tool there must be a constant noise of the drive unit.

15. Connecting the gear mounting tool with the Shimano Hollowtech II axle using bolt 2 and 22 mm wrench (tighten till the stop).

16. Rotate the sleeve 1 of the gear mounting tool by hand till the stop (clockwise).

17. Turn back sleeve 1 for a 3/4-turn counterclockwise.

18. Screw on the lock nut 4 with the 32 mm wrench till the stop (hand tight).

19. Screw on the feed screw 3 using a torque wrench with 24 mm attachment. Tighten the feed screw 3 with the torque wrench to 55 Nm.

20. Release the feed screw 3 using the 24 mm attachment.
21. Release the lock nut 4 using the 32 mm wrench.

22. Release bolt 2 using the 22 mm wrench.

23. Screw off the sleeve 1 using the 30 mm wrench.

24. Screw on the left bearing shell (see in installation instruction Shimano).

25. Assembly the left pedal arm (see in installation instruction Shimano).

26. Turn the pedals backwards – at optimal assembly the bevel gear pair must operate in such a way that a constant sound can be heard and constant gentle resistance can be felt – no jolts or judders. See Checklist.

27. Measure the inside of the seat tube with a folding rule – from the top edge of the drive unit (clamping) to the top edge of the seat tube. Subtract 5 cm from this measurement and note down the result. See Checklist. This resulting measurement is therefore the distance between the bottom edge of the fixing ring to the bottom of the seat post (part no. 1) and thus the maximum insertion depth of this – see arrow below right. Secure fixing ring with two grub screws (M4x5). See Checklist.
Caution: If it is below this value, the cables can be damaged. If the customer loosens the fixing ring afterwards, the warranty is no longer valid. There are seat posts with a length of 35 cm or 30 cm available.

28. Clean seat tube around the drilled bottle holder holes thoroughly with detergent (e.g. oil cleaner, acetone, chain cleaner – Attention: take care not to damage the frame polish), (Attention: do not use nitro).
Then paste the special transparent adhesive film over the holes to seal them up. See Checklist.
Should customers require this drink bottle holder, we recommend the drink holder attachment from Elite, also available at Gruber Antrieb GmbH & Co KG.

29. Other openings on the frame (through which water could get into the seat tube) must be closed up by means of ribbed plugs or silicone! See Checklist.

30. Attach the seat post quick-release.

31. Grease the seat post to the minimum insertion depth (also prevents penetration of moisture!). See Checklist.

32. Join the two connectors of the drive unit with the connectors of the electronic control (part no. 1). Twist the wires gently so that they also fit inside the seat tube.

33. Install the seat post with fixing ring. Here you need to make sure that there are no excessive twisting movements that would damage the wires. Caution: ensure that the wires do not get caught in the slot of the seat tube – they could be damaged.

Then completely fill the slot in the seat tube with grease. Afterwards affix the seat post with a quick release fastening. See Checklist.
If the customer rides a lot in bad weather or often needs to raise and lower the seat post, repeat the process again in the future. Check regularly that the slot is still full of grease!

INSTALL SWITCH CABLE

1. Determine an appropriate place on the left side of the handlebars (so you can use the brake with the right hand!) where the switch housing should be positioned – could be also fixed underneath the handle bar. Use some double-sided tape underneath!

2. Bend a cable tie over the first groove.

3. Then run the cable tie under the handlebar and fasten tightly in the rear groove! Cut the cable tie as short as possible. The switch housing can also be mounted underneath the handlebars – possibly even more inconspicuous!

4. Lay the switch cable alongside the loop of the brake cable or gear cable and fasten together with small cable ties.

5. Draw the cable further along the frame and back to the seat post and fix it.

6. Attach the saddle bag.

7. With a fixed seat post run the switch cable through the cable sleeve in the specially designed opening in the saddle bag. Also put the wires that come from the seat post through the sleeve and into the saddlebag and there join the two switch connectors (small black connectors 6 pin). The 3-pin connector remains free. Fasten the cable sleeve in the special hole in the saddlebag. If the customer wants a speed limiter set at 25km/h, the speed sensor must also be attached here – see next point!

Installing the speed sensor for speed limit at 25km/h (if required by the customer this must be requested at the time of ordering – to ensure the electronics are programmed accordingly).

The speed sensor consists of:

- Speed sensor bracket
- Sensor
- Solenoid
- Cable tie

Affix the Sensor!
Caution: always affix in the rotational direction of the wheel staggered on the rear wheel stay (see picture below), so that the bracket is pushed aside in the event of contact with the solenoid and not drawn into the spokes!

The surfaces of the speed sensor bracket can be individually adjusted for each bicycle. Peel off the adhesive films and attach the bracket to the rear wheel stay. The connector (3-pin – only 2 pins used) is joined to the free 3-pin black connector in the saddlebag.

The solenoid is attached to one of the rear wheel spokes.

Check functionality like with a bike computer (slight acoustic signal). See Checklist.

The drive unit will now switch off when the speed reaches 25 km/h. If the sensor receives no signal (broken wire or too much distance to the solenoid) the motor will turn on for a short time but then stops again immediately!
Please advise the customer to check that the sensor is securely in the right position and the distance is correct to the solenoid before each trip!

FINAL CHECK

- Turn the pedals backwards; a constant slight resistance should be felt. No jolting or juddering. The mounting screws have been checked for tightness and do not move.
- Start drive unit with raised real wheel. Put in lowest gear. See Checklist.
- Stop drive unit and start again by pressing the switch continuously (speed storage in the lowest gear). The pedals must reach a speed of > 80 rpm. If the highest speed has been reached, the switch can be released and the drive must continue to turn the pedals at the same speed. If the speed is not reached, the test should be repeated after continuous operation of about 10 minutes. If this speed > 80 rpm is still not reached, contact Gruber Antrieb GmbH & Co KG.
- Put strain on the running drive by light, smooth braking. Warning: sudden jamming on the breaks must be avoided – it can lead to an overload and break the bevel gear pair! The speed remains virtually constant and a louder running noise can be heard. See Checklist.
- If the rear wheel is stopped by braking more powerfully, the motor must turn itself off after 1.5 seconds. See Checklist.
- Store the speed once by hand to a very low (but > 30 rpm). Release switch after 5 seconds – drive turns very slowly. Store a higher frequency for delivery. See Checklist.

- If a speed sensor is installed, move up a gear and after exceeding 25 km/h the drive should switch off.
- If the solenoid has shifted, the drive may start only shortly but then it must switch off automatically after one second.
- Outdoor test run.
- For instructions and detailed explanations for the customers see instruction checklist in the instruction manual!
- Confirm checklist – are all points ticked off?

Dealer‘s signature: _____

Please keep this page for warranty claims!

Installation must be done by a - from Gruber Antrieb GmbH & Co KG - trained dealer and with the offered special tools.