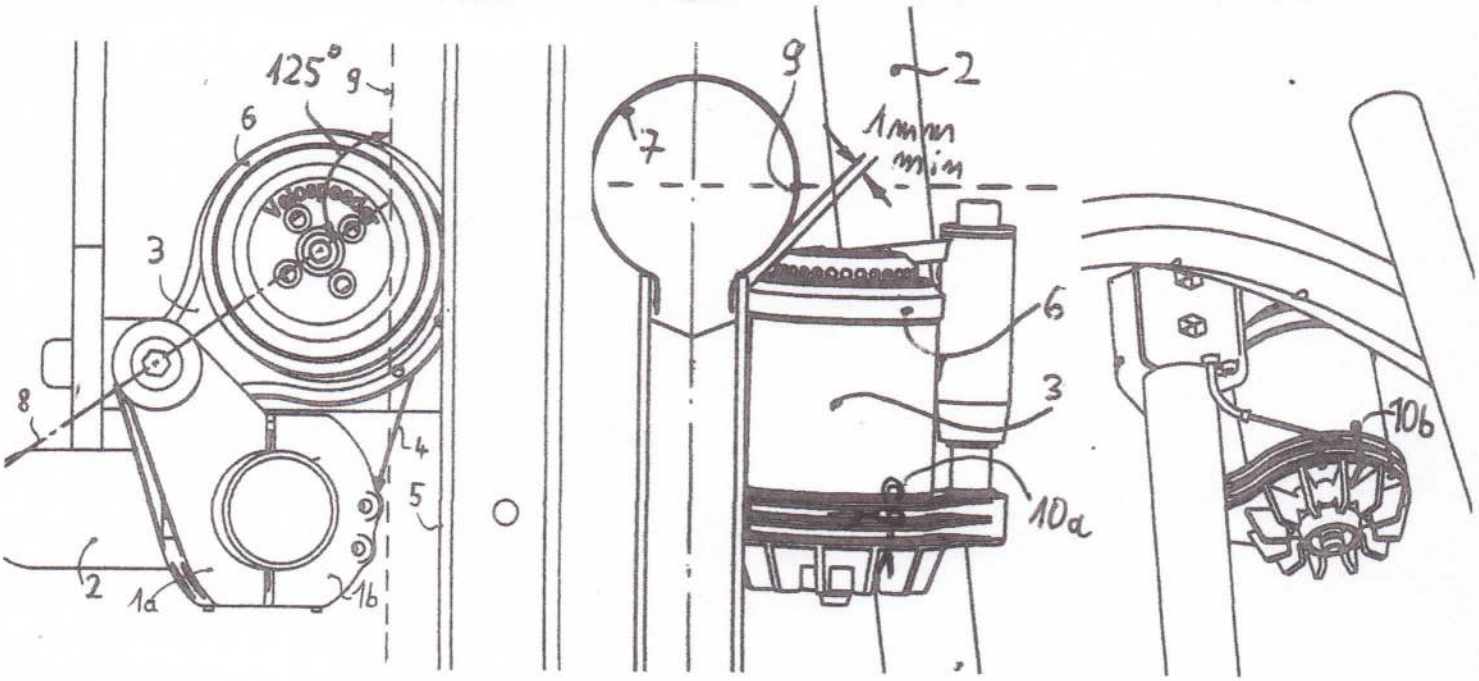
EM1a Final assembly of VELOSPEEDER with 3D holder on round tube File: EM1a_3D_Halter_rund_2019.11



1a,1b: 3D motor holder
2: Seatstay
3: Left-hand motor
4: Nylon cord
5: Rim flank
6: Friction ring
7: Tyre
8: Connecting line of motor swing axis
9: Contact position for angular gauge
10a Cotter pin on outer side
10b Cotter pin on inner side

Mounting the motor

☐ Check the mounting position of rear wheel: as the motors are aligned very precisely in relation to the rim, we recommend that you check the rear wheel is mounted in a reproducibly correct position. The lateral runout and symmetrical/central positioning of the rim in the frame should also be examined. If the lateral runout > 0.3 mm and/or the central offset of the rim > 1 mm, centring will be necessary so that the two deviations can be neutralized where possible. (Tip: Loosen the quick-release levers or the axle nuts on both sides, place the bike so that it is upright and exert a perpendicular downward pressure on the bike so that the rear axle is pressed evenly into the dropouts. Tighten the rear axle again while applying a gentle load).

☐ Remove any grease from the seatstay to ensure a secure grip for the 3D holder (Tip: White spirit is a good degreasing agent and does not attack most paint finishes.)

☐ Unscrew all four Allen bolts from the left-hand motor holder (1a, b). Hold the two halves of the block against the left-hand seatstay (2) and first fasten them provisionally with just two screws. Insert the left-hand motor (with red plug) and align roughly. Guide the three cables coming out of the motor upwards in a loop without crossing them and fasten them approx. 40 mm below the motor holder with a small cable tie. Raise the rear half of the motor holder (1b) and place all the cables in the recesses without crossing them. Now screw the motor holder in place with all four screws but only so tight that it can still be moved/rotated. (Tip: You can recognize the left-hand motor holder by the fact that the customer's name is engraved on it, while the name appears in mirrored writing on the right-hand holder.)

☐ Premount the control cord: In the long swing axis (usually on the long 3135 motor), the control cable lies between the two upper ribs of the motor base, in the short swing axis it lies between the two lower ribs. On the outside, the cord is held by the cotter pin (10a) in the loop of the cord, while, on the inside, cotter pin (10b) prevents the cord from slipping out of the groove. The nylon cord should follow a straight line into the mouth of the curved tube. Insert a straight tube of a suitable length into the motor holder from the top so that it protrudes by about 20 mm beyond the rear seatstay bridge. (Tip: The motor holder can now be twisted to ease the insertion process.)

☐ Height adjustment: The blue friction ring (6) should contact the rim as far out on the radius as possible, but must maintain a minimum distance > 1 mm between the red motor cap and the (fully

inflated) tyre (7). (Tip 1: If the rim has a groove due to wear, the friction ring should make contact either on the outer side or inner side of the groove. Tip 2: Check the minimum distance using an industrial cable tie with a thickness of 1.2 mm as a feeler gauge.)

☐ Angular adjustment: To make sure the motor can exert the optimum pressure itself, the connecting line (8) between motor and swing axis should meet the plane created through the braking surface of the rim at an angle of less than 90°+35°=125°. In order to check this, one edge of the gauge supplied is placed tangentially against the thickest part (9) of the tyre. The premounted motor holder is now turned until the motor axis and swing axis (or their M5 screw heads) move into a central position below the second edge of the gauge. (Tip: If the curve of the brass tube collides with the brake boss, you can use all-purpose adhesive to insert it into the second hole, which is positioned further away from the brake boss.)

☐ Tightening: When you have found the correct position, check the height adjustment once more and only then should you tighten the four Allen screws on the block so that roughly equal gap widths remain between 1a and 1b on both sides. As the PA parts deform somewhat over time (creep), you should tighten the M3 screws after one week. Tightening torque 1.0 Nm. M5 screws at swing axis: 6Nm (Tip 1: In order to maintain the angular adjustment, it is recommended that you gradually tighten the four screws alternately, crosswise. Tip 2: If the diameter of the seatstay is below 15 mm and is chrome-plated or made of titanium, 500-grit wet abrasive paper should be glued to the contact surface in order to improve adhesion.

☐ Check axle alignment: Push the 3 mm wooden rod supplied into the hollow shaft of the folded up motor, press the motor against the rim and push the rod until it is close to the axle of the rear wheel. The lateral offset between motor axis and rear wheel axles should be less than 10 mm.

☐ Make the control cord wear-resistant: Break the edge of the motor fin over which the nylon cord runs with fine sandpaper. Rotate the curve of the brass tube and bend it by hand if necessary to such an extent that the nylon cord feeds perfectly into the opening. (Tip: Remove nylon cord before you round off the edge.)

☐ Guide the motor cable upwards without crossing on the inner side of the seatstay and fasten with small cable ties.

Mounting the pedal sensor

☐ Look for suitable sites on the chainwheel to stick on at least two magnets, and preferably four (or five), evenly distributed around the circumference. In the case of triple chainwheels, select the inner/smallest chainwheel to avoid touching the magnets during gear changes. Adjust the derailleur so that the chain cannot jump off.

☐ Degrease the sites for the magnets, peel off the protective foil and firmly press the magnets into position.

☐ Push the pedal sensor along the seat tube until the protruding finger is level with the magnets. If necessary, you can push the cylindrical black reed contact down further into the holder. Maintain a distance of 2 to 3 mm between the reed contact and magnets. Fasten the pedal sensor to the seat tube with two cable ties.

☐ Functional test: Connect the circuit tester to the two blue wires and check whether the reed contact has a current when brushing all the magnets. (Tip: If the contact remains closed from shortly before to shortly after brushing the magnet, this then guarantees a reliable function.

Mounting the handlebar switch

☐ The handlebar switch should be readily accessible and preferably mounted near the left-hand handlebar grip. Avoid an exposed position for the operating lever. If the lever is positioned slightly upwards in the "Off" position, it can be conveniently switched on with a downward movement of the thumb. To switch it off, tap the locking lever from below with your thumb.