instructions for assembling bikes with chainrunners

To ensure silence of the rotating chainrunners a properly aligned chainline has to be created. For the rest avoid any contact of the chainrunner with frame or components which might result in grinding noises.

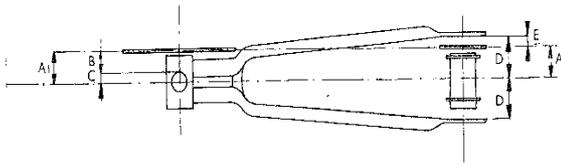**Bild 1 :** mesurement : center of seatpost/chainwheel

fig 2 : 1-3 possible chainlines

fig 3: offset plug pinion

Bild 4 : wire in appropiate bead

Bild 5 : Contact with gear cable

1. A straight chainline requires that front chainweel and rear pinion have the same distance to the center line of the frame. In front the distance is measured from center of the seat tube to the chainwheel (**fig 1**), rearwards the distance is defined by the respective hub model and the type of plug-pinion **(fig 2)**

Plug-pinions can have up to three options for positioning. All Rohloff hubs and Sram only Imotion9 hubs use flat-plug-pinions witch allows only one possible dimension for chain line. Other Sram hubs and all Shimano hubs can also be fitted with offset-plug-pinions (**fig.3**) By turning the side of an offset-plug-pinion two different distances are possible. By using a flat-plug-pinion even a third distance which lies between the two distances iof offset-plug-pinions is possible. For Shimano hubs this allows chainlines with distances of about 43-48mm, for Rohloff: 54mm (58mm 13T), Sram3: 38-45, Sram5: 43-49, Sram7: 48-54, Sram Imotion9: exclusive 49mm, Imotion3: 40 - 48mm, etc.

2. A a too small pinion can cause contact of the chainrunner with the hub casing (**fig. 4**). The minimum size of the pinion required depends on the hub model and distance of the the pinion. Minimum of 18 teeth causes no problems.
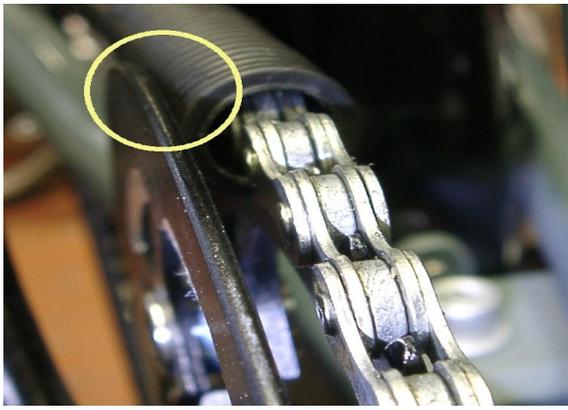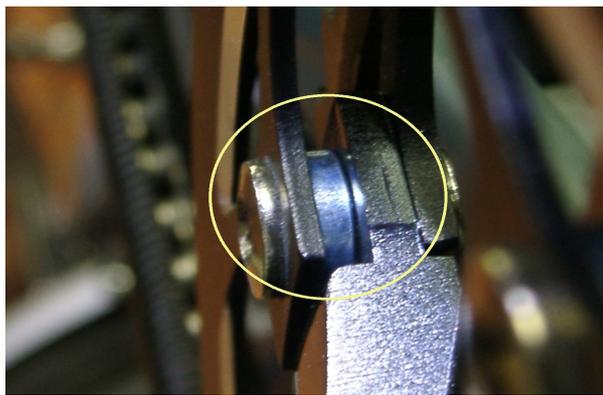
Bild 6 : offset chainring

Bild 7 : washers for offset

Bild 8 : Chainwheel not flat

Bild 9 : contact of the hub casing

3. By using offset pinions in their outside position a contact with the gear cable of the hub is possible **(fig. 5)**. If the wire is placed into the appropriate bead (**fig. 4**), the chainrunner runs smoothly.

4. Any chain guard rings must mostly be offsett about 2 mm to the outside **(fig. 6)**. For this the length of the screws usually used is mostly sufficient. Use washers of about 2 mm thickness for offset, **(fig. 7).** Resolve all screws as far as possible. Than screw after screw has to be opened and fitted with a washer. The resulting thread length should be at least equal to the screw diameter.

5. Chainwheels should preferably be flat, any offset the chainrunners dimension contacts, occurs operating noise. Solution: turn chainring for better chainline or deburr offset.

(fig.8)

Example for assembling

Due to gear transmission ratio a Nexus Alfine hub is to be fitted with a 17 teeth pinion. Inside offset of a pinion as well a pinion with flat design causes the chainrunner to contact the the hub casing (**fig. 9**) solution: use the outside of the offset pinion **see point 3**. Note: For Rohloff pinions with 16 teeth are marginal in particular by mud rides.

In extreme cases, when the distance for a reasonably aligned chain line can not be realized by nature or position of the rear pinion, the position of the front chainwheel might be adjusted by a different axle length of the bottom bracket and/or different arrangement of the chainwheel on the crank.