

88/188 Hub Maintenance and Preload Adjustment

Hubs can be cleaned with a soft brush, using soap and water, or using a cleaner such as Simple Green. Removing dirt build-up from the spoke holes will increase the life of the spokes, as well as the life of the hub. Occasionally, remove the cassette body from the hub and clean out the drive mechanism. It is not necessary to remove the cassette cogs for this operation.

To disassemble the rear hub, pull the non-drive end cap out of the axle. Use a 2mm Allen key to loosen the set screw in the non-drive clinch nut. Remove the clinch nut (standard right-hand threads). Slide the axle with cassette body and cassette body dust cap out of the main hub shell. Do NOT lose the small washer that fits between the main hub shell and cassette body! You can now clean the pawls, pawl springs, and ratchet ring. Simply wipe them off or use a mild cleaner such as Simple Green® diluted with water.

The next step is to lubricate the pawls, pawl springs, and ratchet ring. To do so, use a synthetic motor oil such as Mobil 1 10W-30. Apply 1-2 drops per pawl-enough to lightly coat them and ensure a smooth action. You should also put a light coating on the ratchet ring inside the hubshell. Grease can be used in the ratchet and pawl area, but it must have an NLGI rating of 00, 0, or 1. Do not use oils with tackifying additives, such as Phil Tenacious Oil®, as these can gum up the mechanism and cause the pawls to stick.

To reassemble the rear hub, insert the axle/cassette body/cassette body dust cap assembly into the hub shell, making sure that the small washer is between the cassette body and main hub shell. Push the three pawls down with your fingers and rotate the cassette body counter clockwise as it is inserted. Next slide the hub bearing shield (with or without lip seal on OD of shield) over the axle so that the shoulder of the shield faces the hub shell. Next, thread the non-drive clinch nut onto the axle, making sure not to cross thread it. The degree to which you tighten the clinch nut will determine how much pre-load is on the bearing and how much play you will feel in the wheel. See instructions below for setting the pre-load. Secure the clinch nut by tightening the set screw with a 2mm hex wrench to 0.8 Nm.

Both the front and rear hub have clinch nuts with an aerofoil shape designed to reduce drag. Make sure to install the wheels in the frame to take advantage of this shape. The front hub has clinch nuts on both the drive and non-drive side. After reassembling a front hub, make sure that both clinch nuts are aligned. To do this, loosen the set screw in the drive side clinch nut and rotate the clinch to align with the non-drive side. Tighten the set screw to 0.8 Nm. The drive clinch nut is not threaded, so rotating it will not affect bearing pre-load.

Bearing pre-load adjustment

Pre-loading bearings reduces the amount of play felt in wheel. Play is simply the clearance between bearing balls and bearing races. With most bearings, including Zipp's, you want to feel some play because it means that the ball is free to move into the optimal location of the races once rider weight is applied. However, excessive play can lead to premature bearing wear. One feature of the 88 and 188 model hubs is that the user can adjust the bearing preload to attain the amount of play desired.

Clinch nuts are set at the factory so that there will be a small amount of pre-load and a minimal amount of play in the wheel when installed in the frame *with quick release load applied*.

-Users can adjust the pre-load on the bearings by tightening or loosening the clinch nut. To do this:

- Use 2mm hex wrench to loosen set screw in non-drive pinch nut.
- To increase pre-load, tighten non-drive clinch nut desired amount (standard right hand threads). Note: Zipp does not recommend increasing pre-load past the

factory-set level. Increased pre-load reduces bearing life and increases running friction.

-To decrease pre-load, loosen non-drive clinch nut desired amount.

-To return to the factory-set pre-load, tighten the non-drive clinch nut until you just feel it touch the bearing. Then turn it counter-clock-wise 1/8 of a revolution to back it off the bearing. Once the quick release is loaded, the clinch nut will contact the bearing and provide a small amount of pre-load.

-Secure clinch nut by tightening set screw to 0.8 Nm.

