

Open Bearing Hub

Disassembly

1. Loosen the axle nuts or quick release and **remove the wheel** from the bike.
2. Working on the **one side only** (non drive side if a rear wheel), put a cone wrench on the cone and use a box wrench to loosen the locknut.
3. Remove the locknut and cone from the non-driveside and push the axle out towards the driveside.
4. Remove the cassette or freewheel. **See "Cassette" or "Freewheel" below.**
5. Clean all bearings and bearing races.

Re-assembly

1. Re-grease the bearing cups and reinstall the bearings. Put them in one ball at a time and use enough grease that they will stay in the cup even when the wheel is flipped over.
2. **Make sure the drive side cone and locknut are locked before reinstalling the axle.**
3. Put the axle back into the hub from the drive side.
4. Re-assemble the cone and locknut so everything is held together but **do not fully tighten anything yet.**
5. Mount the wheel on the outside of the frame so that one side of the axle is held stationary (the side with the loose locknut should be facing out).
6. Tighten the axle nut or close the quick release to hold the wheel in place (you may need a spacer on the non-drive side). Using this trick you can adjust the bearing just like any other cup and cone bearing without losing your place. (see "**Cup and cone bearing adjustment**" below)

Cup and cone bearing adjustment

1. Find your starting point. Turn the cone by hand until you feel the cone hit the bearing,
2. Hold the cone in this spot and lock the locknut against the cone. Check for play.
3. If there is no play, unlock the locknut and cone
4. Loosen the cone slightly and re-lock the locknut against the cone.
5. Repeat as necessary always moving the cone with the locknut loose, and **lock it before checking for play.**
6. Once you find the spot where there is some play, unlock the locknut one more time, **tighten the cone slightly**, and re-lock the locknut.
7. If the play is gone, the adjustment is finished, check that the wheel turns smoothly with no binding.

Freewheel

Identification: If the center does not turn when you spin it, you have a freewheel

Removal

1. Find the splined tool that matches your freewheel.
2. Put the tool in the vice facing up, and place the wheel on the tool.
3. Turn the wheel counterclockwise to loosen the freewheel. If the tool slips you can use the axle bolt or quick release to hold it on.

Installation

1. Inspect and lightly grease the freewheel threads
2. Thread the freewheel onto the hub being careful not to cross thread.

Cassette

Identification: If the center turns when you spin it, you have a cassette

Removal

1. Find the splined tool that matches your cassette.
2. Insert the lockring removal tool into the splines on the lockring and use a chain whip to keep the cassette and freehub body from turning.
3. Turn the lockring counter-clockwise, it usually makes a grating noise as the teeth disengage.
4. Once you remove the lock ring you can lift the cassette off the freehub body.

Installation

1. Place the cassette onto the freehub body. The cassette has one spline that is narrower than the others so it can only go on one way.

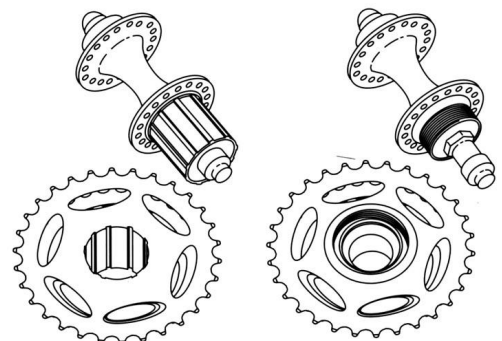


Figure 3-16. Freehub type hub and cogs.

Figure 3-17. Rear hub with freewheel.

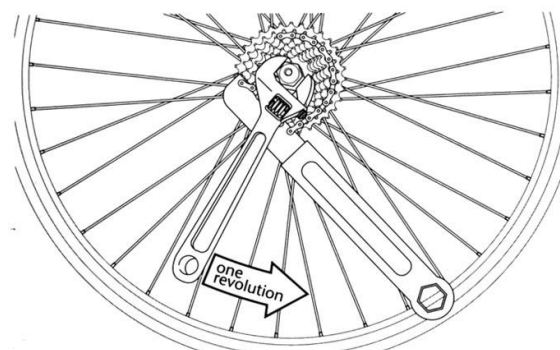


Figure 3-18. Hold the chainwhip tool in place and turn the lockring counter-clockwise.

2. Place the final few gears and their spacers on the freehub body and then place the lockring on top of the final gear.
3. Using the lockring tool tighten the lockring, you will hear a grating sound as the teeth engage. You don't need a chainwhip for installation since you are turning against the freewheel.