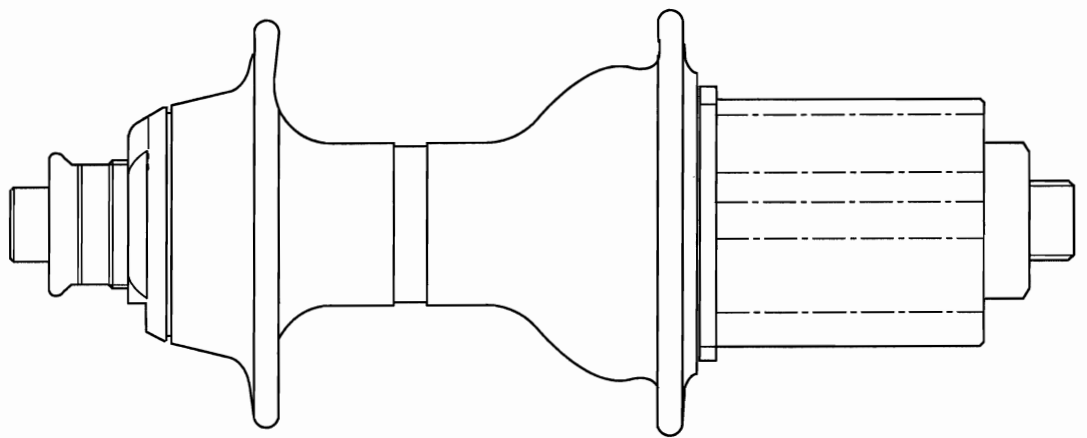
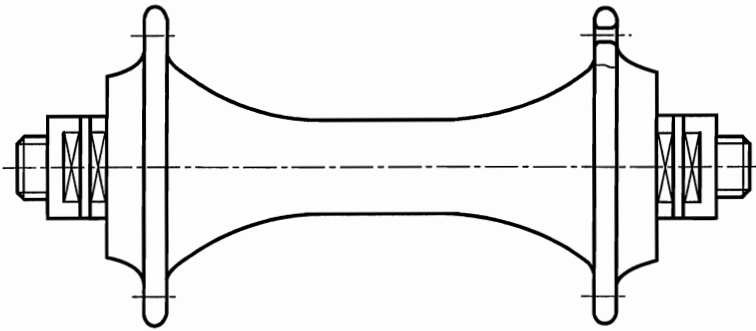


Campagnolo®



1992 - 2000

Front & Rear Hubs Overhaul Manual

HUB OVERHAUL 1990 AND EARLIER MODELS NON-CASSETTE FREEHUB STYLE

Tools required:

- (2) 13/14 mm Cone wrenches
- (2) 15/16 mm Cone wrenches
- (1) Clincher tire iron
- (1) Plastic or rubber mallet
- (1) Axle vise (you will need a bench vise for this tool)
- (1) 16mm and (1) 17mm open end wrench (for older hubs with hexagonal capped lock nuts)

Hub Dis-assembly

If you are working on a **C-Record** hub, you must remove the dust cap with the dust cap removal tool (#1170004)

- (A) Break the non-drive side locknut free by turning it counter clock wise while holding the cone on the drive side of the hub. Completely remove the lock nut, lock washer and the cone from the axle. Slide the axle completely out of the hub shell. Leave remaining cone, lock washer and lock nut in place on the axle. **(Do not loosen the lock nut by turning it against the cone it is locked against! You can pit the cone and the race by doing so!)**
- (B) Remove the dust caps with the plastic tire iron and set aside. Remove the bearings and set aside. Thoroughly clean and de-grease all pieces of the hub. Check all pieces of the hub for wear or damage. It is recommended the all bearings be replaced with cones if damage is found. Be sure to check hub shell for any damage as well. Check axles to be sure they are straight by rolling them on a flat surface. Replace them if bent.
- (C) Lightly grease the axle shaft and the threads. If you have completely taken the axle assembly apart, re-assemble in the proper order. Be sure to leave between 4 - 6 mm of axle showing for the rear and 3 - 4 mm showing for the front. This is to accommodate safe and proper engagement in the dropout.
- (D) Generously grease the races in the hub shell with white lithium grease. There must be enough grease to hold the bearings firmly in place. Unless you are working with a C-Record hub, you should now install the dust caps. Set them in place and gently tap with the mallet. Be careful not to set them too deeply.

- (E) Insert the new bearings into the races. Be sure to use the correct size and number of bearings on each side. Coat them with grease as you place them in the races.
- (F) Slide the half - assembled axle through the hub being careful not to dislodge any of the installed bearings. Thread the remaining cone onto the axle until it makes contact with the bearings. Install lock washer and thread on lock nut.
- (G) Adjust the hub so as to leave a minute amount of play. This is for the compression when the quick release is tightened. Lock down the loose side of the axle. Be careful not to over tighten as you may cause damage to the internal components you just replaced.
- (H) If you are working with a C-Record hub you may now re – install the dust caps. Simply set them in place and tap with mallet around the perimeter off the cap until it seats itself.
- (I) Lube the shaft of the quick release with a small amount of grease or spray lubricant. Insert the quick release into the axle, and then tighten down fixing nut. Be sure to check the action of the quick release and check for any worn parts.

1999-2000 Record, Chorus & Daytona Rear Cassette Hub Overhaul

Tools Required:
2 - 5mm Allen keys
1 - 2.5mm Allen Key
1 - 17mm open-end Wrench
1 - small flat-blade screwdriver

Bearing size: 5/32(= 3.96mm) on both RH & LH side

- 1) Remove the quick release skewer.
- 2) Remove the cogs using a chain whip and Campagnolo tool #7130036, **DO NOT LOSE THIS LOCK RING, IT IS SIZED TO FIT ONLY '99 CHORUS AND RECORD HUBS!!**
- 3) Remove the free hub body from the hub.
 - a) Insert a 5mm allen key in the drive side end of the axel to keep it from turning, then use the 17mm wrench to loosen the axel lock nut from the drive side of the axel. Keep in mind these threads are reversed for the axel lock nut.
 - b) Remove axel lock nut entirely from axel.
 - c) Gently pull free hub body from the hub body and set aside.
- 4) Remove non-drive side bearing adjustment assembly.
 - a) Using the 2.5mm allen key, loosen the locking screw on the bearing adjustment ring.
 - b) Using both 5mm allen keys in both ends of the axel, remove non-drive side lock nut. Remember, these threads are not reversed.
 - c) By holding drive side of exposed axel with 5mm allen key to keep it from spinning, loosen and remove bearing adjustment ring from non-drive side of axel.
 - d) Remove bearing expansion ring by sliding it from axel. This ring is not threaded.
 - e) You should now be able to push the axel through the hub body to the drive side to completely remove it.
 - f) Remove press fit cone from axel as well as the non-drive side of the hub. Note these cones are exactly the same and are interchangeable.
 - g) Using small flat blade screwdriver, gently remove rubber seals protecting the bearings. Note that these seals are the same and are interchangeable.
 - h) Remove bearings from hub. Note these bearings are exactly the same size and are interchangeable
- 5) Thoroughly clean and inspect all cones, races, pawls, bearings, pawl ratchet step, hub shell and free hub body itself. Replace any worn or damaged parts.

CASSETTE HUB REASSEMBLY

- 1) Apply a liberal coat of grease to the bearing races in the hub shell.
- 2) Install bearings in the hub shell so that the bearings themselves are facing outboard on both sides of the hub body.
- 3) Replace rubber seals on top of bearings so that the all rubber side is facing outboard. The seals will snap evenly into place with gentle pressure.
- 4) Replace press fit cone onto axel and insert axel into drive side of hub body. Slide remaining cone onto axel on the non-drive side of hub body.
- 5) Slide bearing expansion ring onto axel after cone is seated.
- 6) Screw bearing adjustment ring onto axel. Note these threads are not reverse. Adjust bearing tightness by **FINGER TIGHTENING** the adjusting ring. **DO NOT** use a wrench to tighten the bearing adjustment ring. Then lock the ring in place by tightening the 2.5mm locking screw.
- 7) Use both 5mm allen keys to screw the non-drive side lock nut into the axel.
- 8) Slide freehub body onto drive side of axel and gently depress pawls to allow free hub body to seat completely into hub body. Check to insure proper assembly by turning free hub body and listening for ratcheting..
- 9) Screw drive side lock nut onto axel. Use 5mm in the drive side end of axel to hold axel in place while tightening lock nut with 17mm wrench. Note these threads are reverse.
- 10) Install cassette and tighten down with lockring that is supplied with hub to 50N.m./36.9lb.ft.
- 11) Install quick release skewer.

REAR CASSETTE HUB OVERHAUL

Tools Required: 2 - 14mm Cone Wrenches

1 - 17mm Cone Wrench - Adjustable Wrench will work

1 - 2mm Allen Key

1 - Axle Vice

1 - Pawl Retainer Clip

- 1) Remove the Quick Release Skewer.
- 2) Remove the Cogs using a chain whip and Campagnolo splined tool #7130036.
- 3) Remove the freehub body from the hub.
 - a) Use the 2mm Allen Key to loosen the small set screw on the right axle locknut, back out about 2-3 turns.
 - b) Hold the cone on the left side using a 14mm cone wrench, loosen and remove the right locknut with the 17mm wrench.
 - c) Hold the wheel or hub so the Freehub (right) side is down and close to the workbench. Slide the Freehub body off the axle, the pawls and springs will release but with residual lubrication and if all is close to the bench they will just drop onto the bench.

Now you have what is basically a traditional hub for all practical purposes. The differences are that all adjustments must be made from one side and there are two different size balls used here. There are 9 pieces of 1/4" ball on the left and 10 pieces of 7/32" ball on the right.

- 4) Axle and Shell Disassembly and Inspection
 - a) Use the 14mm cone wrenches to free the left side locknut and cone.
 - b) Remove the locknut, washer and cone.
 - c) Remove the axle and bearings.
 - d) Clean and inspect all bearing surfaces, pawls, springs, pawl ratchet step and the hub shell and freebody in general.
- 5) Cassette Hub Reassemble
 - a) Apply a liberal coat of grease to the cups in the hub shell. Place all of the bearings in the hub. Check that all are there and that the right sizes are on the correct sides. Swab grease over all the bearings so that they are immersed in grease.
 - b) Install the axle from the freehub side and screw the cone down to the bearings. Put the washer on and then the locknut.
 - c) The adjustment is made most easily using an axle vise to anchor the axle for minute adjustments. Look for perfect setting here, this cassette axle will not compress appreciably under clamp load as traditional freewheel hub axles would.
 - d) Lightly grease the pawl ratchet steps and then insert pawls and springs into their respective sockets. It is recommended that the o-ring seal be greased as well for the best sealing effect.
 - e) There is a wire clip supplied with all of the cassette hubs. This clip will compress the pawls so that they will allow insertion of the freehub body into hub shell. Set the freehub body on the workbench with the pawl end up and just clip it on. Slide the body onto the axle and into the shell part way. Hold everything steady and remove the wire clip. Move the body into the shell all the way. Sometimes turning it a bit while moving the last few millimeters will assist in sliding the o-ring seal into its proper position.
 - f) Put the washers back onto the axle and then the locknut. Note that there is a split washer along with the flat washers. The locknut should be tightened only until the split washer is compressed. Just snug it up after feeling the resistance increase, indicating complete compression of said washer.
 - g) Last thing, tighten up the 2mm hex screw in the right locknut and you are ready for cogs and QR and then it's to ride on down the road!

**FRONT HUB
OVRHAUL MANUAL
1999 – 2000
RECORD, CHORUS & DAYTONA**

Tools required:

1. 2.5mm Allen key
2. 2, 5mm Allen keys
3. Small flat blade screw driver

Hub disassembly

1. Remove wheel from bicycle, and remove dust caps (letter N) from hub.
2. Insert one of the 5mm Allen keys into the end of the axle that is opposite of the adjustable lockring (letter C).
3. Insert the other 5mm Allen key into the axle on the same end as the adjustable lockring (letter C).
4. Loosen the lock nut (letter A) by turning the 5mm Allen key against the direction of the 5mm Allen key inserted into the opposite end of the axle. Remove locknut (letter A) completely and set aside. Be sure to keep the washer (letter B) on the lock nut.
5. Using the 2.5mm Allen key, loosen the small screw (letter L) in the adjustable lockring about 2-3 turns, you do not need to remove it completely. You should be able to turn the adjustable lockring.
6. Unscrew the adjustable lockring (letter C) and remove it completely from the axle.
7. Gently press on the exposed end of the axle to loosen it from its seat. By doing this you will expose the spliced ring (letter D), remove it from the axle.
8. Next you will see the cone for this side of the axle (Letter F). It will resemble a black, steel wedding band. Remove it from the axle.
9. Press axle all the way out of the hub shell and remove the remaining cone (letter F) from the axle. You will note that the cones are the same and interchangeable.

10. Use the small flat blade screwdriver to remove the rubber seals (letter E) from both sides of the hub. This will expose the bearings (letter G) and allow you to remove them also. Note that the two seals (letter E) are the same as the two sets of bearings (letter G).
11. Inspect all of the pieces of the hub for wear or discoloration and replace any parts which are worn or discolored.

Hub Reassembly & Adjustment

1. Apply a liberal coat of white lithium grease to the cups in the hub. Install the bearings so the bearing surface is facing outboard and not the resin surface. Apply a coat of grease to the bearings.
2. Install the rubber seals (letter E) so the all rubber side is facing out board. If you see a black ring on the seal, it is in back wards. Apply gentle pressure all the way around the perimeter of the seal until you feel it “snap” into place.
3. Slide one of the cones onto the axle so the cone (letter F) sits flush onto the shoulder on the axle.
4. Insert the axle into the hub shell until the installed cone seats against the bearings.
5. Slide the remaining cone over the exposed end of the axle and gently press it into position on the bearings.
6. Slide the spliced ring (letter D) over the end of the axle and press it in place behind the cone.
7. Install the adjustable lockring (letter C) by screwing it onto the axle. Now adjust the bearings by tightening or loosening the adjustable lockring. It is not necessary to leave a small amount of play as in the past.
8. After adjusting the bearings, use the 2.5mm Allen key to tighten the small screw (letter L). This locks the adjustable lockring in place. Be careful not to over tighten this screw.
9. Use the 5mm Allen keys in ends of the axle to install the lock nut (letter A) back into the axle. Holding firmly to the fixed lock nut end of the axle, tighten the other locknut (letter A). Replace the dust caps (letter N).

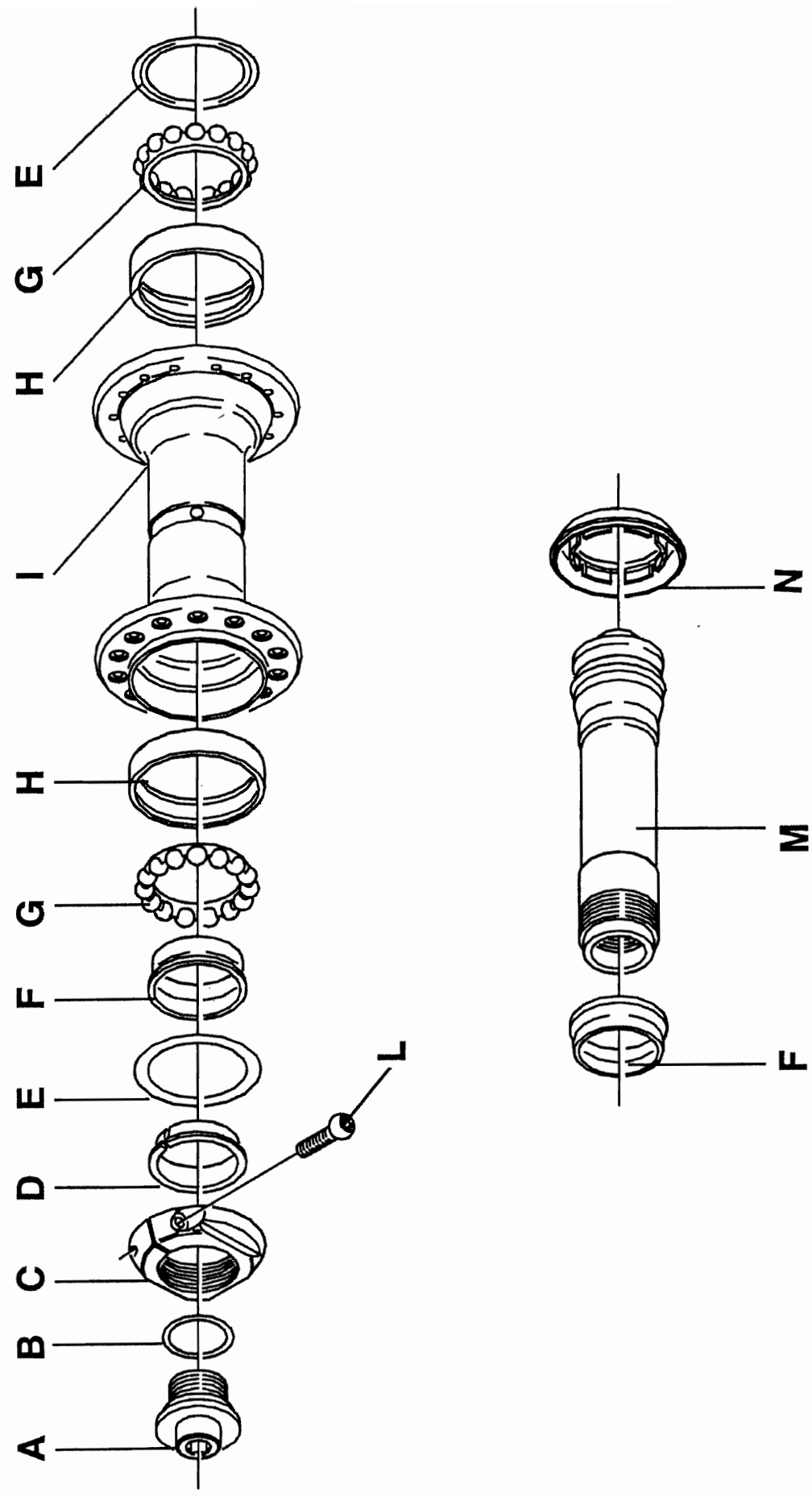


Fig. 1