

Cassette Hub Maintenance Instructions

To ensure maximum life and performance from your Phil Wood cassette hub, periodic maintenance is required. If you are not comfortable with performing any of the following instructions, contact our sales or service department and we will do our best to find a bicycle shop in your area that will be able to assist you. (See Service Information at the end of these instructions)

On the backside of this page you will find a diagram showing the assembly order and part names we will be using in these instructions.

In general, you should perform these basic maintenance tasks a minimum of every three months. Actual frequency may vary depending on riding conditions and the amount of use. Failure to maintain your hub could result in premature failure and will void the hub warranty. Please visit www.philwood.com/support for up to date product care instructions, warranty, service and return policy information. Thank you for your support.

TOOLS NEEDED:

- (2) 5 mm Hex Wrench
- 6 mm Hex Wrench
- Torque Wrench (recommended, not required)
- Mild Degreaser (cleaning/rubbing alcohol)
- Small, soft brush
- Phil Wood pawl lubricant (included) OR Phil Wood Waterproof Grease and Tenacious Oil

Step 1: Disassembly

1. Insert 5 mm hex wrenches into both end caps and simultaneously turn counter-clockwise to loosen the end caps.
- 2a. If the drive side end cap (N) loosens, use your fingers to unscrew the cap the rest of the way.

PLEASE NOTE: If you have a new style axle (Fa) continue to part 2b. If you have an old style axle (Fb), regardless of which end cap loosens, slide the axle out of the hub shell and skip to part 3.

- 2b. Once the end cap is removed you can access the 6 mm hex key (H) in the axle. Insert a 6 mm hex wrench into the axle and a 5 mm hex wrench into the remaining end cap and turn counter-clockwise to loosen the remaining cap and use your fingers to unscrew the end cap the rest of the way.
3. Hold the hub shell (C) in one hand and grab the cassette body (L) with your thumb and index finger with your other hand and pull the cassette body away from the hub shell and slide it off the axle. You now have access to the ratchet ring (E) and pawls (I).
4. If you have not already done so, slide the axle out of the hub shell. Place the hub/wheel on a flat surface with the ratchet ring facing up. Do the same for the cassette body so the pawls are facing up.

PLEASE NOTE: Any hub with an old style axle (Fb) has a separate middle sleeve (G). Make sure to clean and inspect both the axle and middle sleeve before and after cleaning.

Step 2: Cleaning

1. Use a mild degreaser and a small, soft brush to clean grease, oil, and dirt from the ratchet ring, pawls and spring area. (Avoid flushing degreaser into bearings)

PLEASE NOTE: DO NOT remove, modify or make adjustments to the ratchet ring, pawls or spring. Improper adjustment or reinstallation of the aforementioned parts could cause damage. If you notice damage to these parts after disassembly, do not proceed with any further maintenance and contact our service department.

2. If needed, use your brush and mild degreaser to clean grease, oil and dirt from the threads on your axle and end caps.
3. Using a clean, dry towel with mild degreaser, wipe down the axle and end caps.
4. After cleaning, let the parts fully dry before continuing.

Step 3: Re-Assembly

1. Use the Phil Wood pawl lubricant to re-lubricate the pawls and spring area of the cassette body. Make sure to lubricate under and around each pawl. You should also lubricate the teeth of the ratchet ring before reinstalling the cassette body.

PLEASE NOTE: If you do not have a tube of our pawl lubricant you can make your own by mixing Phil Wood Waterproof Grease (~50%) with Phil Wood Tenacious Oil (~50%).

2. Apply a thin layer of Phil Wood pawl lubricant or Tenacious Oil onto the axle before sliding it back into the hub shell by inserting the axle into the drive side of the hub shell until the axle threads are visible on the non-drive side.
3. Apply two drops of Phil Wood pawl lubricant or Tenacious Oil onto the non-drive side axle threads and hand tighten the non-drive side end cap back onto the axle (for reference, the non-drive side end cap is longer than the drive side cap.)
4. If you have a stainless axle with a middle sleeve, slide the middle sleeve onto the axle at this point. Then take the cassette body and slide it onto the axle. Let the body slide down the axle until the pawls are resting against the ratchet ring.
5. With the hub shell in one hand, hold the cassette body with your thumb and index finger in your other hand. Turn the cassette body counter clockwise while simultaneously gently pushing the cassette body into the hub shell. The cassette body will slide back into the hub shell and engage with the ratchet ring.
6. Apply two drops of Phil Wood pawl lubricant or Tenacious Oil onto the drive side axle threads and hand tighten the drive side end cap back onto the axle.
7. Rotate the cassette body by hand to ensure the hub is functioning normally.
8. Insert 5 mm hex wrenches into both end caps and simultaneously turn clockwise, tightening them to 12 N-m.
9. Rotate the cassette body by hand. Then rotate the non-drive side end cap both clockwise and counter clockwise to ensure the hub is functioning normally

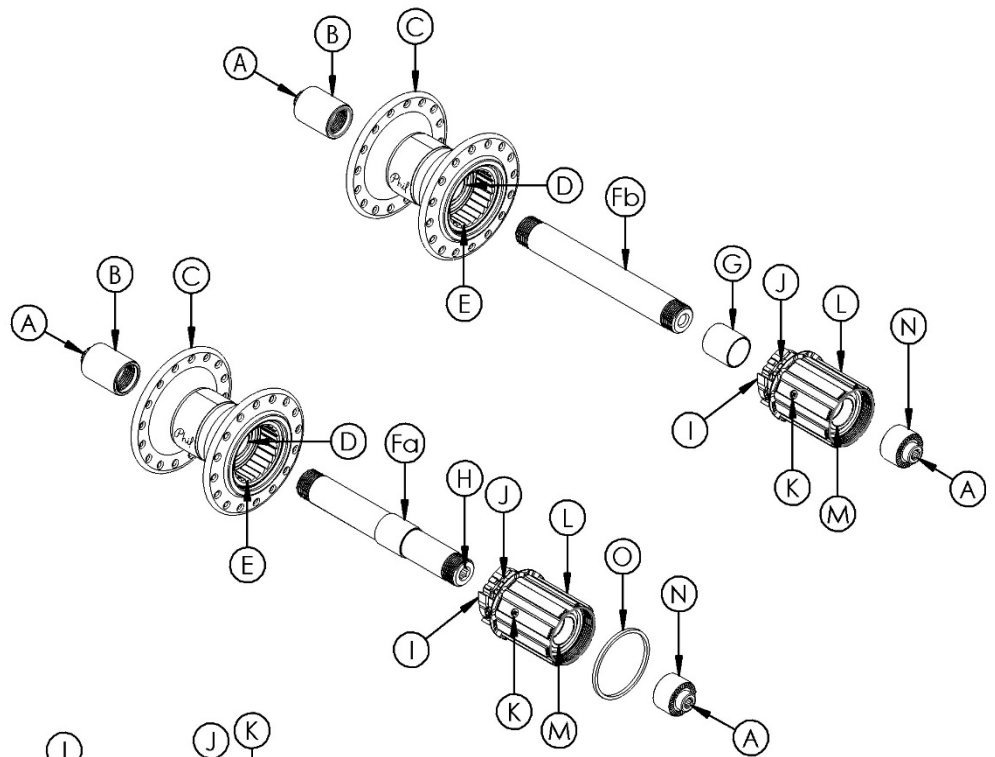
Step 4: Additional Maintenance

1. Every few rides make sure to check that your end caps are torqued to 12 N-m, over time they may loosen.

10/11-Speed Cassette Hub Overview

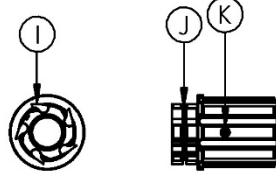
(PLEASE NOTE: See our new *Cassette Hub Body Maintenance Instructions* for servicing cassette bodies manufactured after October, 2016 to present.)

- A. 5 mm hex opening
- B. Non-drive side end cap
- C. Hub shell
- D. 6902 bearing (Phil Wood Part# PWX92)
- E. Ratchet ring
- Fa. 15 mm axle (new style axle, Jan 2016 to present)
- Fb. 15 mm axle (old style axle, Dec 2015 and older)
- G. Middle sleeve (for old style axle, Dec 2015 and older)
- H. 6 mm hex key
- I. Double-row pawl (do not remove, pre Oct 2016 models)
- J. Spring (do not remove, pre Oct 2016 models)
- K. Retaining ring screw (do not remove)
- L. Cassette body
- M. Cassette body bearing
 - 6902 bearing (Shimano)
(Phil Wood Part# PWX92)
 - 6802 bearing (Campy and SRAM XD)
(Phil Wood Part# PW802)
- N. Drive side end cap
- O. 1.85 mm cassette spacer



Torque Specifications

- B. Non-drive side end cap (torque to 12 N-m)
- K. Retaining ring screw (do not remove)
- N. Drive side end cap (torque to 12 N-m)



Limited Warranty

Phil Wood & Co. provides a limited lifetime warranty against manufacturing defects. This means that we offer a guarantee on material and production thereof for the life of the product to the original owner. In order to be considered for warranty, original proof of purchase from an Authorized Phil Wood & Co. Retailer/Dealer showing date of purchase must be provided. We also offer a one-year guarantee on all our bearings from the date of purchase. Bearings that fail due to contamination, misuse, improper tampering, or improper maintenance are not covered under warranty even if failure occurs within one year from date of purchase. **Please Note:** Our *Classic*, stainless steel cassette bodies have a one-year guarantee and our *Pro*, aluminum cassette bodies and all other *Pro*, aluminum parts have a one-year guarantee.

All Phil Wood & Co. products have an intended purpose. Products used outside of that purpose will not be warranted and Phil Wood cannot be held responsible for any damage that may occur due to misuse. It is the end user's responsibility to examine the product on a regular basis to determine if it requires service and or replacement. (See included maintenance instructions for further information.)

NOT COVERED UNDER THIS LIMITED WARRANTY ARE THE FOLLOWING:

1. Normal wear of parts that are subject to wear (e.g. bearings and ratchet mechanisms)
2. Incorrect re-assembly
3. Use in combination with other products that are not compatible (e.g. threading a FW onto the fixed side of a track hub)
4. Insufficient maintenance, tampering, misuse, and neglect.

*Phil Wood & Co. does not cover the cost of shipping on repair or warranty items back to us beyond 90 days from the original purchase date.

Return Policy

All returns, regardless of reason or cause, must have a return authorization number (RA#). We will not accept or process any item(s) without an RA#. Please contact us for RA# information via email at sales@philwood.com or call us at (408) 298-1540.

- RA#s are good for up to 60 days from the day they are issued.
- Items returned for credit are subject to a 15% restocking fee unless the item is returned due to our mis-shipment.
- Product and parts can be returned for credit (less restocking fee) if the product was never installed, used, altered, or damaged in any way. The return must be within 90 days of the original date of purchase.
- Items returned for exchange due to an ordering error are subject to a 15% restocking fee and all shipping fees for up to 30 days from the date of purchase.
- Product and parts returned more than 30 days after date of purchase can be returned for credit (less a 30% restocking fee) for up to 90 days from the day of purchase.
- After 90 days, item(s) may not be returned for credit or exchange.
- Customer is responsible for properly packaging the returning item(s).
- Customer is responsible for any damages incurred due to improper packaging. Customer is also responsible for shipping fees.
- Partial credit may be given for returned item(s) that suffered cosmetic damages resulting from installation or shipping. Eligibility for credit will be determined by Phil Wood & Co.'s warranty and technical personnel. Any damage to a product that may compromise the integrity of the part will void any applicable credit.

Service Information

All services must have a return authorization number (RA#). We will not accept or process any item(s) without an RA#. Your issued RA# should be clearly written on the outside of your package so our service department can match your item(s) to the service information on file. Items sent to Phil Wood & Co. for service without a valid and legible RA# on the outside of the package will be REFUSED and returned to sender at their cost. (Depending on how busy our service department is, standard services can take 1-2 days to complete. Standard services can take longer to complete depending on service department workload and part availability.) Once issued, an RA# is valid for 60 days.

PLEASE NOTE: Items sent to Phil Wood & Co. for service without a valid and legible RA# placed on the outside of the package will be REFUSED and returned to sender at their cost. Phil Wood & Co. does not cover the cost of shipping on repair or warranty items sent back to us beyond 90 days from the original purchase date.