

**ZIPP**

# ZR1 Hubs



SERVICE MANUAL

**XDR**  
COMPATIBLE ONLY  
P181128

# SRAM® LLC WARRANTY

**THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS AGAINST SRAM, LLC. YOU MAY ALSO HAVE OTHER RIGHTS THAT VARY FROM STATE TO STATE, COUNTRY, OR PROVINCE. THIS WARRANTY DOES NOT AFFECT YOUR STATUTORY RIGHTS. TO THE EXTENT THIS WARRANTY IS INCONSISTENT WITH THE LOCAL LAW, THIS WARRANTY SHALL BE DEEMED MODIFIED TO BE CONSISTENT WITH SUCH LAW. FOR A FULL UNDERSTANDING OF YOUR RIGHTS, CONSULT THE LAWS OF YOUR COUNTRY, PROVINCE, OR STATE.**

## EXTENT OF LIMITED WARRANTY

Except as otherwise set forth herein, SRAM warrants its bicycle components to be free from defects in materials or workmanship for a period of two (2) years after original purchase of the product.

SRAM warrants all Zipp MOTO Wheels and Rims to be free from defects in materials or workmanship for the lifetime of the product.

SRAM warrants all non-electronic Zipp branded bicycle components, Model Year 2021 or newer, to be free from defects in materials or workmanship for the lifetime of the product.

## GENERAL PROVISIONS

This warranty only applies to the original owner and is not transferable. Claims under this warranty must be made through the retailer where the bicycle or the SRAM product was purchased or a SRAM authorized service location. Original proof of purchase is required. All SRAM warranty claims will be evaluated by a SRAM authorized service location whereupon acceptance of the claim the product will be repaired, replaced, or refunded at SRAM's discretion. To the extent allowed by local law claims under this warranty must be made during the warranty period and within one (1) year following the date on which any such claim arises.

## NO OTHER WARRANTIES

EXCEPT AS DESCRIBED HEREIN, AND TO THE EXTENT ALLOWED BY LOCAL LAW, SRAM MAKES NO OTHER WARRANTIES, GUARANTIES, OR REPRESENTATIONS OF ANY TYPE (EXPRESS OR IMPLIED), AND ALL WARRANTIES (INCLUDING ANY IMPLIED WARRANTIES OF REASONABLE CARE, MERCHANTABILITY, OR FITNESS FOR A PARTICULAR PURPOSE) ARE HEREBY DISCLAIMED.

## LIMITATIONS OF LIABILITY

EXCEPT AS DESCRIBED HEREIN, AND TO THE EXTENT PERMITTED BY LAW, IN NO EVENT SHALL SRAM OR ITS THIRD PARTY SUPPLIERS BE LIABLE FOR DIRECT, INDIRECT, SPECIAL, INCIDENTAL, OR CONSEQUENTIAL DAMAGES. SOME STATES (COUNTRIES AND PROVINCES) DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL DAMAGES, SO THE ABOVE LIMITATION MAY NOT APPLY TO YOU.

## LIMITATIONS OF WARRANTY

This warranty does not apply to products that have been incorrectly installed, adjusted, and/or maintained according to the respective SRAM user manual. The SRAM user manuals can be found online at [sram.com/service](http://sram.com/service).

This warranty does not apply to damage to the product caused by a crash, impact, abuse of the product, non-compliance with manufacturer's specifications of intended usage, or any other circumstances in which the product has been subjected to forces or loads beyond its design.

This warranty does not apply when the product has been modified, including but not limited to, any attempt to open or repair any electronic and electronic related components, including the motor, controller, battery packs, wiring harnesses, switches, and chargers.

This warranty does not apply when the serial number or production code has been deliberately altered, defaced, or removed.

SRAM components are designed for use only on bicycles that are pedal powered or pedal assisted (e-Bike/Pedelec).

Notwithstanding anything else set forth herein, the battery pack and charger warranty does not include damage from power surges, use of improper charger, improper maintenance, or such other misuse.

This warranty shall not cover damages caused by the use of parts of different manufacturers or parts that are not compatible or suitable for use with SRAM components.

This warranty shall not cover damages resulting from commercial (rental) use.

## WEAR AND TEAR

This warranty does not apply to normal wear and tear. Wear and tear parts are subject to damage as a result of normal use, failure to service according to SRAM recommendations, and/or riding or installation in conditions or applications other than recommended.

### WEAR AND TEAR PARTS INCLUDE:

- Aero bar pads
- Air sealing o-rings
- Batteries
- Bearings
- Bottomout pads
- Brake pads
- Bushings
- Cassettes
- Chains
- Corrosion
- Disc brake rotors
- Dust seals
- Free hubs, Driver bodies, Pawls
- Foam rings, Glide rings
- Handlebar grips
- Jockey wheels
- Rear shock mounting hardware and main seals
- Rubber moving parts
- Shifter and Brake cables (inner and outer)
- Shifter grips
- Spokes
- Sprockets
- Stripped threads/bolts (aluminium, titanium, magnesium or steel)
- Tires
- Tools
- Transmission gears
- Upper tubes (stanchions)
- Wheel braking surfaces

## ZIPP IMPACT REPLACEMENT POLICY

Zipp branded products, Model Year 2021 or newer, are covered under a lifetime impact-damage replacement policy. This policy can be used to obtain a replacement of a product in the event of non-warranty impact damage occurring while riding your bicycle. See [www.zipp.com/support](http://www.zipp.com/support) for more information.

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# **SAFETY FIRST!**

**We care about YOU. Please, always wear your safety glasses and protective gloves when servicing SRAM® products.**

**Protect yourself! Wear your safety gear!**

## Zipp Service

We recommend that you have your Zipp components serviced by a qualified bicycle mechanic. Servicing Zipp components requires the use of specialized tools. Failure to follow the procedures outlined in this service manual may cause damage to your component and void the warranty.

Visit [www.zipp.com/support](http://www.zipp.com/support) for the latest Zipp Spare Parts catalog and technical information. For order information, please contact your local Zipp distributor or dealer.

Information contained in this publication is subject to change at any time without prior notice.

Your product's appearance may differ from the pictures contained in this publication.



For recycling and environmental compliance information, please visit [www.sram.com/company/environment](http://www.sram.com/company/environment).

## Part Preparation

Remove the component from the bicycle before service.

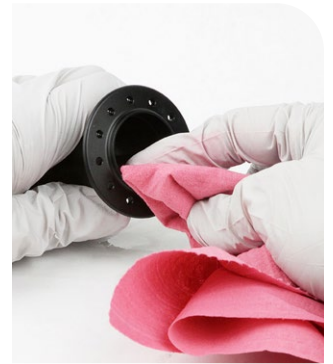
Clean the exterior of the product with mild soap and water to avoid contamination of internal sealing part surfaces.

## Service Procedures

The following procedures should be performed throughout service, unless otherwise specified.

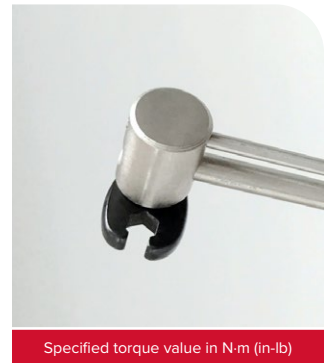
Clean the part with isopropyl alcohol and a clean, lint-free shop towel.

Clean the sealing surface on the part and inspect it for scratches.



Use aluminum soft jaws when placing a part in a bench vise.

Tighten the part with a torque wrench to the torque value listed in the red bar. When using a crowfoot socket and torque wrench, install the crowfoot socket at 90 degrees to the torque wrench.



## Component Removal

The hub can be serviced while in the wheel. However, if your spokes or rim are damaged, you can remove the hub from the wheel which will make servicing your hub easier. To remove the hub, use a spoke wrench to de-tension the spokes, then use a pair of metal snips to cut the spokes, remove the hub from the wheel, and remove the spoke ends from the hub (not pictured).

For additional information about Zipp wheels and hubs, user manuals are available at [www.Zipp.com](http://www.Zipp.com).

## Parts, Tools, and Supplies

### Parts

- Wheel Bearing Kit Front/Rear For Zipp ZR1 Hubs, 61903

### Safety and Protection Supplies

- Apron
- Clean, lint-free shop towels
- Nitrile gloves
- Safety glasses

### Lubricants and Fluids

- Isopropyl alcohol
- Klüber Staburags NBU30 grease

### Bicycle Tools

- Axle and spindle vise inserts - Park Tool AV-4 or AV-5
- Blind hole bearing puller set
  - 17 mm slotted attachment
- Wheels Manufacturing Press-1 Sealed Bearing Press Kit or similar
  - 6903 30x17/61903 bearing press adapters (x2)
  - T-handle threaded bearing press

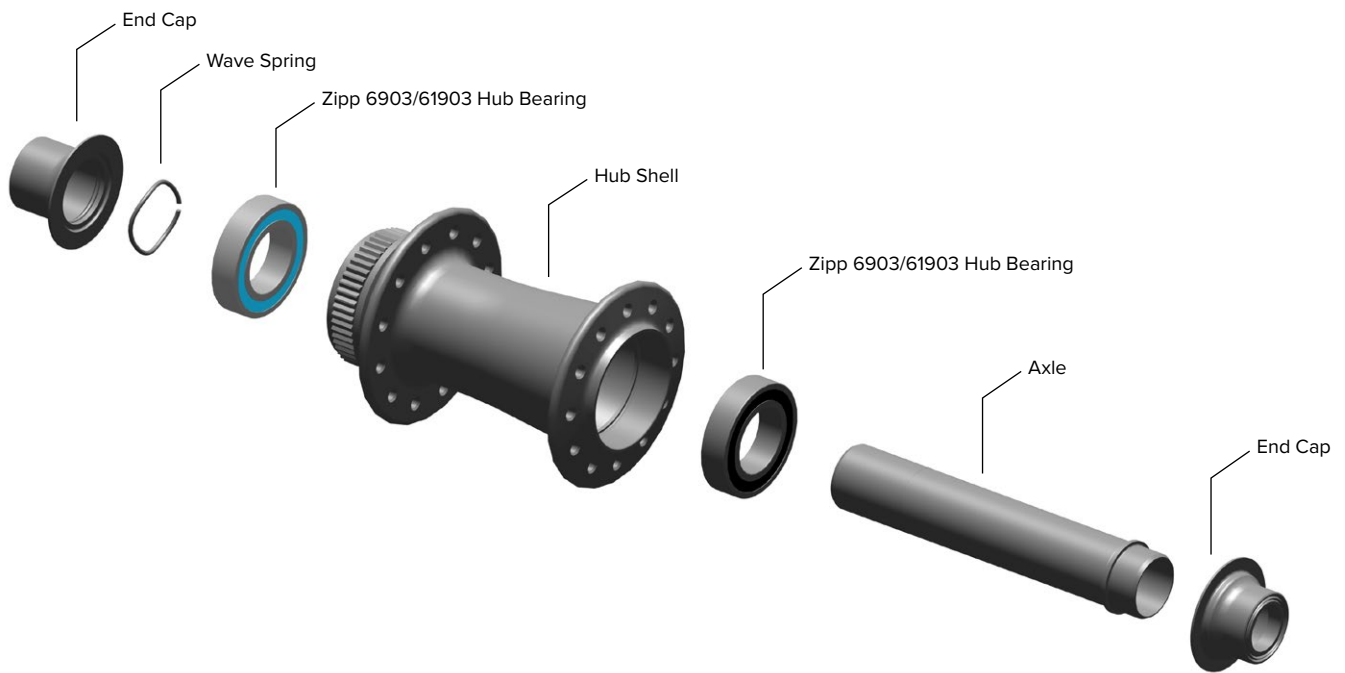
### Common Tools

- Bench vise
- Flat blade screwdriver
- Grease brush
- Rubber or plastic mallet

## SAFETY INSTRUCTIONS







Always wear nitrile gloves when working with bicycle grease.

## Exploded View - Front Hub



## Front Hub End Caps

The end cap identification number is laser etched onto the end cap.

		Drive Side	Non-Drive Side
<b>Quick Release</b>	<b>Rim Brake</b>		 2018-252-000
	<b>Centerlock</b>	 2018-252-000	 2018-270-000
<b>15x100</b>	<b>Centerlock</b>	 2018-165-000	 2018-267-000

## Front Hub Bearing Removal

Procedures are the same for rim brake and disc brake rear hubs. Disc brake hub pictured.

- 1** Insert the Park Tool AV-4 or AV-5 Axle and Spindle Vise Insert tool into a vise. Clamp the non-drive side end cap into the vise insert tool and pull up on the wheel/hub to remove the end cap.



- 2** Gently tap the exposed axle end with a plastic mallet to dislodge the axle from the hub bearings.

Use your thumb to push the axle through the hub shell and remove the wave spring from the non drive side hub shell.

Remove the front axle from the drive side of the hub.



Plastic Mallet



- 3** Use your fingers to remove the end cap from the drive side of the axle.





**4** Spray isopropyl alcohol onto the axle and clean it with a shop towel.

**NOTICE**

To prevent damage to the hub surfaces, do not use acetone or similar products to clean parts.



Isopropyl Alcohol

**5** Insert the 17 mm Bearing Puller slotted attachment through the drive side bearing. Align the slotted attachment with the bottom of the bearing, and expand it inside the bearing.

*Do not over tighten the slotted attachment. For more detailed assembly and usage, see the bearing puller manufacturer's instructions.*

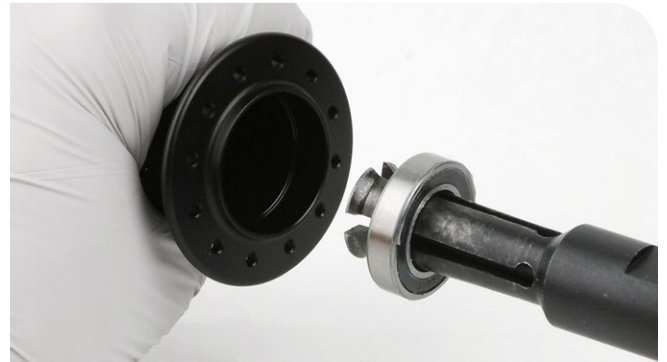
Grip the slide hammer and forcefully pull away from the slotted attachment to remove the bearing from the hub shell.

**NOTICE**

To prevent damage when pressing the bearing into the hub, make sure that the bearing press tools contact both the inner and outer bearing races, and not the hub shell.



17 mm Slotted Attachment



- 6** Insert the 17 mm Bearing Puller slotted attachment through the non-drive side bearing. Align the slotted attachment with the bottom of the bearing, and expand it inside the bearing.

*Do not over tighten the slotted attachment. For more detailed assembly and usage, see the bearing puller manufacturer's instructions.*

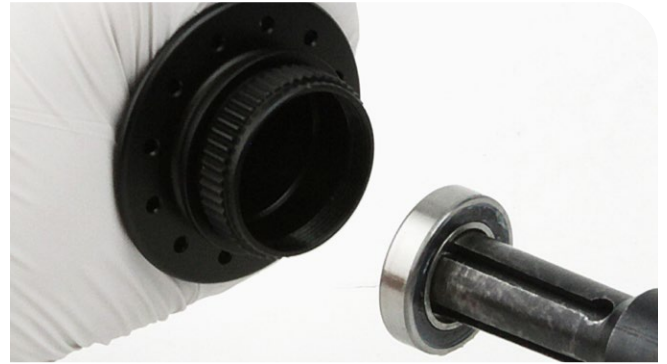
Grip the slide hammer and forcefully pull away from the slotted attachment to remove the bearing from the hub shell.

### NOTICE

To prevent damage when pressing the bearing into the hub, make sure that the bearing press tools contact both the inner and outer bearing races, and not the hub shell.



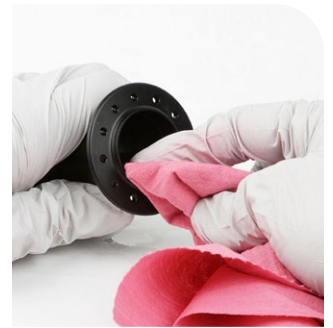
17 mm Slotted Attachment



- 7** Clean the hub shell with isopropyl alcohol and a shop towel.



Isopropyl alcohol



Shop towel

## Front Hub Bearing Installation

- 1 Install a new Zipp 6903/61903 hub bearing into the drive side of the hub with the black seal facing outward.



- 2 Slide a 6903 30x17 tool onto the Press Tool threaded rod.  
Insert the threaded rod through the bearing on the drive side of the hub shell. Slide a second 6903 30x17 tool onto the threaded rod.  
Thread the Press Tool handle onto the threaded rod.  
Turn the handle clockwise to press the bearing into the hub until it is hand-tight.  
Do not overtighten the bearing.  
Remove the tools.

### NOTICE

To prevent damage when pressing the bearing into the hub, make sure that the bearing press tools contact both the inner and outer bearing races or bearing bores and not the hub shell.



- 3 Install a new Zipp 6903/61903 hub bearing into the non-drive side of the hub with the black seal facing outward.



- 4** Slide a 6903 30x17 tool onto the Press Tool threaded rod.
- Insert the threaded rod through the bearing on the non-drive side of the hub shell. Slide a second 6903 30x17 tool onto the threaded rod.
- Thread the Press Tool handle onto the threaded rod.
- Turn the handle clockwise to press the bearing into the hub until it is hand-tight.
- Do not overtighten the bearing.
- Remove the tools.



- 5** Apply grease to the non-drive side axle bearing race.



- 6** Insert the non-drive side end of the axle into the drive side of the hub, through the drive side bearing, through the hub, and through the non-drive side bearing. Press the axle into the hub bearing with your thumb until the axle bearing step fits flush into the bearing.



- 7** Install the wave spring onto the non-drive side of the axle. You may need a tool to press the wave spring against the bearing face.

**NOTICE**

Do not scratch the axle when using a tool to install the wave spring.



- 8** Apply grease to the following locations on the drive side and non-drive side axle end:

- Axle front surface (a)
- Axle radial surface (b)
- Bearing front face across bearing seal, inner- and outer ring (c)



- 9** Press the end caps onto the axle.



- 10** Clean the hub with isopropyl alcohol and a shop towel.





## Component Removal

Prior to service, remove the wheels from the bicycle according to the bicycle manufacturer's instructions and thoroughly clean the exterior of the product to avoid contamination of internal sealing part surfaces.

For additional information about Zipp wheels and hubs, user manuals are available at [www.zipp.com](http://www.zipp.com).

## Parts, Tools, and Supplies

### Parts

- Wheel Bearing Kit Front/Rear for Zipp ZR1 Hubs, 61903
- Wheel Freehub Kit - XDR Driver Body Kit - 12x142 / QR - Zipp ZR1 (optional)
- Wheel Freehub Kit - 11 Speed Driver Body Kit - 12x142 / QR - Zipp ZR1 (optional)
- Wheel Freehub Kit - Campagnolo Driver Body Kit - Centerlock Disc / Rim Brake - Zipp ZR1 (optional)

### Safety and Protection Supplies

- Apron
- Clean, lint-free shop towels
- Nitrile gloves
- Safety glasses

### Lubricants and Fluids

- Isopropyl alcohol
- Zipp Cognition or SRAM Butter grease
- Klüber Staburags NBU30 grease

### Zipp/SRAM Tools

- Zipp 61903 Bearing Press Tool (x2)  
or  
Zipp 61903 Bearing Press Tool (x1) *and*  
SRAM 6903 Bearing Press Tool (x1)

### Bicycle Tools

- Axle and spindle vise inserts - Park Tool AV-4 or AV-5
- Blind hole bearing puller set
  - 17 mm slotted attachment
- Wheels Manufacturing Press-1 Sealed Bearing Press Kit or similar
  - 6903 30x17/61903 bearing press adapters (x2)
  - T-handle threaded bearing press

### Common Tools

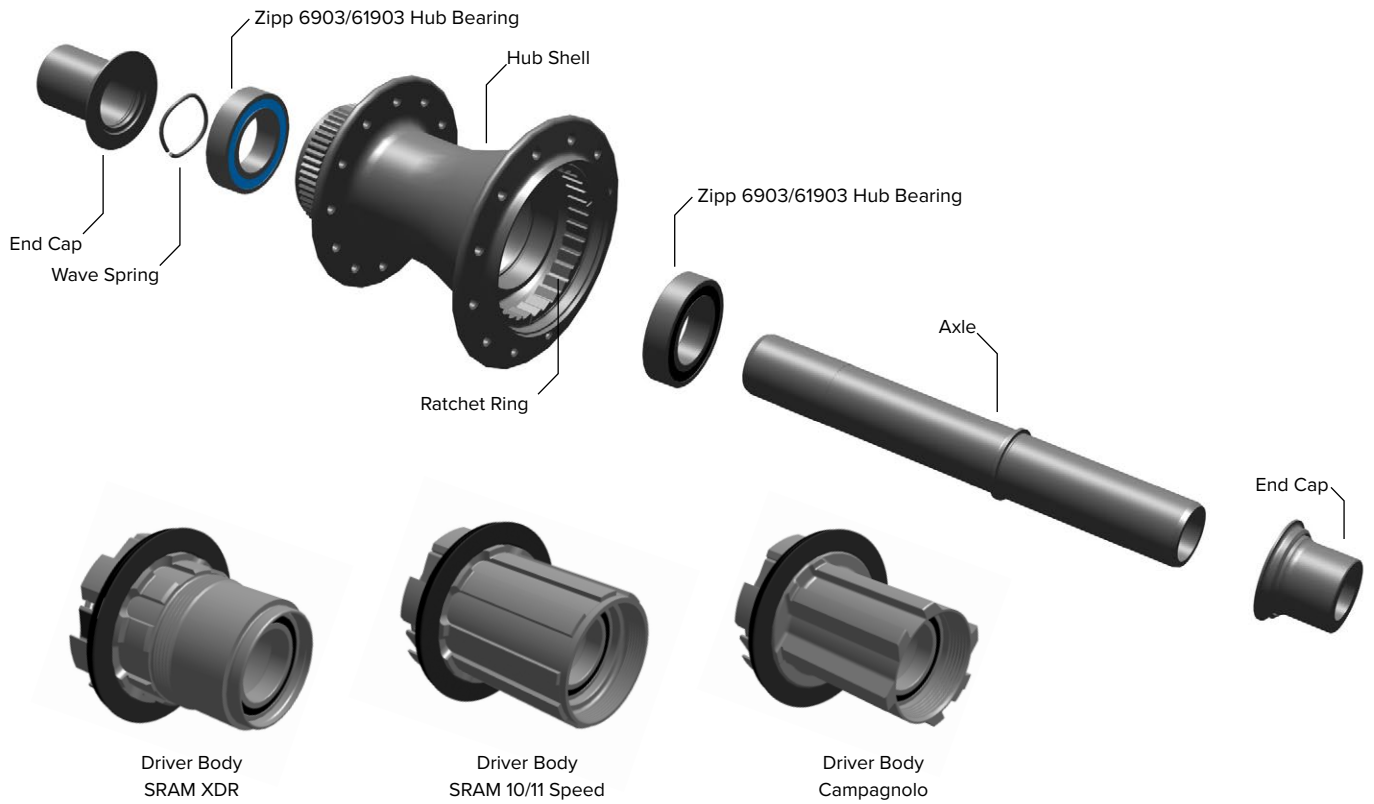
- Bench vise
- Flat blade screwdriver
- Grease brush
- Rubber or plastic mallet
- Vise soft jaws (aluminum)

For part numbers, refer to the Zipp Spare Parts Catalog in the Support section of [www.zipp.com](http://www.zipp.com).

## SAFETY INSTRUCTIONS

Always wear nitrile gloves when working with bicycle grease.

## Exploded View - Rear Hub



## Rear Hub End Caps

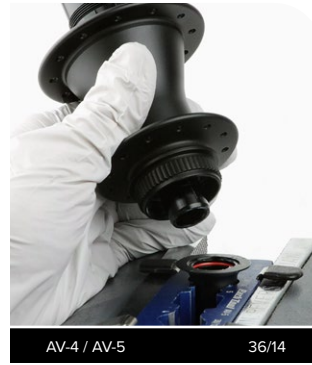
The end cap identification number is laser etched onto the end cap.

		Driver Body	Drive Side	Non-Drive Side
Quick Release	Rim Brake	XDR SRAM 11 SPD Campagnolo		 2018-249-000
	Centerlock	XDR SRAM 11 SPD Campagnolo	 2018-127-000	 2018-269-000
12x142		XDR SRAM 11 SPD	 2018-151-030	 2018-251-000

## Rear Hub Bearing Removal

Procedures are the same for rim brake and disc brake rear hubs. Disc brake hub pictured.

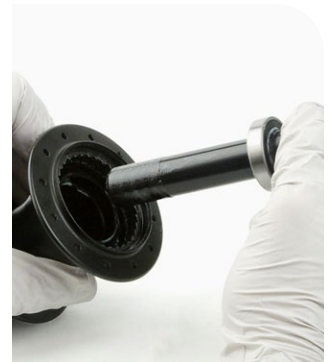
- 1 Insert the Park Tool AV-4 or AV-5 Axle and Spindle Vise Insert tool into a vise. Clamp one end cap into the vise insert tool and pull up on the wheel/hub to remove the end cap.  
Repeat to remove the other end cap.



- 2 Pull the driver body from the hub by hand.



- 3 Use a soft face mallet to tap the non-drive side end of the axle to remove the axle and bearing from the hub.  
Pull the axle and drive side bearing out of the drive side of the hub.  
**If the drive side bearing was not removed with the axle, it must be removed with the Bearing Puller tool as instructed in step 7.**



- 4 The wave spring installed on the non-drive side of the axle will slide off when the axle is removed. Set the wave spring aside.



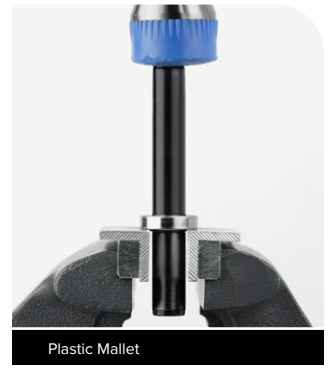


- 5** Place the axle in between flat aluminum vise soft jaws, drive side down, with the bearing resting on top of the soft jaws. Make sure the axle bearing step does not contact the soft jaws. Use a plastic mallet to gently tap on the top of the non-drive end of the axle until it is dislodged from the bearing. Discard the bearing.

Spray isopropyl alcohol onto the axle and clean the axle with a shop towel.

**NOTICE**

To avoid damage to the axle, do not allow the axle to contact the vise soft jaws. If the axle bearing step is damaged, the axle must be replaced.



- 6** Spray isopropyl alcohol onto the axle and clean it with a shop towel.

**NOTICE**

To prevent damage to the hub surfaces, do not use acetone or similar products to clean parts.



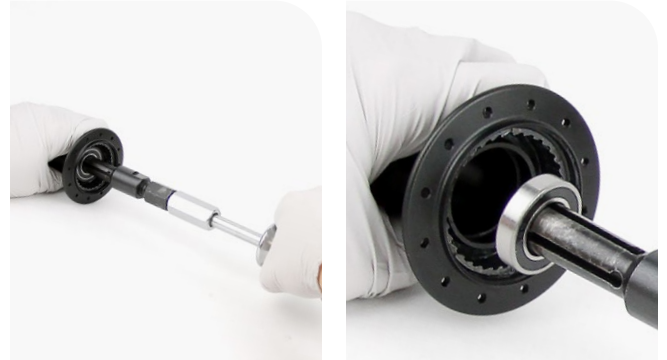
- 7** Insert the 17 mm Bearing Puller slotted attachment through the drive side bearing. Align the slotted attachment with the bottom of the bearing, and expand it inside the bearing.

*Do not over tighten the slotted attachment. For more detailed assembly and usage, see the bearing puller manufacturer's instructions.*

Grip the slide hammer and forcefully pull away from the slotted attachment to remove the bearing from the driver body.



17 mm Slotted Attachment



- 8** Insert the 17 mm Bearing Puller slotted attachment through the non-drive side bearing. Align the slotted attachment with the bottom of the bearing, and expand it inside the bearing.

*Do not over tighten the slotted attachment. For more detailed assembly and usage, see the bearing puller manufacturer's instructions.*

Grip the slide hammer and forcefully pull away from the slotted attachment to remove the bearing from the driver body.



17 mm Slotted Attachment



**9** Clean the bearing bores with a shop towel.



**10** Clean the ratchet ring and hub internals with isopropyl alcohol, a shop towel, and cotton swabs. Do not remove the ratchet ring.



## NOTICE

To prevent damage when pressing the bearings into the rear hub, make sure that the bearing press tool contacts both the inner and outer races of the bearing.

- 1 Install a new Zipp 6903/61903 hub bearing into the drive side of the hub with the black seal facing outward.



- 2 Install a 6903 30x17 tool into the drive-side bearing bore.  
Insert the threaded rod through the drive side of the hub shell. Slide a second 6903 30x17 tool onto the threaded rod.  
Thread the Press Tool handle onto the threaded rod.  
Turn the handle clockwise to press the bearing into the hub until it is hand-tight.  
Do not overtighten the bearing.  
Remove the tools.

## NOTICE

To prevent damage when pressing the bearing into the hub, make sure that the bearing press tools contact both the inner and outer bearing races or bearing bores and not the hub shell.



6903 30x17



6903 30x17



- 3 Install a new bearing onto the longer, non-drive side of the axle, with the blue bearing seal facing away from the raised step on the axle.  
Insert the non-drive side of the axle into a Zipp 61903 tool, with the flat, non-stepped end of the tool against the bearing.



Zipp 61903

- 4** Use a rubber mallet to tap the drive side of the axle until the raised step on the axle contacts the bearing  
Remove the axle from the tool.



- 5** Apply grease to the non-drive side axle bearing race.



- 6** Insert a SRAM 6903 tool into the non-drive side bearing bore.  
Install the non-drive side end of the axle through the hub and into the SRAM 6903 tool.



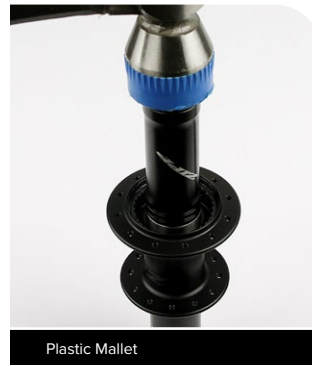
- 7** Install a Zipp 61903 tool onto the drive side end of the axle with the stepped end of the tool contacting the bearing.





- 8** Use a rubber mallet to tap the drive side of the axle until the raised step on the axle contacts the bearing

Remove the tool from the axle.



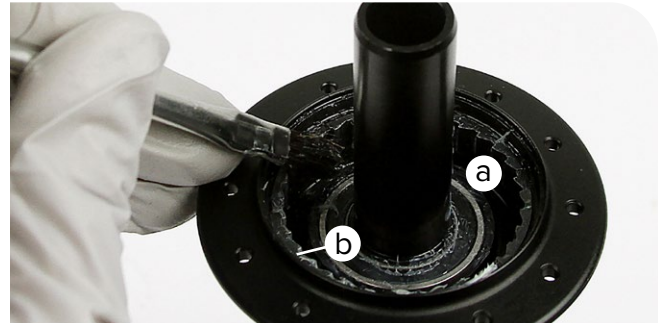
Plastic Mallet



- 9** Apply grease to the ratchet ring (a) and the seal surface (b) of the hub shell.

**NOTICE**

If a brush is used to apply grease, confirm there are no loose bristles in the grease or on the part.



Zipp Cognition or SRAM Butter Grease

- 10** Apply grease to the last 10-15mm of the axle. Installation of the driver body will distribute the grease on the entire hub axle.

**NOTICE**

If a brush is used to apply grease, confirm there are no loose bristles in the grease or on the part.



Klüber Staburags NBU30 grease

- 11** Install the driver body onto the axle and twist it counter-clockwise to seat the driver body and driver body seal.

Make sure the driver body seal is fully seated into the seal groove.

*The installation process is the same for 11 speed and XDR driver bodies.*



- 12** Install the wave spring onto the non-drive side of the axle. You may need a tool to press the wave spring against the bearing face.

**NOTICE**

Do not scratch the axle when using a tool to install the wave spring.

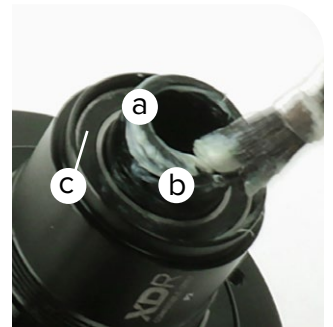
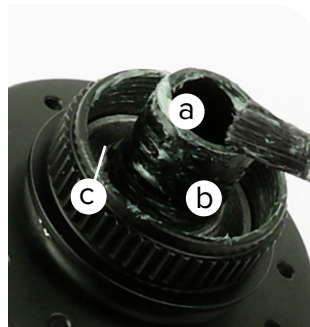


- 13** Apply grease to the following locations on the drive side and non-drive side axle ends:

- Axle front surface (a)
- Axle radial surface (b)
- Bearing front face across bearing seal, inner- and outer ring (c)

**NOTICE**

If a brush is used to apply grease, confirm there are no loose bristles in the grease or on the part.



Klüber Staburags NBU30 grease

- 14** Press the end caps onto the axle.



- 15** Clean the hub with isopropyl alcohol and a shop towel.



Isopropyl alcohol

Shop towel

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