

ZIPP

ZM 900 Hubs



SERVICE MANUAL

Warranty and Trademark

For SRAM Warranty information, visit: www.sram.com/warranty.

For SRAM Trademark information, visit: www.sram.com/website-terms-of-use.

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SAFETY FIRST!

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

Part Preparation

Remove the component from the bicycle before service.

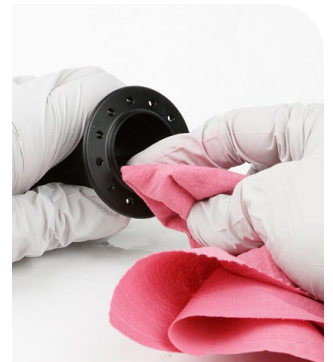
Clean the exterior of the product with mild soap and water to avoid contamination of internal sealing part surfaces.

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.



Rim and Wheel Building Specifications

For spoke lengths, tension, rim ERD, hub dimensions, and technical specifications, please refer to the Zipp Wheel Specifications document available at sram.com/service.

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.

Parts, Tools, and Supplies

Parts

- Bearing kit ZM900 rear hub
- Axle kit rear ZM900 hub
- Freehub kit ZM900 SRAM XD
- Freehub kit ZM900 Microspline
- End cap set rear ZM900 hub 12x148 XD
- End cap set rear ZM900 hub 12x148 MS

Safety and Protection Supplies

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

Lubricants and Fluids

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

Zipp/SRAM Tools

- SRAM Bearing Press Tool 6903
- SRAM Bearing Press Tool 63803

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
 - T-handle threaded bearing press
 - 6803 26x17 bearing press (x2)

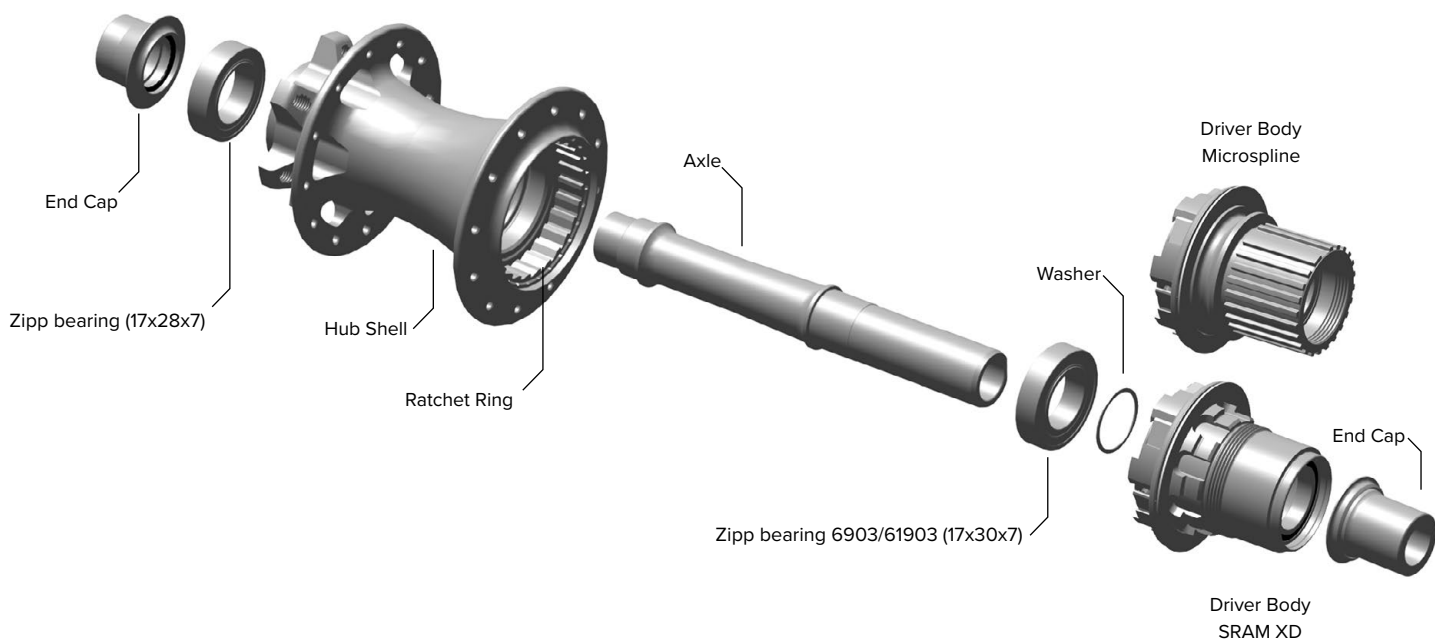
Common Tools

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

SAFETY INSTRUCTIONS

Always wear nitrile gloves when working with bicycle grease.

Exploded View - Rear Hub



Rear Hub End Caps

Hub	Variants				DRIVE SIDE			NON-DRIVE SIDE		
					Current Identification Text On End Cap	Previous Identification Text On End Cap	Spare Part Kit Number	Current Identification Text On End Cap	Previous Identification Text On End Cap	Spare Part Kit Number
ZM 900	REAR	12 X 148	6B	XD	151-080	—	11.2028.062.006	—	—	11.2028.062.006
				Microspline	151-060		11.2028.062.005			11.2028.062.005

Rear Bearing Removal

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



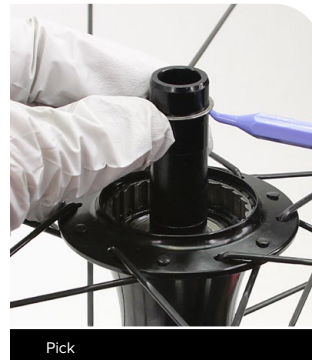
- 2 Pull the driver body from the hub by hand.



- 3 Remove the washer from the drive side end of the axle. Set the washer aside.

NOTICE

Do not discard or misplace the washer. It is crucial to hub performance and the hub will not function properly without it.



- 4 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 it.



5 Use a plastic mallet to tap the drive side end of the axle to remove the axle and bearing from the hub.

Pull the axle and non-drive side bearing out of the non-drive side of the hub.



Plastic Mallet



7 Clean the axle with isopropyl alcohol and a shop towel.

NOTICE

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



Isopropyl Alcohol

Shop Towel

8 Clean the bearing bores with isopropyl alcohol and a shop towel.



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

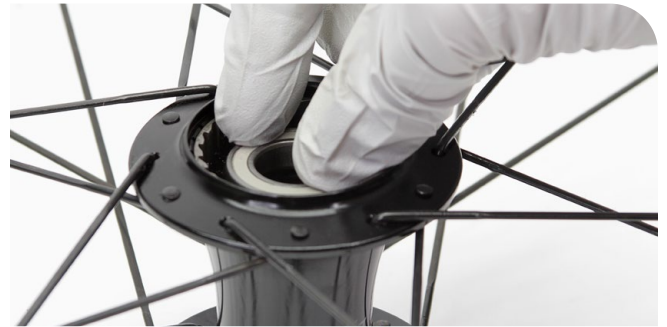


NOTICE

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 bearing into the drive side of the hub shell.

Bearings are symmetrical. Bearing orientation is not critical.



Zipp 6903/61903 Bearing

- 2 Slide a SRAM 6903 tool onto the threaded rod of the bearing press tool.

Insert the threaded rod of the bearing press through the new bearing in the drive side of the hub shell. Slide the SRAM 63803 Bearing Press Tool onto the threaded rod and into the non-drive side bearing bore.

Thread the bearing press handle onto the threaded rod.

Turn the threaded handle clockwise to press the bearing into the drive side bearing bore until it is hand-tight.

Do not overtighten the bearing.

Remove the bearing press tool.



SRAM 63803

Bearing Press Tool

SRAM 6903

- 3 Insert the drive side of the axle through the non-drive side of the hub.



- 4 Install a new Zipp 6903/61903 bearing into the non-drive side of the hub and onto the axle.

Bearings are symmetrical. Bearing orientation is not critical.



Zipp 6903/61903

5 Slide a SRAM 63803 tool onto the threaded rod of the bearing press tool.

Insert the threaded rod of the bearing press through the new bearing in the non-drive side of the hub shell. Slide the SRAM 6903 Bearing Press tool onto the threaded rod.

Thread the bearing press handle onto the threaded rod.

Turn the threaded handle clockwise to press the bearing into the drive side bearing bore until it is hand-tight.

Do not overtighten the bearing.

Remove the bearing press tool.

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.



SRAM 6903

Bearing Press Tool

SRAM 63803

6 Install the washer onto the drive side of the axle.

NOTICE

The washer is crucial to hub performance and must be installed onto the axle.



7 Use the SRAM Butter grease syringe to dispense 1 gram of grease onto the ratchet ring.

NOTICE

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



Plastic Mallet



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

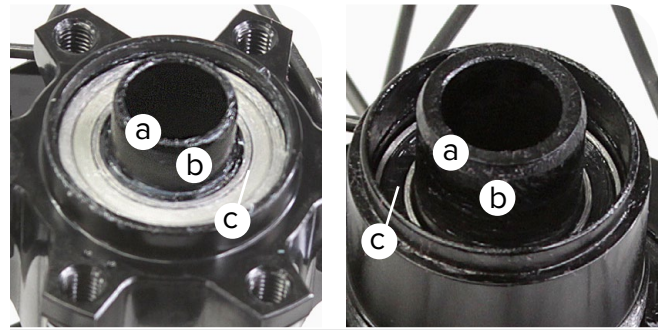


9 Apply grease to the following locations on the drive side and non-drive side axle end:

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

NOTICE

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



Cognition / Klüber Staburags NBU30 grease

10 Press the end caps onto the axle.



11 Clean the hub with isopropyl alcohol and a shop towel.



Shop towel

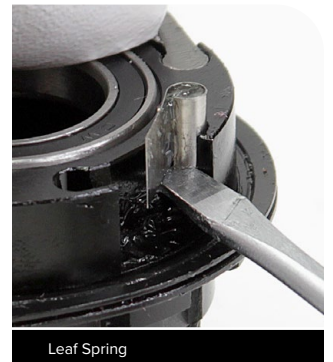
Isopropyl alcohol

Driver Cleaning (optional) - Leaf Spring Driver

- 1 Inspect the driver body seal for damage. If the seal is damaged, replace it with a new seal.



- 2 Use a small flat blade screwdriver to remove the pawls and leaf springs from the driver.



- 3 Clean the pawl slots with a cotton swab and the driver body with isopropyl alcohol and a shop towel.



NOTICE

If performing driver body bearing replacement, please proceed to the *Driver Bearing Replacement (optional)* section, then return here to conclude driver body cleaning.

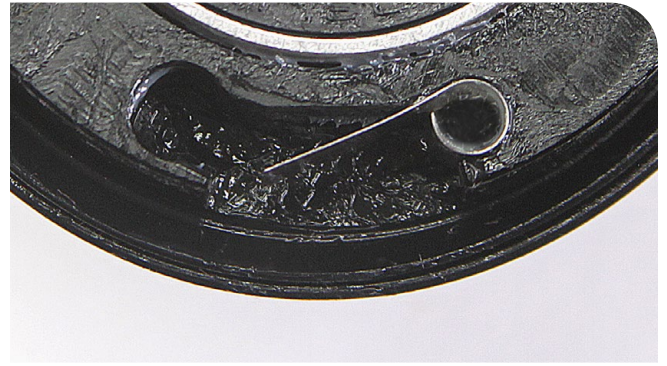
- 4 Using a grease syringe, apply a small amount of SRAM Butter grease to the pawl pockets.



- 5** Insert the leaf springs into the spring slots. Orient the long edge of each spring along the inside of the carrier so that it points clockwise.

NOTICE

Do not force the spring into the slot; it should slide in easily. Forcing the spring into the slot can bend or damage the spring requiring replacement of the driver.



- 6** Insert the pawls into the pawl slots. Orient the long edge of each pawl along the outside of the carrier so that it points counter-clockwise.

Use a pick or flat blade screwdriver to compress each leaf spring to assist with inserting the pawls.



Driver Bearing Replacement (optional)

NOTICE

It is recommended to remove the pawls and leaf springs before performing the bearing replacement. Refer to the *Driver Cleaning (optional) - Leaf Spring Driver* section for instructions.

- 1 Insert the 17 mm Bearing Puller slotted attachment through the outboard 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.
Thread the rod of the bearing puller into the attachment. Grip the slide hammer and forcefully pull away from the slotted attachment to remove the bearing from the driver.



- 2 Insert the 17 mm Bearing Puller slotted attachment through the inboard 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.
Thread the rod of the bearing puller into the attachment. Grip the slide hammer and forcefully pull away from the slotted attachment to remove the bearing from the driver.



- 3 Clean the driver bearing bores with a shop towel and cotton swabs.



- 4 Place the driver on flat surface, outboard side up. Insert a new Zipp 6803/61803 driver bearing into the outboard side of the driver body, with the **black** seal facing outward.
Note: Ceramic bearings have **blue** seals on both sides of the bearing; installation orientation is not important.
Insert a 6803 26x17 tool onto the bearing.



5 Insert the threaded rod through the outboard side of the driver. Slide a second 6803 26x17 tool onto the threaded rod.

Thread the Press Tool handle onto the threaded rod.

Turn the handle clockwise to press the bearing into the driver body until it is hand-tight.

Do not overtighten the bearing.

Remove the tools.

NOTICE

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



6 Place the driver on a flat surface, inboard side up. Insert a new Zipp 6803/61803 driver bearing into the inboard side of the driver body, with the **black** seal facing outward.

Note: Ceramic bearings have **blue** seals on both sides of the bearing; installation orientation is not important.

Insert a 6803 26x17 tool onto the bearing.



7 Insert the threaded rod through the inboard side of the driver. Slide a second 6803 26x17 tool onto the threaded rod.

Thread the Press Tool handle onto the threaded rod. Turn the handle clockwise to press the bearing into the driver until it is hand-tight.

Do not overtighten the bearing.

Remove the tools.

NOTICE

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



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.

Parts, Tools, and Supplies

Parts

- Bearing kit ZM900 front hub
- Axle kit front ZM900 hub
- End cap set front ZM900 hub 15x110B 31TC
- End cap set front ZM1 15x110B

Safety and Protection Supplies

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

Lubricants and Fluids

- Isopropyl alcohol
- Cognition / Klüber Staburags NBU30 grease
- SRAM Butter grease

Zipp/SRAM Tools

- ZM1 Zipp bearing press tool 23x32x7, Front Hub ZM1 (2X)

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
 - T-handle threaded bearing press

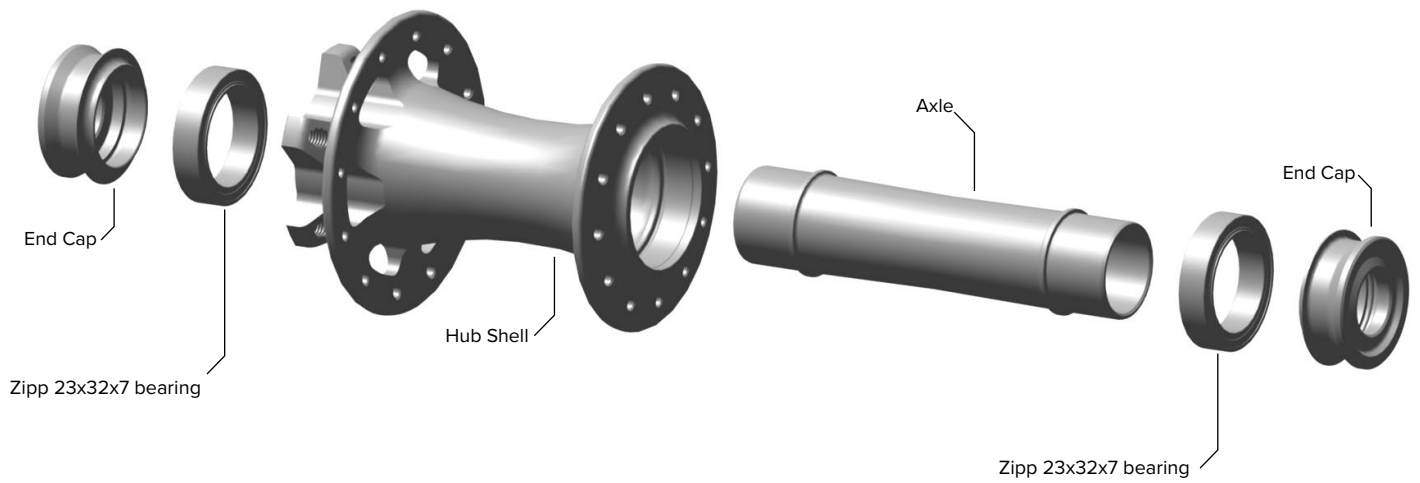
Common Tools

- Bench vise
- 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

Hub	Variants				DRIVE SIDE			NON-DRIVE SIDE		
					Current Identification Text On End Cap	Previous Identification Text On End Cap	Spare Part Kit Number	Current Identification Text On End Cap	Previous Identification Text On End Cap	Spare Part Kit Number
ZM 900	FRONT	15 x 110	6B	—	—	—	11.2018.059.000	—	—	11.2018.061.002
		15 x 110RS					11.2028.062.004			11.2028.062.004
	REAR	12 X 148	6B	XD	151-080	—	11.2028.062.006	—	—	11.2028.062.006
				Microspline	151-060		11.2028.062.005			11.2028.062.005

Front Bearing Removal

- 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 it.



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



- 3 Gently tap the exposed drive side axle end with a plastic mallet to dislodge the axle and non-drive side bearing. Remove the axle from the hub and remove the bearing from the axle.



4 Insert the axle into the drive side of the hub and into the non-drive side bearing.

Tap the end of the axle with a plastic mallet to dislodge drive side bearing. Remove the axle from the hub and remove the bearing from the axle.



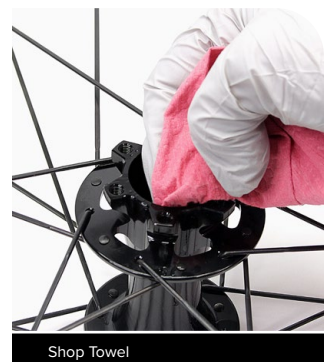
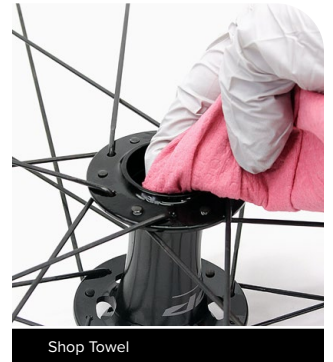
5 Spray isopropyl alcohol onto the axle and clean it with a shop towel.

NOTICE

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



6 Clean the bearing bores with isopropyl alcohol and a shop towel.



Front Bearing Installation

- 1 Install a new 23x32x7 bearing onto the non-drive side end of the hub shell.

Bearings are symmetrical. Bearing orientation is not critical.



- 2 Slide a Zipp Bearing Press Tool 23x32x7 tool onto the threaded rod of the Bearing Press tool.

Insert the threaded rod of the Bearing Press tool through the axle on the non-drive side of the hub shell. Slide the second Zipp Bearing Press Tool 23x32x7 tool onto the threaded rod.

Thread the Bearing 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 Insert the axle through the non-drive side of the hub and into the drive side bearing.



- 4 Install a new 23x32x7 bearing into the drive side bearing bore.

Bearings are symmetrical. Bearing orientation is not critical.



5 Slide a Zipp Bearing Press Tool 23x32x7 tool onto the threaded rod of the Bearing Press tool.

Insert the threaded rod of the Sealed Bearing Press tool through the drive side of the hub shell. Slide the second Zipp Bearing Press Tool 23x32x7 tool onto the threaded rod and into the non-drive side bearing bore.

Thread the Sealed Bearing Press tool handle onto the threaded rod.

Turn the threaded handle clockwise to press the bearing into the hub until it is hand-tight.

Do not overtighten the bearing.

Remove the tools.



NOTICE

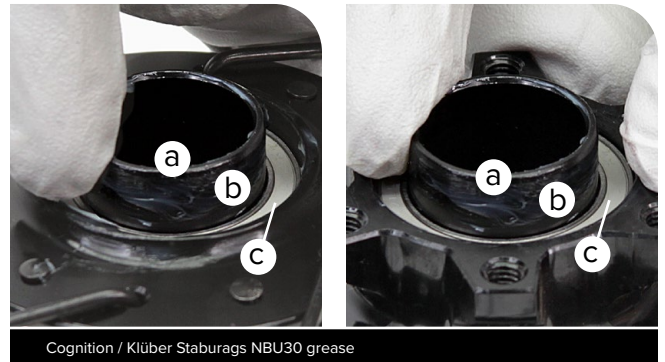
To prevent damage when pressing the bearing into the hub, make sure that the bearing press tools contact both the inner and outer bearing races or bearing bores and not the hub shell.

6 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)

NOTICE

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



7 Press the end caps onto the axle.



8 Clean the hub with isopropyl alcohol and a shop towel.



The ZIIPP logo is displayed in a bold, italicized, white sans-serif font against a black rectangular background.

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