

# ZR1 and ZR1 SL Hubs





# **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!

# Part Preparation and Service Procedures

#### 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.





# Wheel Building and Rim Specifications

For spoke lengths, tension, rim ERD, hub dimensions, and technical specifications, please refer the *Zipp Wheel and Hub Specifications* document available at <a href="https://www.sram.com/service">www.sram.com/service</a>.

# Model Code Identification

Product model code and specification details can be identified with the serial number on the product. Model codes can be used to identify the product type, series name, model name, and product version associated with the production model year. Product details can be used to identify spare parts, service kit, and lubricant compatibility.

Model Code example: HU-ZR-1-A1

 $\mathbf{HU}$  = Product Type -  $\mathbf{Hub}$ 

 $\mathbf{ZR} = Platform/Series - \mathbf{ZR}$ 

**1** = Model - **1** 

A1 = Version - (A - first generation, 1 - first iteration)

To identify the model code, locate the serial number on the product and enter it into the **Search by Model Name or Serial Number** field at <a href="https://www.sram.com/service">www.sram.com/service</a>.

# Warranty and Trademark

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

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

# Recommended Service Intervals

Regular service is required to keep your Zipp product working at peak performance. Follow this maintenance schedule and perform routine maintenance as noted below. For spare part kit contents and details, refer to the Zipp Spare Parts Catalog at <a href="https://www.sram.com/service">www.sram.com/service</a>.

Depending on the terrain and environmental conditions in your location, your riding style, and skill level, you may see a more optimum performance if you service your Zipp products at shorter intervals.

Avoid aggresive cleaners which can potentially damage seals and bearings.

Service Hours Interval	Maintenance	Benefit		
	Inspect to ensure there is no damage or	Extends hub lifespan.		
Every ride	debris impeding hub rotation.  Clean any debris from bearing and sealing	Minimizes damage to hub.		
	surfaces.	Minimizes hub contamination.		
	Dissassemble and inspect all components	Extends hub lifespan.		
0	and perform hub service as needed.	Reduce friction.		
Once per year	Replace components if damaged.			
	Lubricate pawls.	Restores proper hub function.		

# **TABLE OF CONTENTS**

PART PREPARATION	3
SERVICE PROCEDURES	
WHEEL BUILDING AND RIM SPECIFICATIONS	3
REAR HUB SERVICE	6
COMPONENT REMOVAL	
PARTS, TOOLS, AND SUPPLIES	6
EXPLODED VIEW - REAR HUB	
REAR HUB END CAPS	7
REAR HUB BEARING REMOVAL	8
DRIVER CLEANING - COIL SPRING DRIVER	12
DRIVER CLEANING - LEAF SPRING DRIVER	
DRIVER BEARING REPLACEMENT (OPTIONAL)	
REAR HUB BEARING INSTALLATION	18
FRONT HUB SERVICE	22
COMPONENT REMOVAL	22
PARTS, TOOLS, AND SUPPLIES	22
EXPLODED VIEW - FRONT HUB	23
FRONT HUB END CAPS	23
FRONT HUB BEARING REMOVAL	24
EPONT HUR READING INSTALL ATION	27

#### 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**

- Wheel Bearing Kit Front/Rear for Zipp ZR1 Hubs, 61903
- Wheel Freehub Kit XDR Driver Kit 12x142 / QR Zipp ZR1 (optional)
- Wheel Freehub Kit 11 Speed Driver Kit 12x142 / QR Zipp ZR1 (optional)
- Wheel Freehub Kit Microspline Driver Kit 12x142 / QR Zipp ZR1
- Wheel Freehub Kit Campagnolo Driver Kit Centerlock Disc / Rim Brake - Zipp ZR1 (optional)
- End cap set Rear ZR1, ZR1 SL, and ZR1 SL SP hub for XDR or Microspline
- Axle kit rear ZR1, ZR1 SL, and ZR1 SL SP hub

#### 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

Bearing Press Tool 61903 for Cognition, ZR1, ZR1 SL

#### **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 bearing press adapters (x2) (optional) ZR1
  - 6803 bearing press adapters (x2) ZR1 SL and ZR1 SL SP
  - · T-handle threaded bearing press

#### **Common Tools**

- Bench vise
- · Flat blade screwdriver
- · Needle-nose pliers
- · 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

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

					DRIVE SIDE			NON DRIVE SIDE		
Hub		Varia	nts		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
ZR1 ZR1 SL ZR1 SL SP	REAR	QR	RIM	XDR 11SPD CAMPA	127-000	10x(130/135) DS XD(R)	11.2018.064.006	249-000	-	11.2018.064.006
			CL	XDR 11SPD CAMPA			11.2018.064.015	269-000	-	11.2018.064.015
			CL	XDR 11SPD	151-030	12x(142/148) DS XD(R)	11.2018.064.005	251-000	-	11.2018.064.005
		12 X 142	CL	CAMPA	151-050	-	11.2018.064.019	251-000	-	11.2018.064.019
		12 X 142	CL	CAMPA N3W	151-060	-	11.2018.069.000	251-000	-	11.2018.069.000
				Microspline	151-070	-	11.2028.061.001	251-000	-	11.2028.061.001

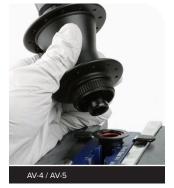
# Rear Hub Bearing Removal

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



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 from the hub by hand.



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.

#### NOTICE

Do not discard or misplace the wave spring. It is crucial to hub performance and the hub will not fuction properly without the spring.



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

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.





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.







Insert the 17 mm Bearing Puller slotted attachment through the nondrive 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.











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



# NOTICE

Service of an 11 speed, Microspline, and N3W driver is identical to the XDR driver service shown below.

Inspect the rubber seal for damage. If the seal is damaged, replace the



Use your fingers or a small flat blade screwdriver to lift the snap spring from the driver.





Use your fingers, a pick, or needle-nose pliers to remove the pawls and coil springs from the driver.





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





Using a grease syringe, apply a small amount of SRAM Butter grease to the pawl slots.  $\,$ 



6 Insert a coil spring into one of the spring slots, then install a pawl into the pawl slot.

 $\ensuremath{\text{\textbf{Note}}}\xspace$  The springs and pawls are symmetrical and can be installed in any orientation.





Use a small flat blade screwdriver to compress the spring to allow the pawl to drop into the slot, then adjust the spring so that it is perpendicular to the back of the pawl.

Repeat steps 6 and 7 to install the other springs and pawls.





Orient the end of the snap spring into the hole in the driver and push the snap spring onto the channel of the driver until it is fully seated.





# NOTICE

Service of an 11 speed driver is identical to the XDR driver service shown below.

Inspect the rubber seal for damage. If the seal is damaged, replace the



Use a small flat blade screwdriver to lift the snap spring from the driver.





Use a pick or needle-nose to remove the pawls and leaf springs from the driver.





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





Using a grease syringe, apply a small amount of SRAM Butter grease to the pawl slots.



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.



Insert the pawls into the pawl slots. You may need to use a pick or flat blade screwdriver to compress each leaf spring to assist with inserting the pawls.



Orient the end of the snap spring into the hole in the driver and push the snap spring onto the channel of the driver until it is fully seated.





#### NOTICE

Service of an 11 speed driver is identical to the XDR driver service shown below.



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.





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.





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



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.





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.







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.







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.





# 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.



ZR1: Install a new Zipp 6903/61903 hub bearing into the non-drive side of the hub with the  ${\bf black}$  seal facing outward.

ZR1 SL, ZR1 SL SP: Install a new Zipp 6803/61803 hub bearing into the non-drive side of the hub with the black seal facing outward.

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



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.









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.

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

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.



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.





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



**ZR1**: 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.

 $\mbox{\bf ZR1}\mbox{\bf SL},\mbox{\bf ZR1}\mbox{\bf SL}\mbox{\bf SP}\!\!:$  Insert a SRAM 6803 tool into the non-drive side bearing bore.

Install the non-drive side end of the axle through the hub and into the SRAM 6803 tool.





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





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.





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.



10

Apply grease to the last 10-15mm of the axle. Installation of the driver 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.



11

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

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

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







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.

The wave spring is crucial to hub performance and must be installed







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



Press the end caps onto the axle.







Clean the hub with isopropyl alcohol and a shop towel.



Rear Hub Bearing Installation

#### 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

- Wheel Bearing Kit Front/Rear For Zipp ZR1 Hubs, 61903
- Wheel Bearing Kit Front/Rear For Zipp ZR1 SL and ZR1 SL SP Hubs, 61803

#### 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

#### **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
  - 61903 30x17/61903 bearing press adapters (x2) ZR1
  - 61803 bearing press adapters (x2) ZR1 SL and ZR1 SL SP
  - · T-handle threaded bearing press

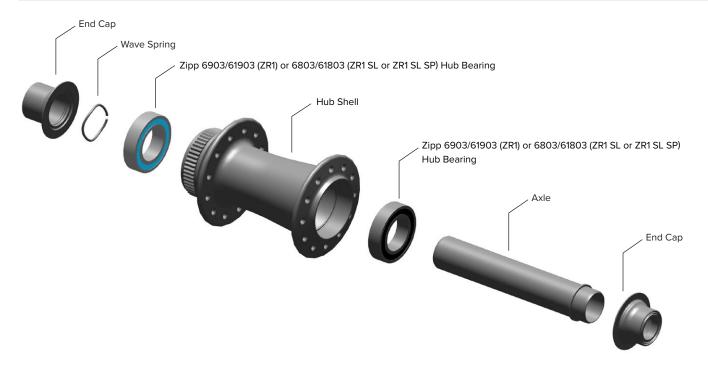
#### **Common Tools**

- · 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		
Hub		Varia	nts		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
ZR1 ZR1 SL F ZR1 SL SP		QR 12 X 100	RIM	-	252-000	-	11.2018.064.004	252-000	-	11.2018.064.004
	FRONT		_	_		-	11.2018.064.016	270-000	-	11.2018.064.016
	FRONT		CL	_	165-000	12x100 DS DISC	11.2018.064.003	267-000	_	11.2018.064.003
		15 x 100		_	165-010	15x(100&110) DS DISC	11.2018.064.018	165-010	15x(100&110) DS DISC	11.2018.064.018

# Front Hub Bearing Removal

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



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.





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.







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



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.



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.



17 mm Slotted Attachment



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.

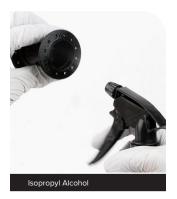


17 mm Slotted Attachment



7

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





# Front Hub Bearing Installation



**ZR1**: Install a new Zipp 6903/61903 hub bearing into the drive side of the hub with the **black** seal facing outward.

**ZR1 SL and ZR1 SL SP**: Install a new Zipp 6803/61803 hub bearing into the drive side of the hub with the **black** seal facing outward.

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





**ZR1**: Slide a 6903 30x17 onto the Press Tool threaded rod.

**ZR1 SL, ZR1 SL SP**: Slide a 6803 26x17 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 or 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 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.











**ZR1**: Install a new Zipp 6903/61903 hub bearing into the non-drive side of the hub with the **black** seal facing outward.

**ZR1 SL, ZR1 SL SP**: Install a new Zipp 6803/61803 into the non-drive side of the hub with the **black** seal facing outward.

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





**ZR1**: Slide a 6903 30x17 onto the Press Tool threaded rod.

 $\mbox{\bf ZR1}$   $\mbox{\bf SL},\mbox{\bf ZR1}$   $\mbox{\bf SL}$   $\mbox{\bf SP}$  : Slide a 6803 26x17 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 or 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 hub until it is hand-tight.

Do not overtighten the bearing.

Remove the tools.





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



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.







Install the wave spring onto the non-drive side of the axle. You may need a screwdriver or similar 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.







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)





Press the end caps onto the axle.



10

Clean the hub with isopropyl alcohol and a shop towel.





ASIAN HEADQUARTERS SRAM Taiwan No. 1598-8 Chung Shan Road Shen Kang Hsiang, Taichung City Taiwan WORLD HEADQUARTERS SRAM, LLC 1000 W. Fulton Market, 4th Floor Chicago, Illinois 60607 U.S.A EUROPEAN HEADQUARTERS SRAM Europe Paasbosweg 14-16 3862ZS Nijkerk The Netherlands