



ALL IN ONE

Maintenance and repair manual

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GENERAL INFORMATION

This maintenance and repair manual provides you with information regarding the maintenance, repair and warranty of gigant – Trenkamp & Gehle GmbH's current products. Updates are published on a regular basis. They can be identified by the consecutive version numbering. Example: Issue 1 | 1/2018.

Axle load	Type designation	Product description
Axles		
12 t	GH7... / GNH7... / GZH7... DH7... / DNH7... / DZH7...	Rigid axles, self-steering axles (conventional dual-bearing technology) from generation: ...7
5.5 - 12 t	GKH2... / GNKH2... / GZKH2... DKH2... / DNKH2... / DZKH2...	Rigid axles, self-steering axles, steering axles Axle stub, DLS (Compact bearing axles) From generation: ...K...2
9 t	DOKH2... / DNOKH2...	EURO axle/EURO self-steering axle (flange with wheel connection) From generation: ...K...2
9 t	GAH1...	Rigid axle (drum behind the hub) From generation: ...A...1
Air suspension unit		
7 - 9 t	GL70...	Air suspension unit (spring width 70 mm)
8 - 14 t	FB100...	Air suspension unit (spring width 100 mm)
Mechanical suspensions		
4 - 10 t	GK...	Mechanical suspensions (spring with link eye)
10 - 16 t	LK...	Mechanical suspensions with dynamic axle compensation (Spring with two sliding ends)

It provides information to the user and serves as a source of information for trained specialist personnel and authorised commercial vehicle specialist shops.

These illustrations are exemplary and serve as a guide for performing maintenance and repair steps on gigant axles and suspensions.

Please read the information in this maintenance and repair manual carefully and take particular note of the safety information on the following pages. If you have any questions, please contact us at:

gigant – Trenkamp & Gehle GmbH
Märschendorfer Str. 42
49413 Dinklage
contact@gigant-group.com

1. LIMITED RESPONSIBILITY STATEMENT

We accept no responsibility for the accuracy, completeness or topicality of the information provided in this maintenance and repair manual. The content and information do not constitute warranties or warranted characteristics nor can they be construed as such. Claims due to the information, recommendation or consulting cannot be derived from the provisioning.

Responsibility for damages is generally not allowed, unless we are liable for intent or gross negligence or other obligatory laws prevent it. The text and graphics used are subject to the usage right of gigant – Trenkamp & Gehle GmbH. Any form of copying or sharing requires our written permission. The brand names used, even if they are not marked in every case, are still subject to the rules of trademark law.

If disputes of a legal nature should arise from the use of the information in this maintenance and repair manual, such disputes are exclusively subject to German law. If specific clauses of this statement of responsibility limitation do not or no longer complies with the law , then the validity of the other clauses will not be affected.

2. GENERAL SAFETY RULES

The vehicle operator is responsible for using it properly. This includes following the existing maintenance and repair information, following maintenance instructions and traffic and operational safety guidelines.

gigant axles and suspensions may only be loaded with the maximum specified axle load. gigant does not assume any responsibility for the installation of unsuitable or unauthorised parts onto the product. Replaced components must be disposed of in an environmentally friendly manner, in compliance with legal provisions or guidelines or sent to recycling.

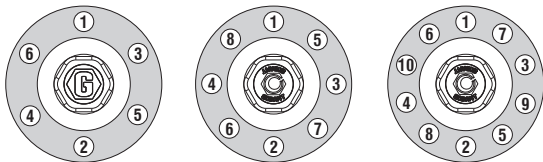
Only gigant-allowed grease may be used. When using other greases, ensure that it does not contain any molybdenum disulphide, since this disintegrates seals. A maximum operating pressure of 5 bar is permissible when using compressed-air grease guns. You may connect it to a central lubrication system that is able to deliver special long-life grease with consistency class 2-3. The use of fluid greases is not allowed!

During driving operation, ensure that the brakes do not overheat in continuous operation since it affects road safety. Overheated brakes negatively affect braking performance (e.g. brake drums) and the surrounding components (e.g. bearing unit). Reasonable driving behaviour with respect to the road/traffic conditions is important.

Do not operate the parking brake until the brake unit has cooled down. Actuating it when the brakes are overheated can cause damage to the brake components (e.g. brake drums) due to different stresses. The vehicle must be secured against rolling away by other means (e.g. with stop wedges).

Always test the function and effectiveness on the brake test stand after working on the brake system. New brake pads/linings do not brake at their best until they've been braked a few times. Avoid sudden braking when retracting the brake pads.

The wheel nuts must be checked for tightness after initial delivery, laden trip, and 100 km after each tyre fitting. The required inspection/tightening torque must be used.



After completing the job, a functional check and a test drive are required to put the vehicle in the proper state to be used in traffic again.

Mechanical and air suspensions, axles and the corresponding wheel brakes are safety-relevant components and may not be changed, processed or modified under any circumstances. The following are not allowed: Welding work (if it differs from the specifications of the installation guidelines), straightening, drilling, or heating gigant components.

With an air suspension system, you are only allowed to drive in ride height. Do not overstretch the air bellows when working on a raised chassis. The air suspension units must be secured before the maximum driving height is reached.

The vehicle manufacturer's safety guidelines must be observed along with their operational and service guidelines.

3. REQUIREMENTS FOR EXPERT PERSONNEL

Generally, only an expert in qualified expert workshops or authorised expert commercial vehicle and farm equipment companies that have all the qualifications and required tools to perform this work may fix detected flaws and replace worn components. Generally, maintenance should only be performed by a specialist in qualified workshops or by authorised specialist companies in the motor vehicle trade, who work in compliance with all generally valid safety regulations. Repair or maintenance performed by expert personnel with insufficient qualification results in incalculable risks for people, material assets, and the environment.

4. INFORMATION ON DLS

The hub unit of axle GKH2 3020 is installed in the DLS (independent suspension). You can find more information on DLS on our partner's website: TRIDEC - www.tridec.com

5. EXPLANATION OF SYMBOLS

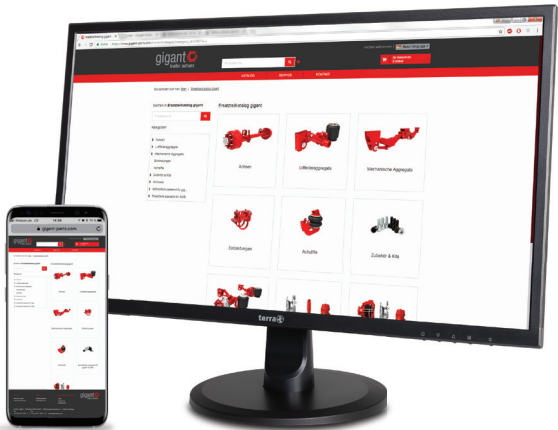
The following shows the various explanations of the pictograms.

!	IMPORTANT NOTE - COMPLIANCE IS MANDATORY!
!	Helpful information!
⌵	Insert tool
🔧	Tighten fitting with a certified torque wrench at the indicated torque

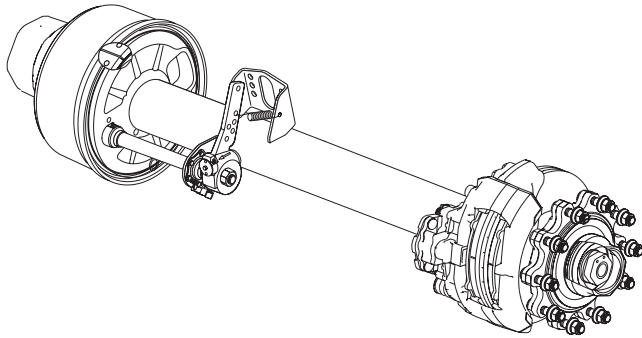
6. SALE OF SPARE PARTS


You can procure our original spare parts via our spare parts store.

To identify the spare parts, visit our online catalogue:
www.gigant-parts.com



7. AXLE IDENTIFICATION



Axle type description		Item no.		Serial no.	
gigant - Trenkamp & Gehle GmbH D-49413 Dinklage					
Ident No:		711010023 / YA16220033			
DOKH2 09010 4345H1 2040 1300 0 mm ABS 0					
ID1-	225			stat.axle load	
ID2-	4345HT			9.000 kg	
ID3-	10006,2			v max	
ID4-	36107313			105 km/h	
					
Base no. Test report		Max. speed			
Test load in daN		Max. allowed static axle load			
Brake identification					
Axle identification					

DE	
D	D » With disc brake G » With drum brake
O	Without » Rigid axle A » Special version E » Special axle G » Offset axle N » Self-steering axle O » Axle with offset P » Walking beam axle Z » Forced-steering axle
K	K » Compact bearing
H	H » Hollow axle beam
2	Axle generation
090	Axle load, e.g. 090 » 9.0 t
10	Number of wheel studs
4345	3334 = D335 x 34 3745 = D377 x 45 4345 = D430 x 45 3010 = 300 x 100 3015 = 305 x 150 3020 = 300 x 200 3620 = 360 x 200 4218 = 420 x 180 4220 = 420 x 200
H	H » Haldex W » Wabco K » Knorr Does not apply for drum-braked axles
1	Close axle attachment of the brake calliper Does not apply for drum-braked axles
2040	Track (Distance in mm)
1300	Spring centre (Distance in mm)
0344	Air chamber bracket centre (Distance in mm)
ABS	With/without ABS
AUTOMATIC SLACK ADJUSTER	With/without automatic slack adjuster NGS » Normal slack adjuster Does not apply for drum-braked axles
B22	B3 » Top spring pads B7 » Top & bottom spring pads B22 » Top air suspension spring pads B24 » Bottom air suspension spring pads
SO	S0 » Single tyres Z0 » Twin tyres

8. WARRANTY CARD

gigant - Trenkamp & Gehle GmbH D-49413 Dinklage		gigant 	
Ident No:	711110018 / YA15450305		
	GEOKH2 10010 4218 250 000 242 ABS AGS RE		
ID1-	20-225-24	stat.axle load	
ID2-	4218P	10.000 kg	
ID3-	10006,2	v max	
ID4-	36101507	105 km/h	
			

DATE OF INITIAL REGISTRATION

CHASSIS NUMBER

ENTER ITEM NUMBER

AXLE 1

AXLE 2

AXLE 3

AXLE 4

AXLE 5

AXLE 6

ENTER SERIAL NUMBER

AXLE 1

AXLE 2

AXLE 3

AXLE 4

AXLE 5

AXLE 6

The work and designs were carried out in accordance with the valid giant regulations.

(See current information at www.gigant-group.com.)

5

DATE _____

SIGNATURE OF THE VEHICLE MANUFACTURER

STAMP OF THE VEHICLE MANUFACTURER

The seller _____ hereby certifies that the vehicle

COMPANY NAME

was handed over to the first end user_____.

COMPANY NAME

With their signatures, the seller and the first end user confirm that the vehicle has been procured for use

☐ On-road (Definition → 2, pg. 22)

or

☐ Off-road (Definition → 2, pg. 22)

With their signatures, the seller and the first end user confirm that the vehicle is in a fault-free condition on handover.

The first end user also confirms with his/her signature that they have taken note of the gigant warranty conditions.

DATE _____

SIGNATURE OF THE VEHICLE MANUFACTURER

STAMP OF THE VEHICLE MANUFACTURER

DATE _____

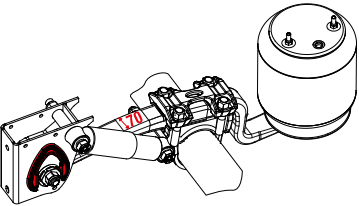
SIGNATURE OF THE VEHICLE MANUFACTURER

STAMP OF THE VEHICLE MANUFACTURER

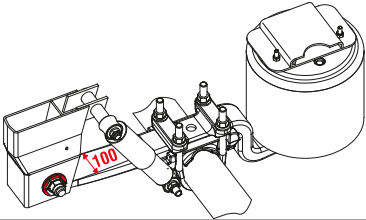
9. SUSPENSIONS IDENTIFICATION

gigant distinguishes between two versions: air and mechanical suspensions. In addition to the air suspensions, gigant also provides axle lifts as needed:

7.1 AIR SUSPENSIONS

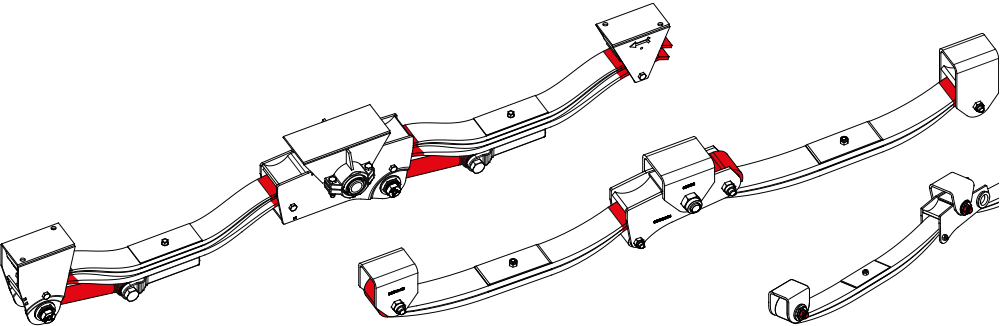


GL70
70 mm spring width, slot with welded support for eccentric nut



FB100
100 mm spring width, welded cone bush in air suspension bracket

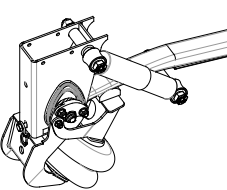
7.2 MECHANICAL SUSPENSIONS



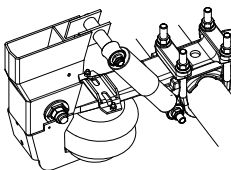
LK
Spring with two sliding ends, with torque arm, rubber bearing system of the equaliser is outside

GK / GKT
Spring with spring eye and a sliding end, silent block of the equaliser is inside

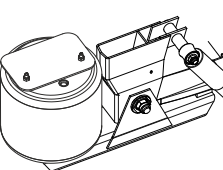
7.3 AXLE LIFTS



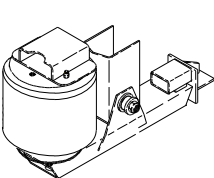
Twin lift GL70



Twin lift FB100



Side axle lift



Centre axle lift



WARRANTY
TERMS

These warranty provisions are only valid if gigant components have been installed, serviced, and repaired in accordance with the specified guidelines (e.g. installation guidelines and technical notes), while taking safety provisions into account. These warranty provisions begin with the vehicle's initial registration, but no later than 6 months after delivery by gigant – Trenkamp & Gehle GmbH.

1. SCOPE OF THE WARRANTY

gigant provides a warranty for product defects that are proven to be caused by a material or manufacturing flaw within the warranty period. The warranty exists in addition to the seller's legal warranty obligations that come from the purchase contract with the first end user, and is not affected by this. The warranty is geographically restricted to vehicles that are approved and operated in Europe (EU 2014), Switzerland, Norway, or Turkey. Purchasing the vehicle in a country outside the warranty's geographical scope shall void the warranty. The warranty covers replacement of defective components listed in the warranty duration with new ones. Generally, this does not include labour and workshop costs for removal and installation according to reference time specifications by gigant and inspection of the components – unless previously stipulated with gigant. To this end, a filled warranty application must be submitted in advance, approved by gigant, and cost absorption must be approved. This warranty only applies for damage to gigant products. Consequential damage, towing costs, rental costs for replacement vehicles, claims for lost profit or damage compensation are not included in the warranty. Any additional responsibility due to obligatory law remains unaffected by this. **The warranty expires if original gigant spare parts are not used.**

2. DEFINITION OF ON-ROAD AND OFF-ROAD

On-road: Use on metalled, asphalted and/or concreted roads in Europe (EU 2014), Norway, Switzerland, and Turkey

Off-road: Use away from metalled, asphalted, and/or concreted roads (on unsurfaced terrain such as construction sites, gravel roads, sand pits, in agriculture, for military purposes) and in all countries outside of Europe (EU 2014), Norway, Switzerland, and Turkey

3. LIABILITY EXCLUSIONS

The following are not included in the warranty:

- » Damage to worn parts (e.g. brake linings, brake drums, brake discs)
- » Damage caused by:
 - » Installing gigant products the wrong way
 - » Failure to tune the brake power/train tuning
 - » Mechanical damage due to accident, event, and/or impact
 - » Reckless or wilful destruction and fire
 - » Not using the vehicle properly (for example: Overload, overheating, use under abnormal conditions)
 - » No maintenance, particularly after not doing the regular maintenance work required by gigant
 - » Adding components or modifying gigant components
 - » Using third-party components instead of original gigant components and lubricants and liquids that are not compatible
 - » Phenomena such as noises, odours, vibrations, oil leaks that have no effect on the serviceability of the gigant axle systems

4. WARRANTY DURATION

	Duration	Components
ON-ROAD	6 years unlimited km	Axle beam, axle pivot (steering axles), steering lever, air suspension bracket, trailing arm, bonding plates
	24 months without km limit	Brake cylinder, brake calliper, brake cam, brake linkage adjuster, axle lift, air bellow, inductive sensor ABS and ABS sensor ring, kingpin, brake shoes, fittings such as spring bolts, shock absorber bracket, U-bolt, shock absorber, direction bar incl. stabilisation and locking system
	24 months; Wear is excluded as grounds for warranty claims	Brake disc, brake drum, brake pads, bearings and seals, return springs, hinges/silent block
	See following table Geographically restricted to Europe (EU 2014, Norway, Switzerland, and Turkey)	Wheel hub unit

"Wheel hub unit" table

Axle type	On-Road		Off-Road	
	Years	Kilometres	Years	Kilometres
Rigid axles 5.5 – 7.1 t				
GKH2 05506 3010	10	without	3	300,000
DKH2 05506 3334	10	without	3	300,000
DKH2 07010 3334	6	without	3	300,000
GKH2 07006 3015	6	without	3	300,000
GKH2 07010 3015	6	without	3	300,000
GOKH2 07108 3515	6	600,000	3	300,000
Rigid axle 9 t				
DOKH2 09010 3745	6	without	3	without
DOKH2 09010 4345	6	without	3	without
DKH2 09010 3745	6	without	3	300,000
DKH2 09010 4345	6	without	3	300,000
GKH2 09010 4218	6	without	3	300,000
GAH1 09010 4218	5	1,000,000	1	100,000
Rigid axles 10.5 – 12 t, 3020				
GKH2 10510 3020	6	600,000	3	300,000
GKH2 12010 3020	6	300,000	1	100,000
Rigid axles 10 – 12 t				
DKH2 10008 3745	6	600,000	3	300,000
DKH2 10510 4345	6	600,000	3	300,000
GKH2 10508 3620	6	600,000	3	300,000
GKH2 10510 3620	6	600,000	3	300,000
GKH2 10510 4220	6	600,000	3	300,000
GKH2 12008 3620	6	600,000	3	300,000
GH7 12010 4220	6	500,000	3	300,000
DH7 12010 4345	6	500,000	3	300,000
Axle stub				
GOKH2 09010 4218	6	600,000	1	100,000
GEOKH2 10010 4218	6	600,000	1	100,000

Walking beam axles				
G(0)KPS 06010 3015	6	600,000	1	100,000
G(0)KPS 07010 3015	6	600,000	1	100,000
G(0)KPS 10010 3015	6	600,000	1	100,000
GOKPS 07008 3515	6	600,000	1	100,000

The expanded warranty for wheel hub units is limited to tyres with the “Road” application segment.

The same conditions apply to the wheel bearing in steering axles of the aforementioned series.

For special axles and axles that are not used according to their intended purpose, different requirements may apply for the warranty services.

The displays of ABS, EBS, and similar measuring systems are important to find out the exact mileage, if a seamless recording of the vehicle's total mileage can be done using these displays. Giving the wrong mileage or manipulating the measurement devices results in invalidation of the warranty.

Using the warranty does not extend the warranty duration.

5. WARRANTY CLAIMS

A warranty claim is created by sending gigant an application. The application must contain the information requested. The following needs to be attached to the application:

- » Copy of maintenance proof (gigant reserves the right to ask for the original documents!)
- »Digital EBS/ODR data sets (in case of complaints about the wheel hub unit or upon request)
- » Log of the brake compatibility check (if there are complaints about the brake components)

A warranty claim must be enforced at gigant without delay, no later than two weeks after finding out the error. The faulty components that are taken off must be kept safe and must only be thrown away by the customer after clear written permission from gigant.

Costs that result from unjustified warranty claims may be charged by gigant.



MAINTENANCE INFORMATION

1. INFORMATION ON BRAKE WEAR

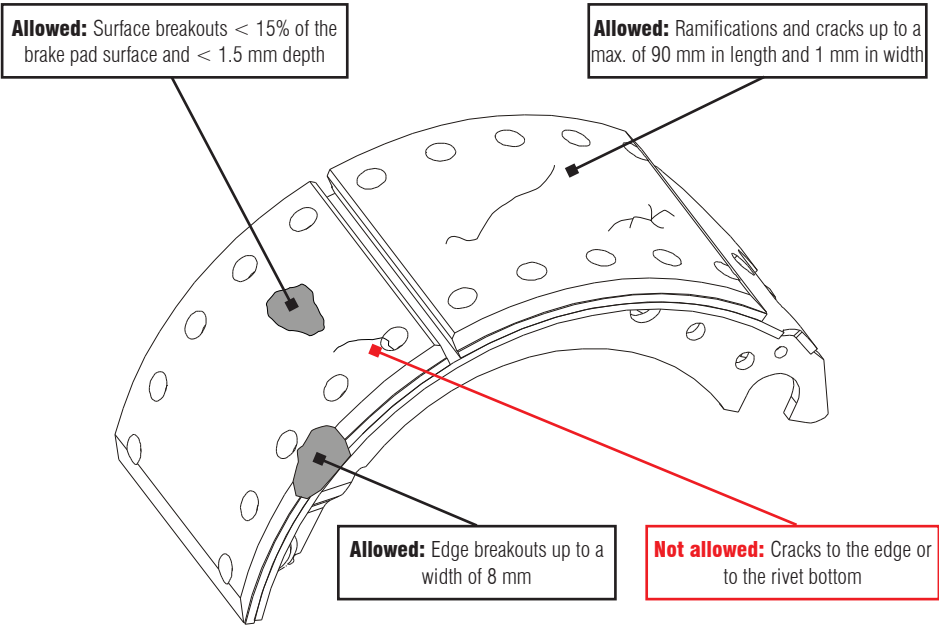
The condition of the brakes depends on how the vehicle is used. gigant has no control over this, and it depends on the vehicle operator. Wear parts (e.g. brake discs, brake drums, brake pads) and the functionality of the brakes of the vehicle in question must be inspected in the appropriate regular intervals .

After longer periods of non-use, the brake components must be inspected for freedom of movement and functionality.

1.1 DRUM BRAKE

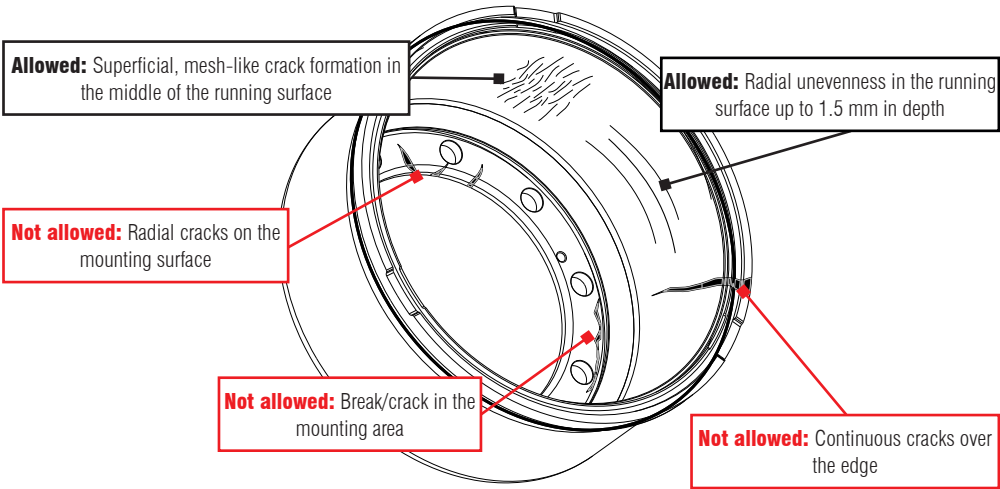
1.1.1 BRAKE LININGS

- Not allowed:** Brake linings that are burned, vitrified or contaminated with grease → must be replaced immediately
- Not allowed:** Brake pad: < 5 mm → 3.1.3, pg. 88

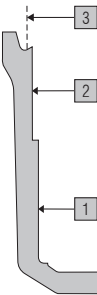


1.1.2 BRAKE DRUM

Not allowed: Obvious cracks and strong hotspots → must be replaced immediately

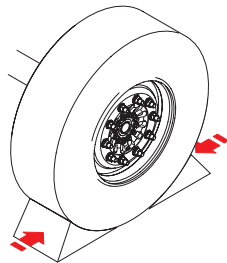


Pay attention to the original, repair and wear degree!

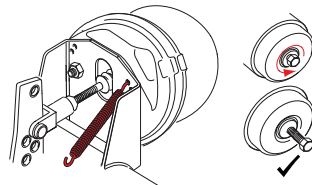
		Brake type	300x100	300x200	305x150	305x200	355x150	355x200	360x200	420x180	420x200
	1	Original dimensions	300	300	305	305	355	355	360	420	420
	2	First repair dimensions	302	302	307	307	357	357	362	422	422
	3	Max. wear	305	305	308	308	358	358	365	425	425

1.1.3 FUNCTIONALITY TEST FOR AUTOMATIC SLACK ADJUSTER

- [1] Secure the vehicle from rolling away on even, firm ground
- [2] Release the brake



- [3] Unhook the return spring (mark the position)
- [4] If necessary, mechanically release the spring brake cylinder
- [5] Lubricate the automatic slack adjuster until grease comes out



- [6] Set the torque wrench to 18 Nm

⌘ WAF 12

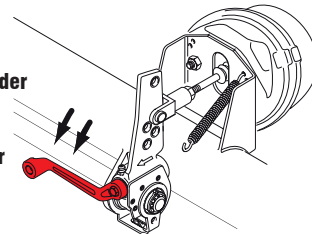
- [7] Place the torque wrench and turn counterclockwise

! Audible “clicking” sound → automatic slack adjuster is in working order

! No sound → replace automatic slack adjuster

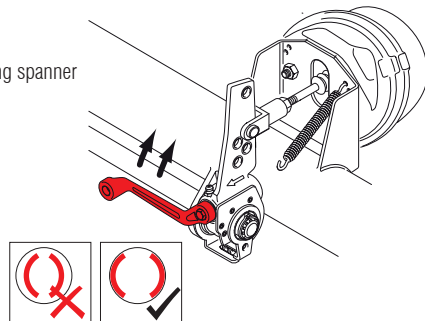
! Effort > 18 Nm → automatic slack adjuster in working order

! Effort < 18 Nm → replace automatic slack adjuster



- [8] Slowly turn the brake drum

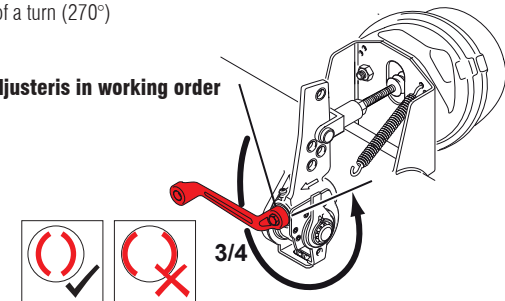
- [9] Carefully tighten the automatic slack adjuster's adjusting nut with a ring spanner until the brake linings grind on the brake drum



- [10]

- [11] Turn the automatic slack adjuster's adjusting screw by 3/4 of a turn (270°) counterclockwise

! Audible “clicking” sound → automatic slack adjuster is in working order



- [12] Place the ring spanner on the automatic slack adjuster's adjusting screw

⌘ WAF 12

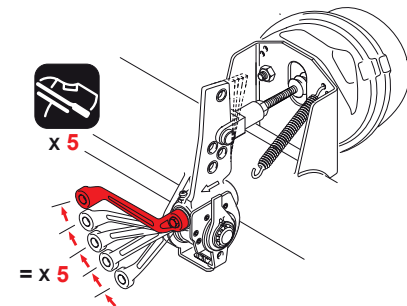
- [13] Actuate the brake 5 times

! If the ring spanner moves back 5x clockwise

→ automatic slack adjuster is in working order

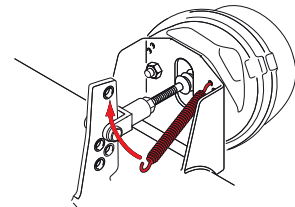
! If the ring spanner or adjusting unit does not move

→ replace the automatic slack adjuster → 3.1.5, pg. 89



- [14] Attach the release springs (pay attention to the marking)

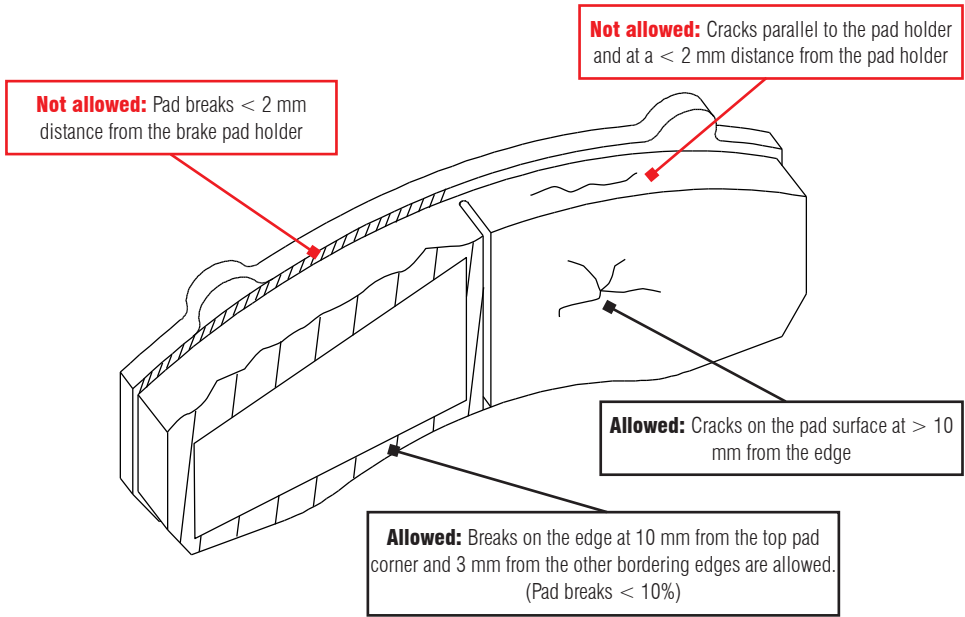
- [15] If the functional test turns out positive, then perform a basic adjustment (air clearance) of the brake → 1.4.1, pg. 73



1.2 DISC BRAKE

1.2.1 BRAKE LININGS

Not allowed: Brake linings that are burned, vitrified or contaminated with grease → must be replaced immediately



Not allowed: Brake pad: < 2 mm → Please consult the brake manufacturer's instructions on replacing the brake pads:



www.haldex.de
→ Services & Support → Literature and Documents



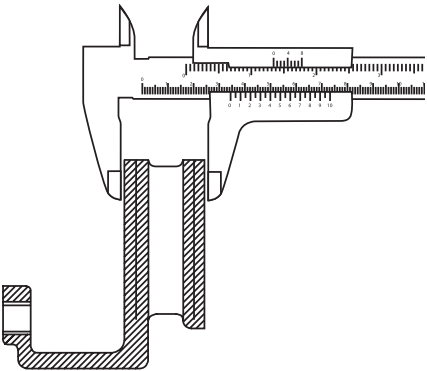
inform.wabco-auto.com



www.knorr-bremse.de
→ Commercial Vehicles → Download & Services
→ Download Documentation

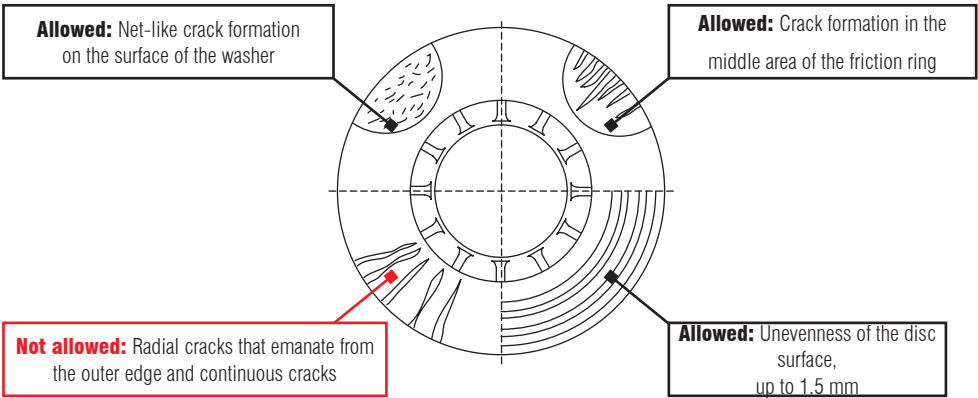
1.2.2 BRAKE DISC

»Measure brake disc thickness at the thinnest point with a slide gauge (pay attention to any burrs on the edge of the disc)



Brake type	3334	3745	4345
Brake disc dimensions	335	377	430
Original thickness	34	45	45
Min. thickness	28	37	37

» Carefully check the surface of the brake disc for further use → 4.3, pg. 109



1.2.3 BRAKE CALLIPER

The inspection intervals of the components/function on the brake calliper are based on the information from the brake calliper manufacturer. They can be viewed on the manufacturer homepage for the brake calliper installed on your axle:



www.haldex.de
→ Services & Support → Literature and Documents



inform.wabco-auto.com



www.knorr-bremse.de
→ Commercial Vehicles → Download & Services
→ Download Documentation

2. COMPACT BEARING

The compact bearing is a maintenance-free bearing (see extended gigant warranty). The following inspections should be done every time the brake pads are changed (D...OKH2... visual inspection only when changing brake disc) and if there are signs of incorrect functioning or defects in the braking system (e.g. brakes overheating):

2.1 NOISE CHECK

- » Lift wheel and turn in both directions
- » In case of uneven running and a "grinding" noise, → replace the compact bearing

Note: A ticking or clicking noise is normal when the bearing is not loaded.

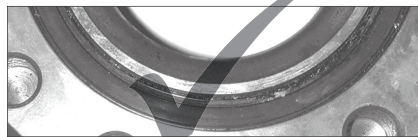
2.2 AXIAL CLEARANCE MEASUREMENT

- » Lift axle
- » Attaching the measuring gauge
 - » **Axle type "DOKH2/DNOKH2":** Fasten magnetic base to the axle beam (measuring needle touches wheel hub)
 - » **Axle type "...KH2":** Disassemble hub cap and fasten magnetic base onto the rim (measuring needle touches kingpin)
- » If there is an oscillating movement, press the wheel until the measuring needle does not swing
- » Set measuring gauge to zero
- » Afterwards, pull down and swivel the wheel
- » Difference between both measurements → Axial clearance
- » Result: > 0.2 mm (200 µm) → Replace compact bearing

2.3 GREASE LEAKAGE

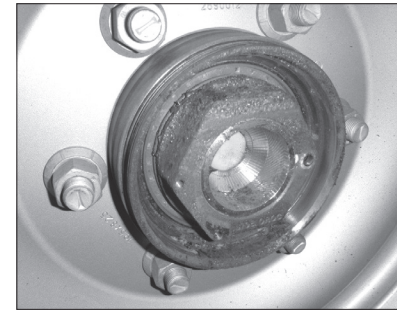
- » If the inside of the cover, spindle nut, axle tube, and sealing are moistened with grease, → replace the compact bearing

Note: There may be a little grease on the edge of the seal.



2.4 WATER INGRESS

- » If the interior shows **clear** signs of water ingress (moisture, corrosion),
→ replace the compact bearing and eliminate the cause of the leak (e.g. internal axle stub seal, O-ring hub cap).
- ! **The outside bearing seal does not prevent the ingress of water.**



3. STEERING KNUCKLE BEARING

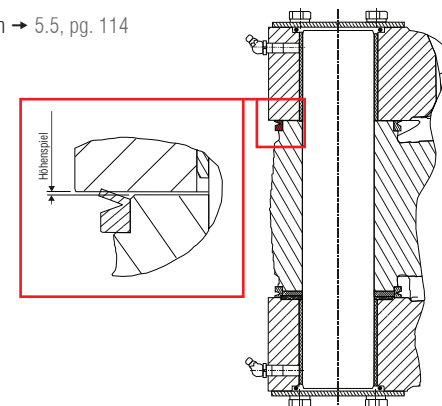
The kingpin is adhered to the axle stub and is guided in the axle pivot by two bushes. A wear plate is installed on the lower steering knuckle.

3.1 BEARING CLEARANCE

- » Lift the axle without wheel until it is unloaded
- » Tilt, pull and push to check bearing clearance → Replace the bushes if there is noticeable clearance

3.2 HEIGHT CLEARANCE

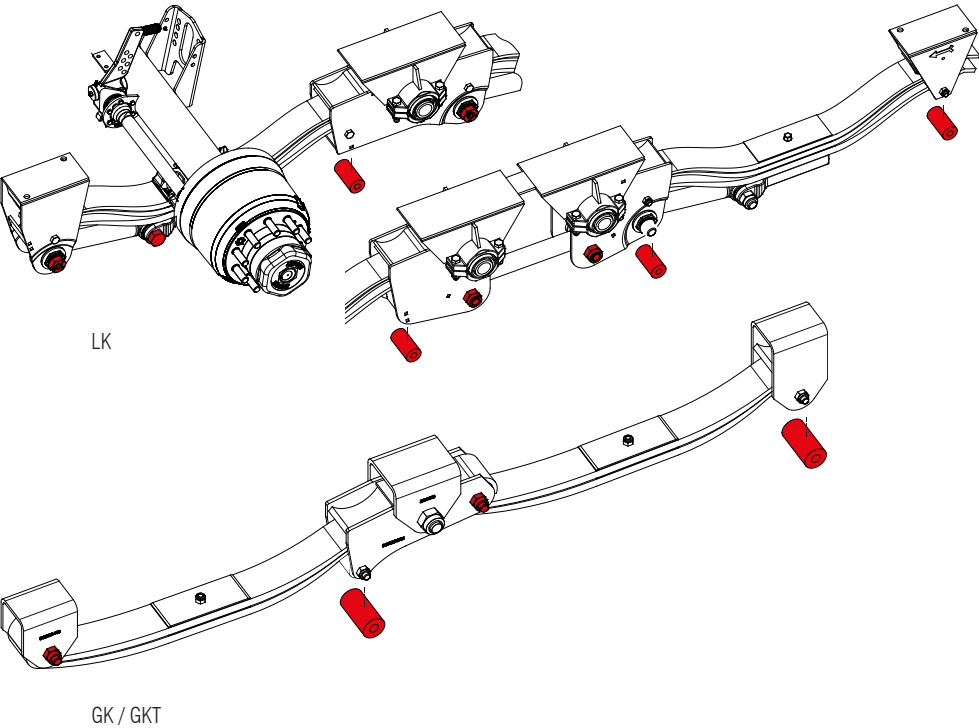
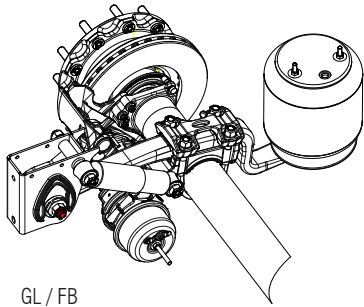
- » When the axle is loaded, press down on the sealing lip of the upper V-seal (do not damage)
- » Use the feeler gauge to measure the height clearance between the axle stub and steering knuckle
- » Replace the thrust washer if the dimensions are greater than 2.4 mm → 5.5, pg. 114
- » Put the undamaged V-rings in the initial position



4. SILENT BLOCKS AND RUBBER ROLLERS

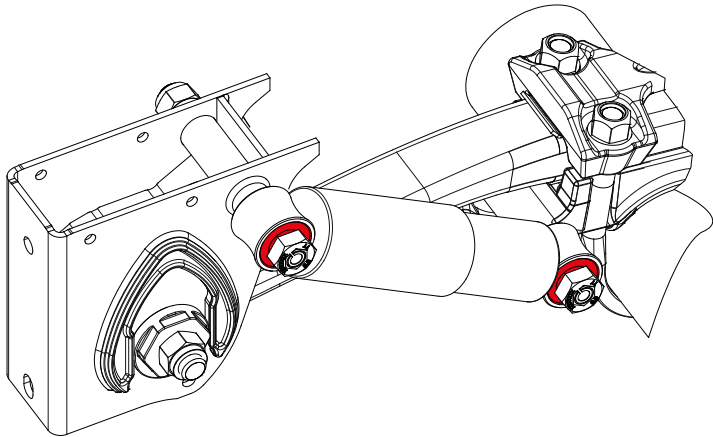
The condition of the silent blocks and rubber rollers depends on how the vehicle is used. gigant has no control over this, and it depends on the vehicle operator. Depending on the vehicle-specific use, the components must be inspected regularly for proper function and damage, wear, and freedom of movement and, if necessary, replaced.

Component	AIR-SUSPENDED SUSPENSIONS	MECHANICAL SUSPENSIONS	
	GL / FB	LK	GK / GKT
Silent blocks on spring	✓		
Silent blocks on torque arm		✓	
Silent blocks of the connecting bar		✓	
Silent blocks on spring eye			✓
Rubber rollers		✓	✓



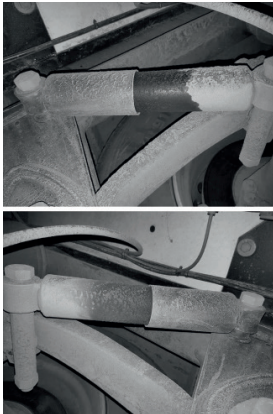
5. SHOCK ABSORBER

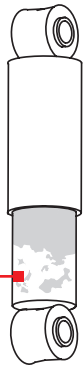
Check the silent blocks on the shock absorber for wear and clearance and replace the shock absorber if necessary.



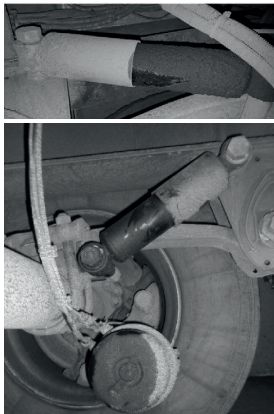
! Only check when the vehicle is dry, not during rain or after the vehicle has been washed!


Allowed: Light sweating, partly greasy and dry surface on the container (desired for lubrication)





Not allowed: Dripping oil and oil on adjacent components
→ Leaky shock absorber



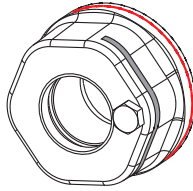


After a longer period of non-use, very oily contamination could appear due to light, acceptable sweating without cleaning. In case of any doubt, clean the shock absorber and check it again after a short period of driving use.

6. SPINDLE NUT

The gigant spindle nut is installed in the right and left design. The left spindle nut is marked with a circumferential groove. On the D/GH7, the left spindle nut has a notch. During removal, the clamping must be bent up, e.g. using a screwdriver.

! Do not damage the threads!



MAINTENANCE INTERVALS

Careful compliance with the specified maintenance intervals guarantees long-lasting use of the gigant axles and gigant suspen-
sions. The intervals are practically compatible with the rhythm of the statutory tests. The maintenance steps for on-road use are
divided into time intervals (considering first installation by technical staff according to gigant guidelines).

Before start-up, after a long period of non-use, and after paint work, the grease nipples must be inspected for clearance and
lubricated with grease until fresh grease emerges from the bearing point. Before starting every trip, gigant recommends checking
the vehicle for driving
readiness.

After the first 1,000 km or after the first laden trip, the fittings (e.g. spring bolts, bonding, etc.) as well as the axle components
(wheel nuts, brake cylinder fastening, bolts, automatic slack adjuster/cable lug), suspensions, and
add-on elements (e.g. Twinlift) must be inspected.

Along with the general safety checks in accordance with the legal requirements, the components and fittings must be visually
checked and the tightness must be checked. If necessary, fittings must be tightened to the indicated torques (the appearance of rust
and settling could be signs of loose screws) or replaced.

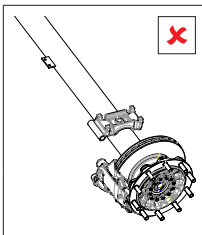
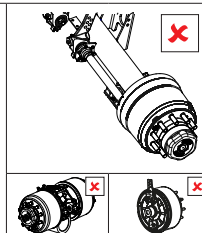
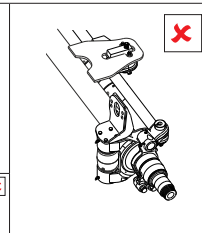
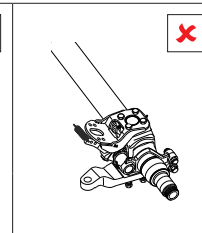
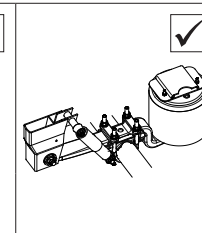
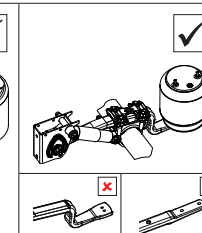
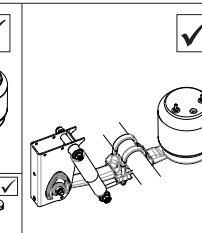
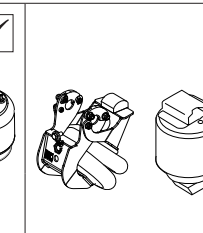
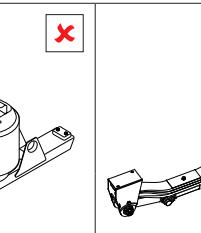
If necessary, maintenance must be performed more often according to how it is used, e.g. if used in a construction site, city traffic,
etc.

Shorter maintenance intervals must furthermore be performed using the given maintenance information.

This signature confirms that the maintenance has been properly performed according to the maintenance intervals.

! All of the tasks described in the maintenance intervals must be performed.
For example, for maintenance at the 12-month mark, the previous maintenance intervals (every three and
every six months) must also be performed.

1. MAINTENANCE INSTRUCTIONS FOR AIR SUSPENSIONS - AFTER THE FIRST LADEN TRIP, NO LATER THAN ONE MONTH

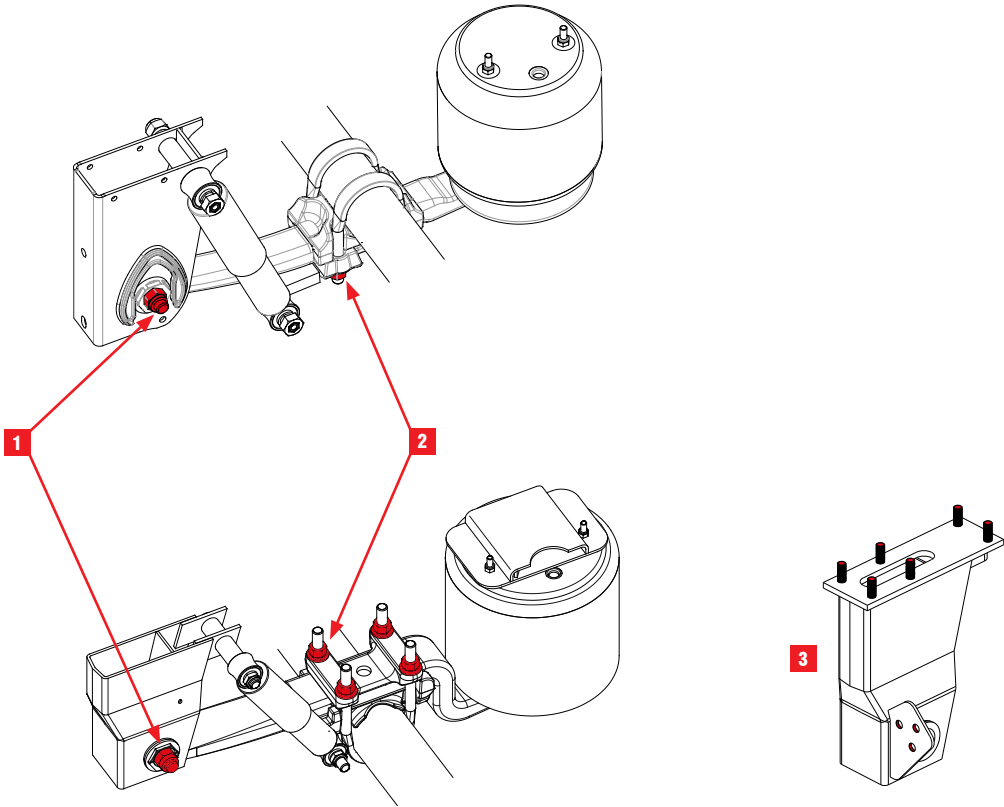
									
D = Axle With disc brake	G = Axle With drum brake	N = Self-steering axle	Z = Forced-steering axle	FB100 = Spring width 100 mm	GL70	GL70L, GL70HD	GL70 with T-suspension	Axle lifts	LK, GK, GKT = Mechanical suspensions

**! Only a visual inspection is required for the GL70 suspension! Observe the specified maintenance intervals when performing the initial installation without the torque
screwdriver!**

1 Check the spring bolt fitting and replace, if necessary		
FITTING	TEST TORQUE	TIGHTENING TORQUE
M24	680 Nm	900 Nm ± 50 Nm
M27x1.5		575 Nm ± 25 Nm

2 Check the U-bolt fitting and replace, if necessary		
FITTING	TEST TORQUE	TIGHTENING TORQUE
M20x1.5 (locknut/washer)	480 Nm	550 Nm ± 25 Nm
M22x1.5 (locknut/washer)	600 Nm	700 Nm ± 25 Nm
M22x1.5 (spigot wheel nut)		675 Nm ± 25 Nm
M24 (Nut/washer)		900 Nm ± 50 Nm

3 Check the air suspension bracket fitting (according to installation guidelines) and replace, if necessary		
FITTING	TEST TORQUE	TIGHTENING TORQUE
M16 (locknut)		280 Nm ± 10 Nm
M24 (locknut)		550 Nm ± 10 Nm



Loosened fittings and their components must be inspected for damage and replaced if necessary.

MAINTENANCE INTERVALS


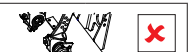







for air suspensions

after the first trip with a load, no later

than one month

AFTER THE FIRST TRIP WITH A LOAD	
DATE	ODOMETER READING IN KILOMETRES
COMMENT	
<div>Stamp signature</div>	

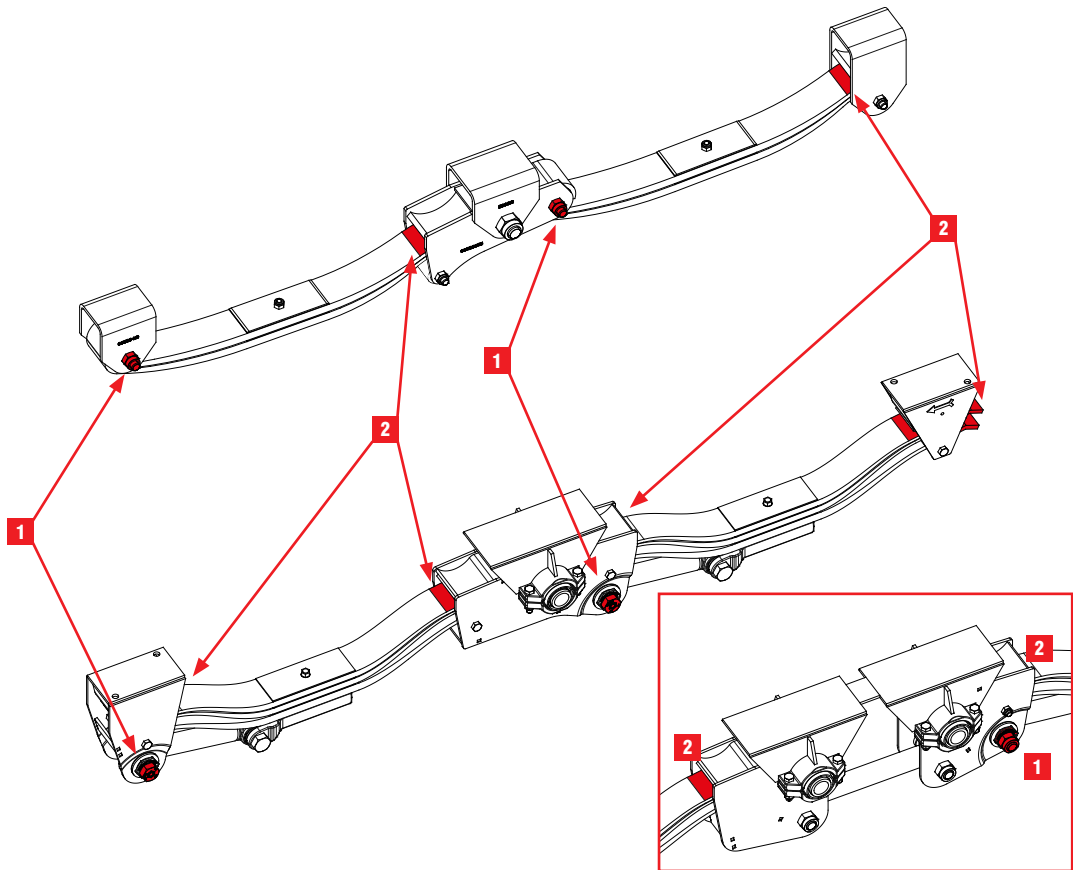
2. MAINTENANCE INSTRUCTIONS FOR MECHANICAL SUSPENSIONS - AFTER THE FIRST LADEN TRIP, NO LATER THAN ONE MONTH

								
D = Axle With disc brake	G = Axle With drum brake	N = Self-steering axle	Z = Forced-steering axle	FB100 = Spring width 100 mm	GL70 GL70L, GL70HD	GL70 with T-suspension	Axle lifts	LK, GK, GKT = Mechanical suspensions

1 Check the spring bolt fitting and replace, if necessary

FITTING	TEST TORQUE	TIGHTENING TORQUE
M20		400 Nm \pm 20 Nm
M24		675 Nm \pm 25 Nm
M27x1.5		575 Nm \pm 25 Nm
M30		775 Nm \pm 25 Nm

2 Grease **the sliding spring ends**




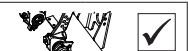







Loosened fittings and their components must be inspected for damage and replaced if necessary.

MAINTENANCE INTERVALS

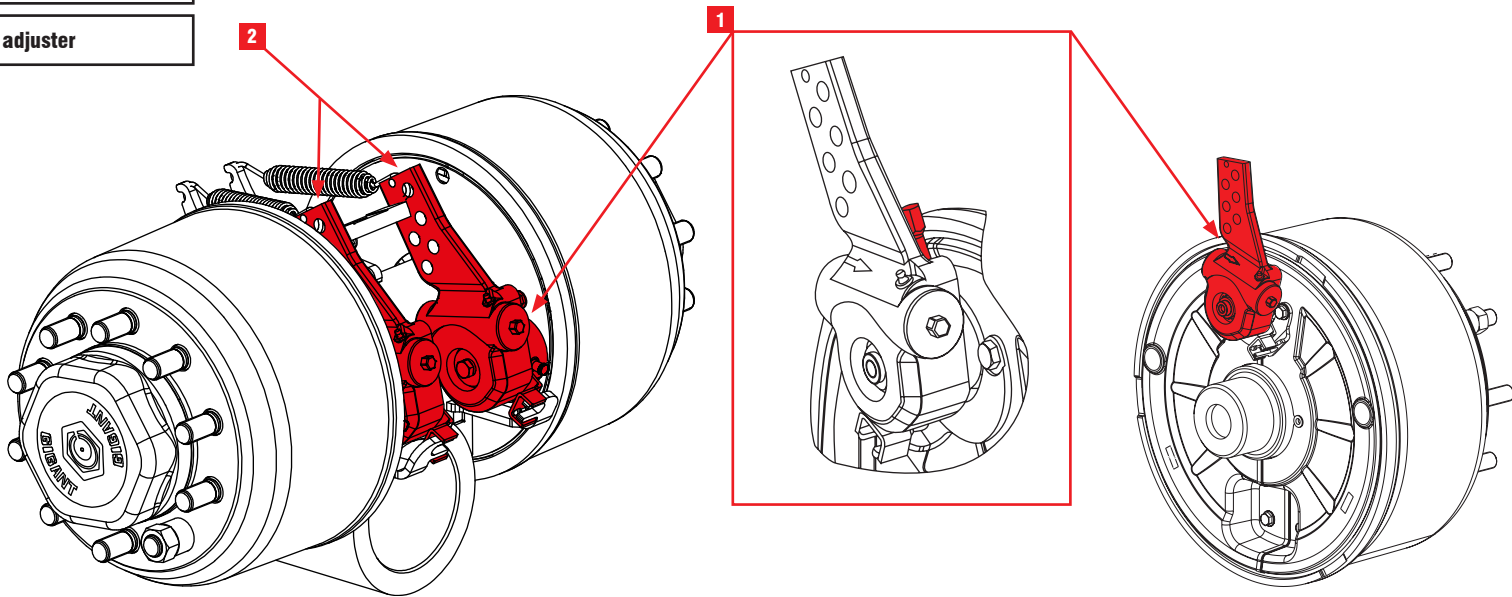
**for mechanical suspensions
after the first trip with a load, no later
than one month**

AFTER THE FIRST TRIP WITH A LOAD	
DATE	ODOMETER READING IN KILOMETRES
COMMENT	
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4. MAINTENANCE INSTRUCTIONS FOR WALKING BEAM AXLES AND AXLE STUBS - EVERY THREE MONTHS

								
D = Axle With disc brake	G = Axle With drum brake	N = Self-steering axle	Z = Forced-steering axle	FB100 = Spring width 100 mm	GL70 GL70L, GL70HD	GL70 with T-suspension	Axle lifts	LK, GK, GKT = Mechanical suspensions

- 1 **Brake cam bearing** grease until fresh grease emerges from the automatic slack adjuster's splines
- 2 Check **the parallel positioning of the automatic slack adjuster**
















Loosened fittings and their components must be inspected for damage and replaced if necessary.

MAINTENANCE INTERVALS

**for walking beam axles and axle stubs
every three months**

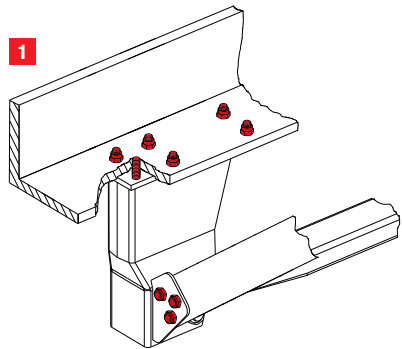
3

3. ADDITIONAL MAINTENANCE INSTRUCTIONS FOR AIR SUSPENSIONS WITH SCREWED AIR SUSPENSION BRACKETS - EVERY THREE MONTHS

	  				  				
D = Axle With disc brake	G = Axle With drum brake	N = Self-steering axle	Z = Forced-steering axle	FB100 = Spring width 100 mm	GL70	GL70L, GL70HD	GL70 with T-suspension	Axle lifts	LK, GK, GKT = Mechanical suspensions

1 Check the spring bolt fitting (according to installation guidelines) and replace, if necessary.

FITTING	TEST TORQUE	TIGHTENING TORQUE
M16 (locknut)		280 Nm \pm 10 Nm
M24 (locknut)		550 Nm \pm 10 Nm



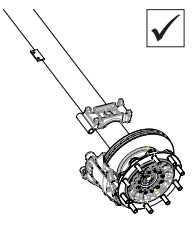
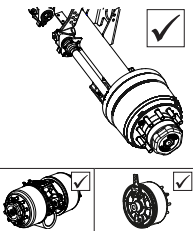
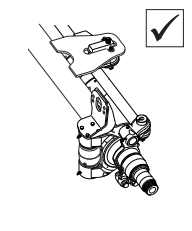
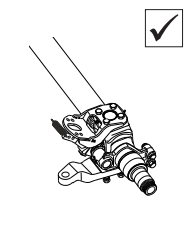
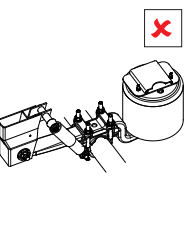
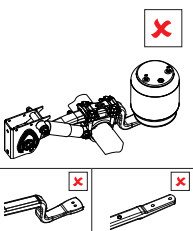
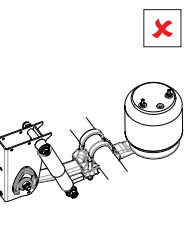
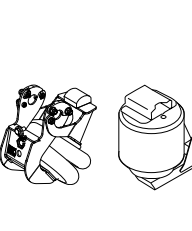
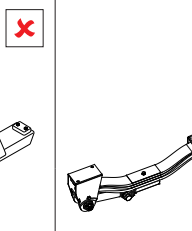
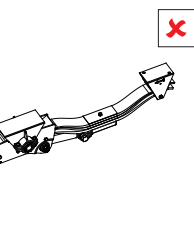
Loosened fittings and their components must be inspected for damage and replaced if necessary.

MAINTENANCE INTERVALS

additional for air suspensions
with screwed air suspension brackets
every three months

3

5. MAINTENANCE INSTRUCTIONS FOR AXLES - EVERY SIX MONTHS

									
D = Axle With disc brake	G = Axle With drum brake	N = Self-steering axle	Z = Forced-steering axle	FB100 = Spring width 100 mm	GL70	GL70L, GL70HD	GL70 with T-suspension	Axle lifts	LK, GK, GKT = Mechanical suspensions

- 1

» Check the brake cam clearance

» Check the fitting on the brake camshaft bracket

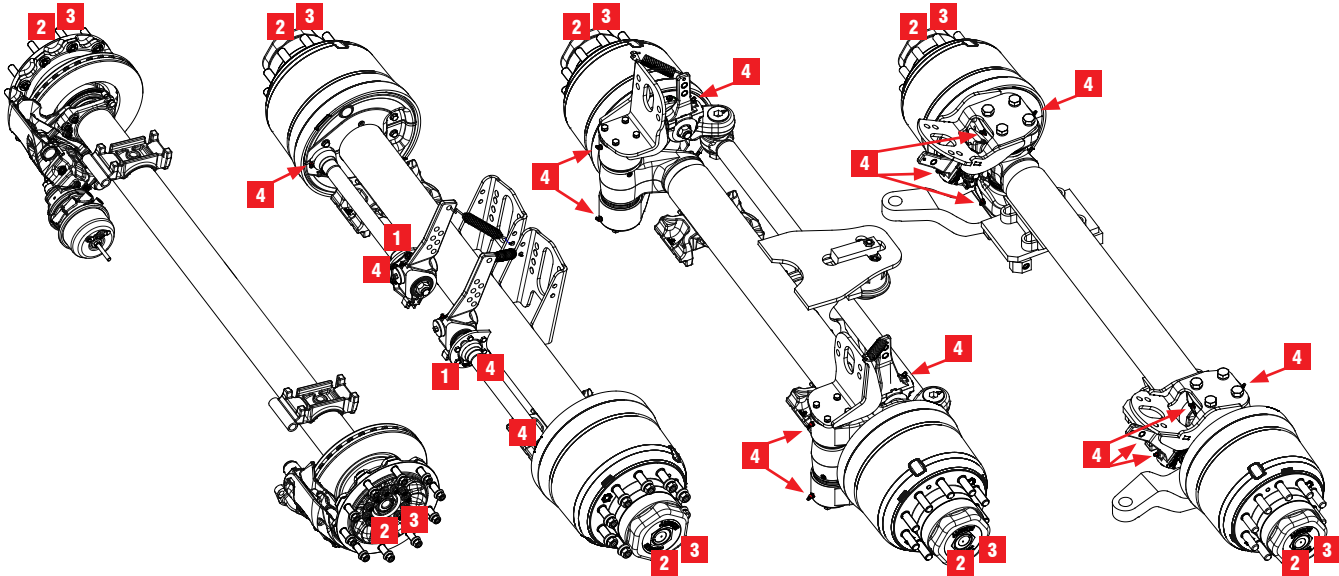
FITTING	TEST TORQUE	TIGHTENING TORQUE
M10		42.5 Nm ± 2.5 Nm
M12		77.5 Nm ± 2.5 Nm
- 2

Check bearing clearance on the G/DH7 and GAH1 → 2.2, pg. 34
- 3

Check bearing clearance on G/D....K... If necessary, conduct axial clearance measurement

→ 2.2, pg. 34
- 4

Lubricate until grease comes out












Loosened fittings and their components must be inspected for damage and replaced if necessary.

MAINTENANCE INTERVALS

**for axles
every six months**

6

6. MAINTENANCE INSTRUCTIONS FOR AIR SUSPENSIONS - EVERY SIX MONTHS

									
D = Axle With disc brake	G = Axle With drum brake	N = Self-steering axle	Z = Forced-steering axle	FB100 = Spring width 100 mm	GL70	GL70L, GL70HD	GL70 with T-suspension	Axle lifts	LK, GK, GKT = Mechanical suspensions

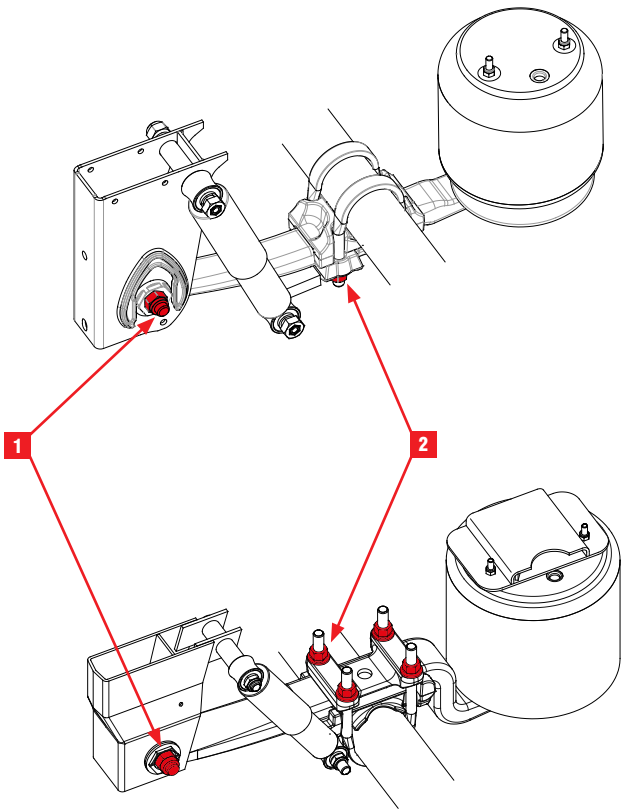
! Does not apply to GL70/GL70HD suspensions belonging to type T(K)LR!

1 Check the spring bolt fitting and replace, if necessary

FITTING	TEST TORQUE	TIGHTENING TORQUE
M24	680 Nm	900 Nm \pm 50 Nm
M27x1.5		575 Nm \pm 25 Nm

2 Check the U-bolt fitting and replace, if necessary

FITTING	TEST TORQUE	TIGHTENING TORQUE
M20x1.5 (locknut/washer)	480 Nm	550 Nm \pm 25 Nm
M22x1.5 (locknut/washer)	600 Nm	700 Nm \pm 25 Nm
M22x1.5 (spigot wheel nut)		675 Nm \pm 25 Nm
M24 (Nut/washer)		900 Nm \pm 50 Nm



Loosened fittings and their components must be inspected for damage and replaced if necessary.

MAINTENANCE INTERVALS

for air suspensions
every six months

6

7. MAINTENANCE INSTRUCTIONS FOR MECHANICAL SUSPENSIONS - EVERY SIX MONTHS

D = Axle With disc brake	G = Axle With drum brake	N = Self-steering axle	Z = Forced-steering axle	FB100 = Spring width 100 mm	GL70	GL70L, GL70HD	GL70 with T-suspension	Axle lifts	LK, GK, GKT = Mechanical suspensions

1

Check the U-bolt fitting and replace, if necessary

FITTING	TEST TORQUE	TIGHTENING TORQUE
M20x1.5 (Nut/washer)		605 Nm ± 25 Nm
M22x1.5 (spigot wheel nut)		675 Nm ± 25 Nm
M24x2 (Nut/washer)		900 Nm ± 50 Nm

2

Check rubber rollers to see if they move freely → replace if damaged and worn

3

Check cradle bearing → replace the silent block if damaged and if there is considerable clearance

4

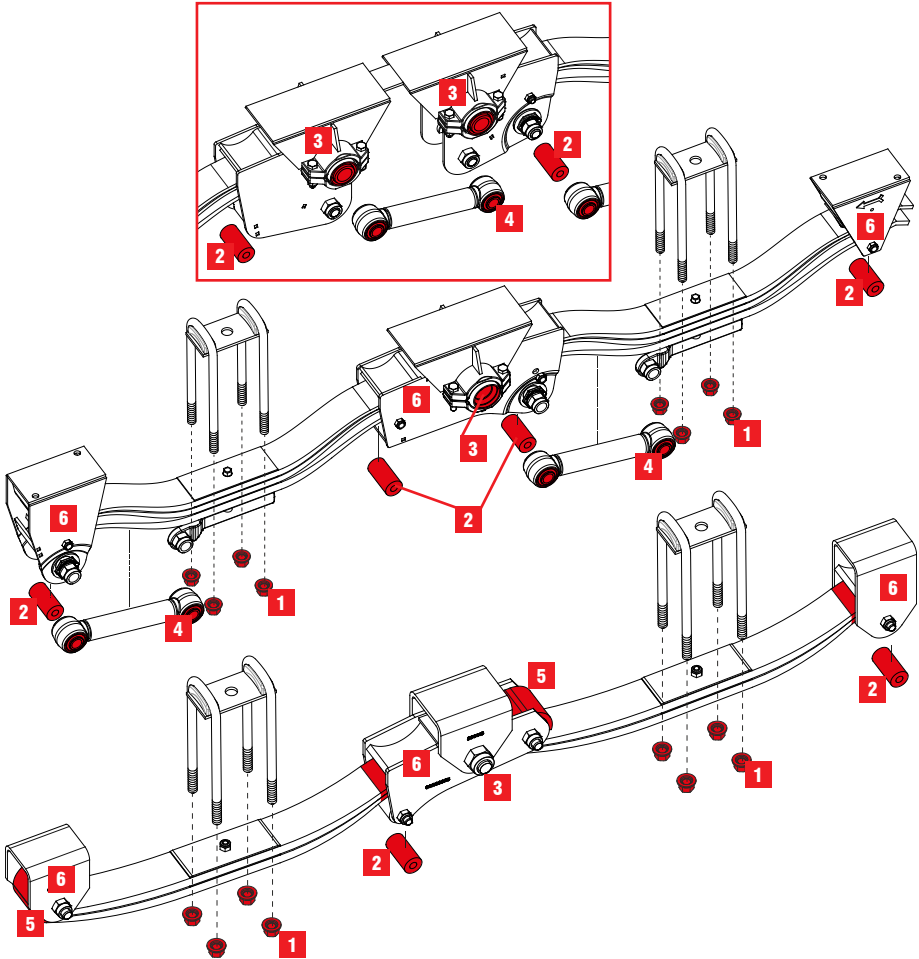
LK: Check torque arm (LK17 in addition to pendulum arm) → replace the silent block if damaged and if there is considerable clearance

5

GK: Check silent block in spring eye → replace if damaged and if there is considerable clearance

6

LK/GK: Check sliding plate → replace if < 3 mm, 4.1.4, pg. 128
LK: Check wear plates → replace if < 3 mm, 4.2.4, pg. 131
GK: Check side plate → replace if < 3 mm



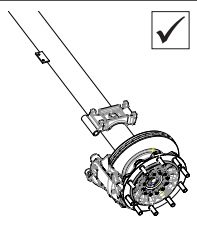
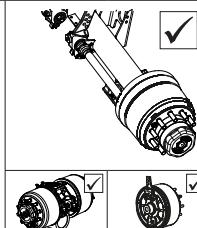
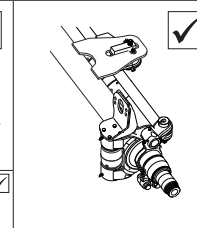
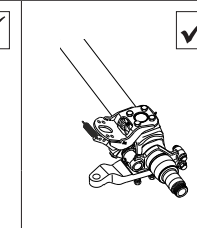
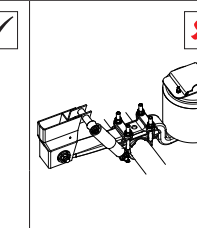
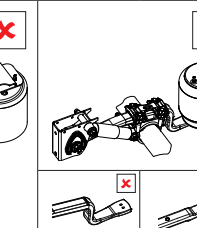
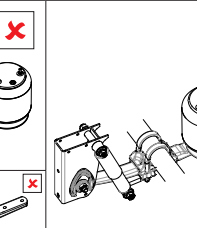
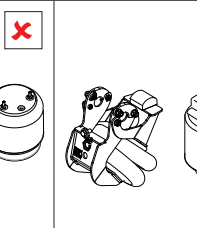
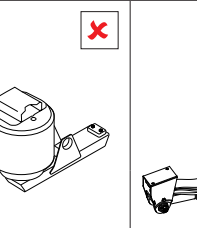
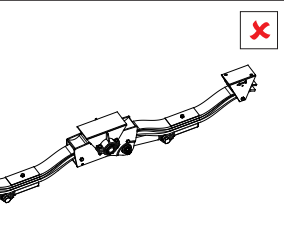
Loosened fittings and their components must be inspected for damage and replaced if necessary.

MAINTENANCE INTERVALS

for mechanical suspensions
every six months

6

8. MAINTENANCE INSTRUCTIONS FOR AXLES - EVERY TWELVE MONTHS

									
D = Axle With disc brake	G = Axle With drum brake	N = Self-steering axle	Z = Forced-steering axle	FB100 = Spring width 100 mm	GL70	GL70L, GL70HD	GL70 with T-suspension	Axle lifts	LK, GK, GKT = Mechanical suspensions

1

Check Torx screws

FITTING	TEST TORQUE	TIGHTENING TORQUE
E 24		470 Nm ± 25 Nm

2

Check wheel bearing

Axle type G/D... K2: Check axial clearance → 2.2, pg. 34

Axle type G/DH... 7 and GAH1: Replace bearing grease

The following could be signs of bearing damage:

- » Heavily discoloured and burnt-smelling grease
- » Grinding noises
- » Discolourations, imprints, peeling, etc. on the bearing ring or on the roller

3

Grease the automatic slack adjuster and check the air gap

4

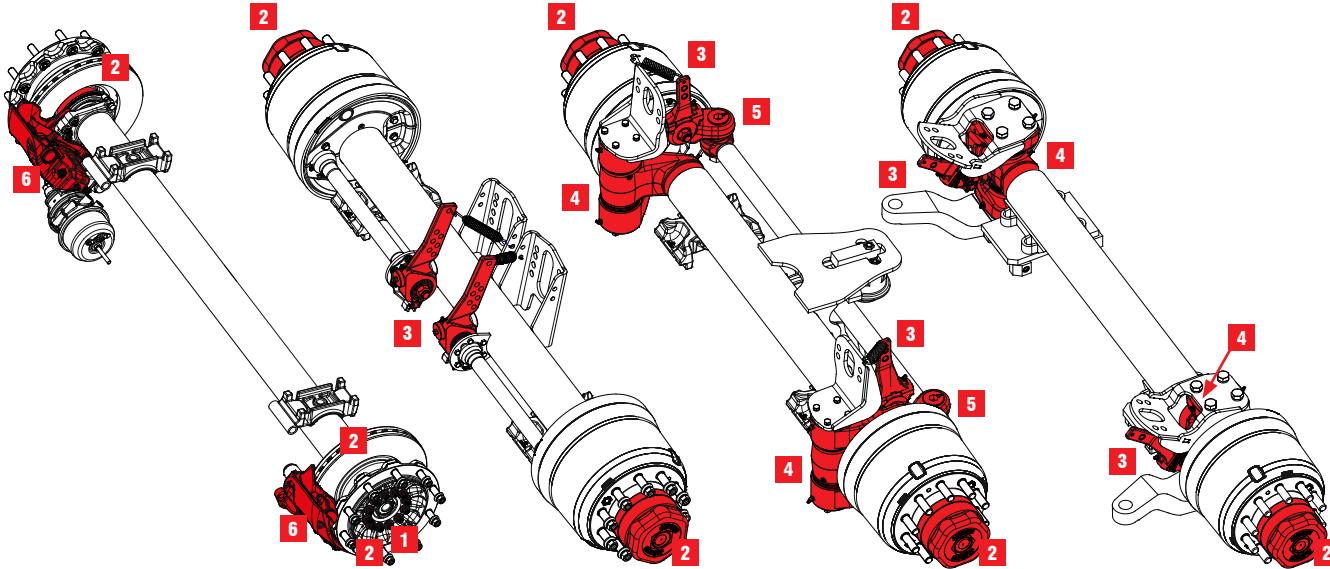
Check the height clearance of the spring bolts → 3.2, pg. 35

5

Check the direction bar end and → replace the silent block if damaged and if there is considerable clearance

6

Check brake calliper → see manufacturer's specifications




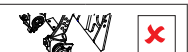







Loosened fittings and their components must be inspected for damage and replaced if necessary.

MAINTENANCE INTERVALS

for axles
every twelve months

12

9. MAINTENANCE INSTRUCTIONS FOR AXLES WITH ADDITIONAL STEERING - EVERY TWELVE MONTHS

								
D = Axle With disc brake	G = Axle With drum brake	N = Self-steering axle	Z = Forced-steering axle	FB100 = Spring width 100 mm	GL70 GL70L, GL70HD	GL70 with T-suspension	Axle lifts	LK, GK, GKT = Mechanical suspensions

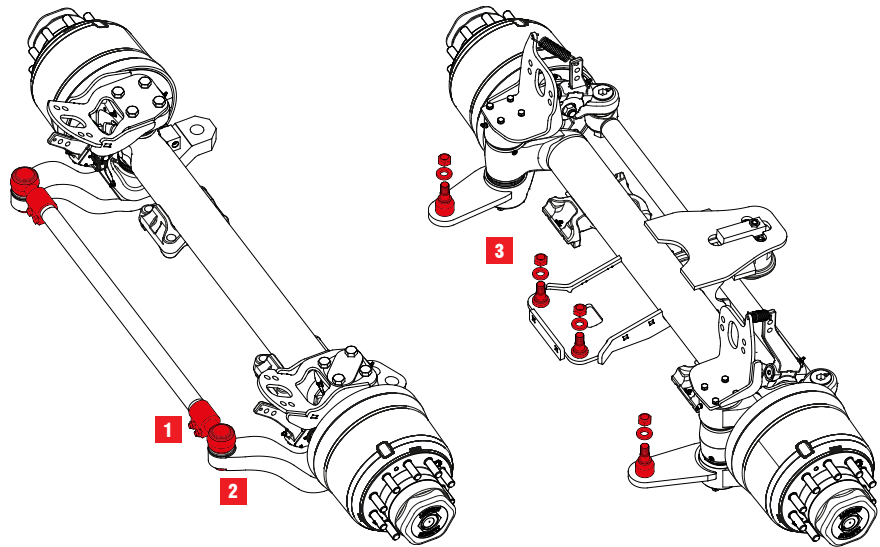
1	Check the clamp		
	FITTING	TEST TORQUE	TIGHTENING TORQUE
	M12x1.5 (locknut)		80 Nm ± 10 Nm

2

Check the **steering rod end**→ and replace if damaged and if there is considerable clearance

FITTING	TEST TORQUE	TIGHTENING TORQUE
M30x1.5 (castellated nut)		450 Nm

3	Check the threaded bolt of the cylinder connection




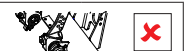







Loosened fittings and their components must be inspected for damage and replaced if necessary.

MAINTENANCE INTERVALS

**for axles with additional steering
every twelve months**

12

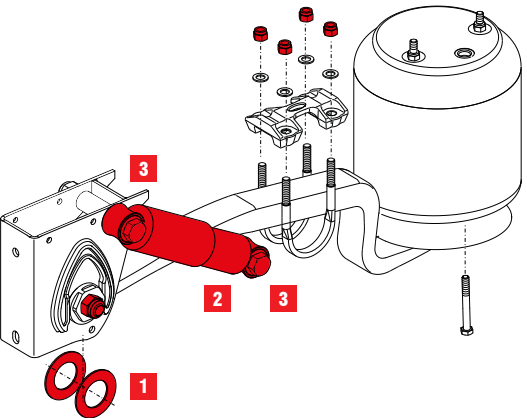
10. MAINTENANCE INSTRUCTIONS FOR AIR SUSPENSIONS - EVERY TWELVE MONTHS

								
D = Axle With disc brake	G = Axle With drum brake	N = Self-steering axle	Z = Forced-steering axle	FB100 = Spring width 100 mm	GL70 GL70L, GL70HD	GL70 with T-suspension	Axle lifts	LK, GK, GKT = Mechanical suspensions

Only a visual inspection is required for the GL70 suspension when used on the road!

- 1 **Check wear**
 - on the GL70: Replace if < 2 mm
 - On the FB100: Replace if < 4.5 mm
 - 2 **Check shock absorber** → 5, pg. 37
 - 3 **Check shock absorber fitting**

FITTING	TEST TORQUE	TIGHTENING TORQUE
M24 (SK screw/S-nut)	560 Nm	620 Nm ± 30 Nm
M24 (S-nut on pin)	260 Nm	400 Nm ± 20 Nm
M22x1.5 (SK screw/S-nut)		350 Nm

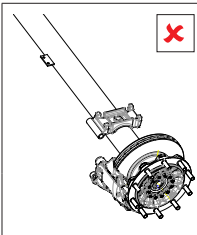
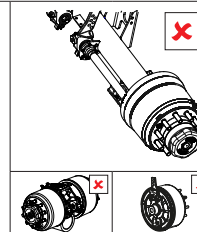
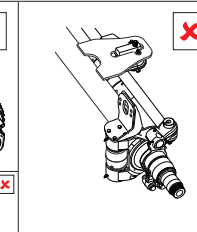
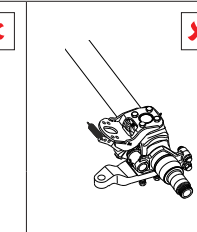
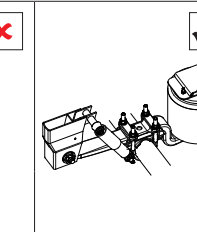
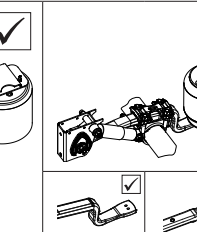
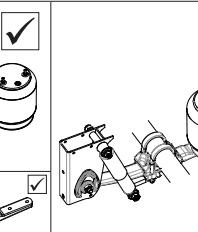
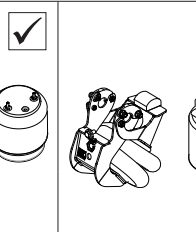
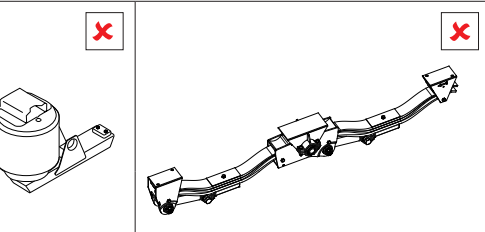


Loosened fittings and their components must be inspected for damage and replaced if necessary.

MAINTENANCE INTERVALS

for air suspensions
every twelve months

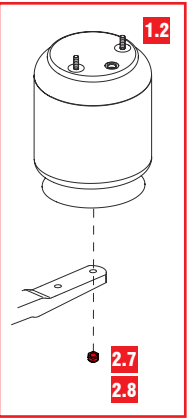
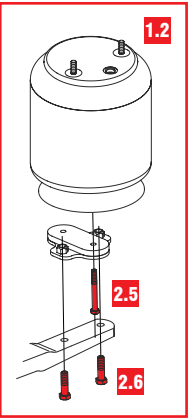
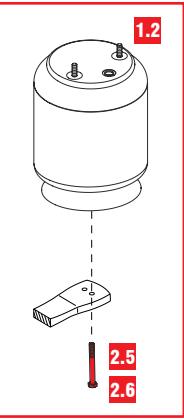
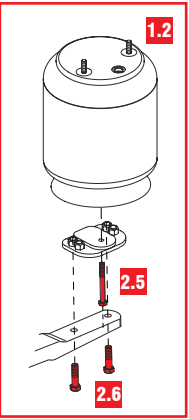
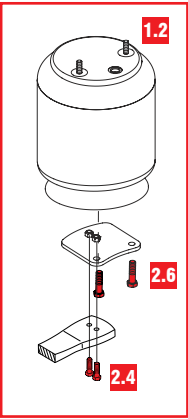
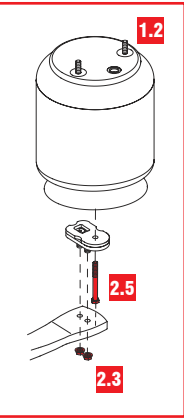
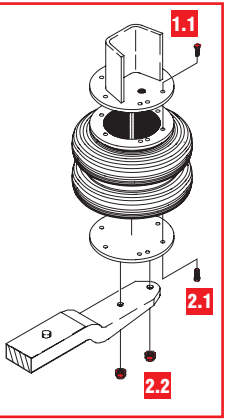
11. MAINTENANCE INSTRUCTIONS FOR AIR BELLOWS - EVERY TWELVE MONTHS

									
D = Axle With disc brake	G = Axle With drum brake	N = Self-steering axle	Z = Forced-steering axle	FB100 = Spring width 100 mm	GL70	GL70L, GL70HD	GL70 with T-suspension	Axle lifts	LK, GK, GKT = Mechanical suspensions

! Only a visual inspection is required for the GL70 suspension when used on the road!

1	Check the upper air bellow attachment		
	FITTING	TEST TORQUE	TIGHTENING TORQUE
1.1	M8 (locknut)		22.5 Nm ± 2.5 Nm
1.2	M12 (locknut)		55 Nm ± 5 Nm

2	Check the lower air bellow attachment		
	FITTING	TEST TORQUE	TIGHTENING TORQUE
2.1	M8 (screw)		22.5 Nm ± 2.5 Nm
2.2	M16 (locknut)		180 Nm ± 10 Nm
2.3	M12 (nut with flange/locking teeth)		110 Nm ± 10 Nm
2.4	M12 (SK screw/adapter plate)		110 Nm ± 10 Nm
2.5	M12 (SK screw)	45 Nm	55 Nm ± 5 Nm
2.6	M16 (SK screw)	200 Nm	280 Nm ± 10 Nm
2.7	M16 (locknut)		120 Nm
2.8	M20 (locknut)		350 Nm












Loosened fittings and their components must be inspected for damage and replaced if necessary.

MAINTENANCE INTERVALS

for air bellows

every twelve months

12. MAINTENANCE INSTRUCTIONS FOR AXLE LIFTS - EVERY TWELVE MONTHS

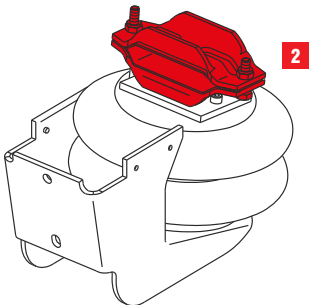
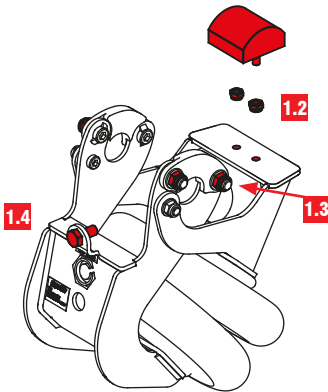
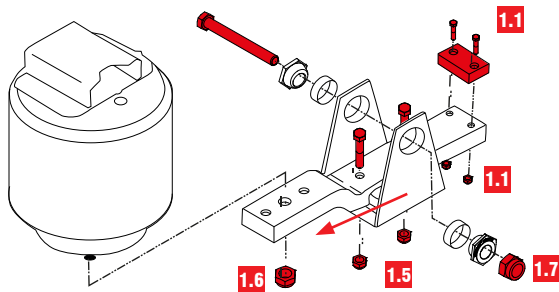
								
D = Axle With disc brake	G = Axle With drum brake	N = Self-steering axle	Z = Forced-steering axle	FB100 = Spring width 100 mm	GL70 GL70L, GL70HD	GL70 with T-suspension	Axle lifts	LK, GK, GKT = Mechanical suspensions

1 Check plastic pad and fittings

	FITTING	TEST TORQUE	TIGHTENING TORQUE
1.1	M8		25 Nm
1.2	M8		40 Nm \pm 5 Nm
1.3	M14 (locknut)		120 Nm \pm 10 Nm
1.4	M14 (screw)		80 Nm \pm 5 Nm
1.5	M16		180 Nm \pm 10 Nm
1.6	M20		275 Nm \pm 25 Nm
1.7	M27x1.5		575 Nm \pm 25 Nm

2 Check the clamp and replace, if necessary

FITTING	TEST TORQUE	TIGHTENING TORQUE
M10		43 Nm ± 3 Nm



Loosened fittings and their components must be inspected for damage and replaced if necessary.

MAINTENANCE INTERVALS

**for axle lifts
every twelve months**

12

[illegible]

AFTER 3 MONTHS	
DATE	ODOMETER READING IN KILOMETRES
COMMENT	
Stamp signature	

AFTER 6 MONTHS	
DATE	ODOMETER READING IN KILOMETRES
COMMENT	
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AFTER 9 MONTHS	
DATE	ODOMETER READING IN KILOMETRES
COMMENT	
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AFTER 12 MONTHS	
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AFTER 15 MONTHS	
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AFTER 18 MONTHS	
DATE	ODOMETER READING IN KILOMETRES
COMMENT	
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AFTER 21 MONTHS

DATE	ODOMETER READING IN KILOMETRES
COMMENT	
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AFTER 24 MONTHS

DATE	ODOMETER READING IN KILOMETRES
COMMENT	
Stamp signature	

AFTER 27 MONTHS

DATE	ODOMETER READING IN KILOMETRES
COMMENT	
Stamp signature	

AFTER 30 MONTHS

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AFTER 33 MONTHS

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COMMENT	
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AFTER 36 MONTHS

DATE	ODOMETER READING IN KILOMETRES
COMMENT	
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AFTER 39 MONTHS

DATE	ODOMETER READING IN KILOMETRES
COMMENT	
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AFTER 42 MONTHS

DATE	ODOMETER READING IN KILOMETRES
COMMENT	
Stamp signature	

AFTER 45 MONTHS

DATE	ODOMETER READING IN KILOMETRES
COMMENT	
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AFTER 48 MONTHS

DATE	ODOMETER READING IN KILOMETRES
COMMENT	
Stamp signature	

AFTER 51 MONTHS

DATE	ODOMETER READING IN KILOMETRES
COMMENT	
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AFTER 54 MONTHS

DATE	ODOMETER READING IN KILOMETRES
COMMENT	
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REPAIR – AXLES

AFTER 57 MONTHS	
DATE	ODOMETER READING IN KILOMETRES
COMMENT	
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AFTER 60 MONTHS	
DATE	ODOMETER READING IN KILOMETRES
COMMENT	
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AFTER 63 MONTHS	
DATE	ODOMETER READING IN KILOMETRES
COMMENT	
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AFTER 66 MONTHS	
DATE	ODOMETER READING IN KILOMETRES
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AFTER 69 MONTHS	
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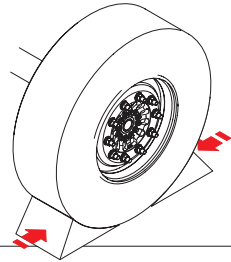
AFTER 72 MONTHS	
DATE	ODOMETER READING IN KILOMETRES
COMMENT	
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AXLES

1. GENERAL PREPARATIONS AND ACTIVITIES

1.1 SECURE THE VEHICLE

- » Secure the vehicle from rolling away on even, firm ground
- » Disconnect the brake and air supply lines from the tractor; disassemble the wheel, if necessary
- » Jack up the frames in an accident-proof manner, if necessary
- » If necessary, raise the axle or component and support it in an accident-proof manner



1.2 DISASSEMBLING/REASSEMBLING THE WHEEL

- [1] Take off the wheel nuts

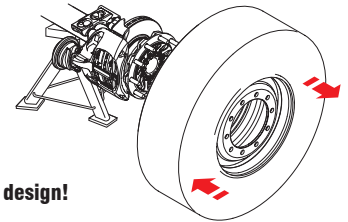
- WAF 24
- WAF 32

- [2] Raise the axle on even, metalled ground

- [3] Take off the wheel

- [4] Clean the hub seating, rim seating and wheel nuts

! Pre-centring devices must be used depending on the rim and hub design!



- [5] Install wheel

- [6] Tighten the wheel nuts at the tightening torque clockwise in a criss-cross pattern:

- » Bolt centring

- WAF 24 / M18x1.5 270 Nm \pm 25 Nm

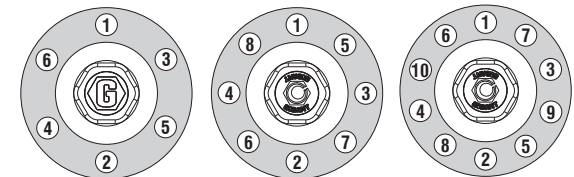
- WAF 32 / M22x1.5 475 Nm \pm 25 Nm

- » Spigot centring

- WAF 24 / M18x1.5 320 Nm \pm 15 Nm

- WAF 32 / M22x1.5 600 Nm \pm 30 Nm

- [7] Lower the axle on even, firm ground



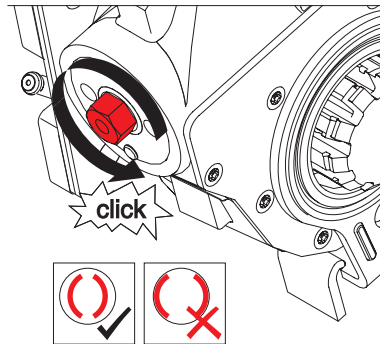
1.3 RELEASE THE BRAKE

- [1] Release the service or parking brake
- [2] Disconnect the compressed air supply

! On spring-loaded brake cylinders, the mechanical release device must be activated!

1.3.1 DRUM BRAKE

- » Turn the automatic slack adjuster's setting disc counter-clockwise (clicking sounds are normal) until the brake drum can be removed
- ! WAF 12



1.3.2 DISC BRAKE

- » Manually remove the adjuster's protection cup to prevent damaging the seal
- » Turn back the adjuster using a tool/adaptor
- » Please check the brake calliper manufacturer's information for the procedure:



www.haldex.de

→ Services & Support → Literature and Documents



inform.wabco-auto.com



www.knorr-bremse.de

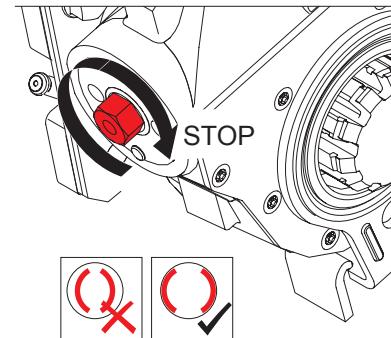
→ Commercial Vehicles → Download & Services
→ Download Documentation

1.4 ADJUST THE BRAKE

1.4.1 DRUM BRAKE (AIR CLEARANCE)

! In the "drum in front of the hub" system, the tyre must be installed or the brake drum must be secured with two wheel nuts!

- [1] Turn the automatic slack adjuster's adjusting screw counter-clockwise until the brake pad fits on the brake drum

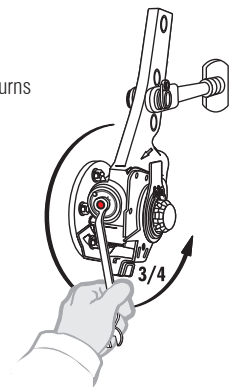


- [2] Turn back the adjusting screw on the automatic slack adjuster by approx. 3/4 turns
- ! WAF 12

! If the adjustment coupling works flawlessly, a torque of at least 18 Nm can be felt when turning back!

! Creaking sound can be heard!

! On spring-loaded brake cylinders, the mechanical release device must be dismantled and placed on the bracket!



1.4.2 DISC BRAKE

- » Please check the brake calliper manufacturer's information for the procedure:



www.haldex.de

→ Services & Support → Literature and Documents



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2. AXLE TYPE-INDEPENDENT REPAIR

This chapter will explain repair steps that involve several types of axles.

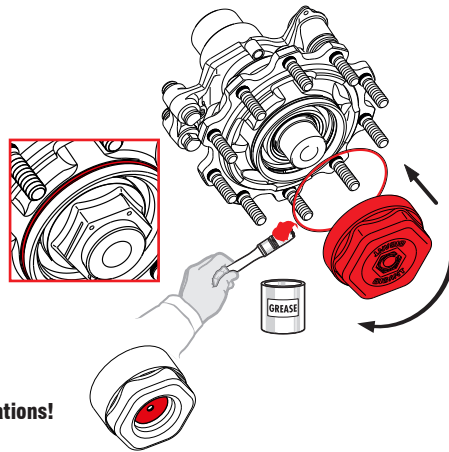
2.1 DISASSEMBLING/ASSEMBLING THE HUB CAP

2.1.1 SCREWED HUB CAP (AXLE TYPES K2, K3, H7 - 12T)

- [1] Disassemble the hub cap by rotating counterclockwise
 - ! WAF 120
 - ! WAF 160
 - ! WAF 170
- [2] Dispose of the O-ring
- [3] Slightly grease the new O-ring and place it on the hub unit
- [4] Install hub cap and tighten clockwise at the tightening torque:
 - $T_{Nm} 750 \text{ Nm} \pm 50 \text{ Nm}$

! O-ring must not be squeezed out after tightening!

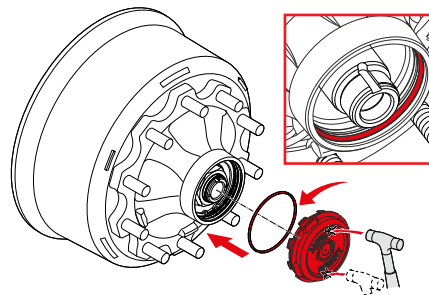
! Assemble the hub cap for the hub odometer watertight according to the manufacturer's specifications!



2.1.2 CLIPPED HUB CAP (AXLE TYPE GAH1)

- [1] Leverage the hub cap from the provided groove
- [2] Dispose of the O-ring
- [3] Clean groove and system areas
- [4] Lightly grease the new O-ring (Möbilit SHC 220) and place it in groove
- [5] Install the hub cap and turn it a little to make sure that the O-ring is seated OK
- [6] Use a plastic hammer to carefully hammer in the hub cap and make sure that it is properly seated

! No gap is allowed!



2.2 DISASSEMBLING/ASSEMBLING THE HUB UNIT/BEARING UNIT

2.2.1 COMPACT BEARING (AXLE TYPE K2, K3) WITH SCREWED HUB CAP

! Be mindful of the left/right thread on the spindle nut and mounting mandrel!

- [1] Disassemble the wheel → 1.2, pg. 71
- [2] Release the brake → 1.3, pg. 72
- [3] Axles with brake drum: Remove, inspect and, if necessary, replace brake drum → 3.1.1, pg. 87
Brake disc axles: Disassemble, inspect and, if necessary, replace the brake calliper → 4.2, pg. 107
- [4] Disassemble the hub cap → 2.1, pg. 74
- [5] Detach the retainer bolt of the spindle nut
 - ! WAF 10
- [6] Bend open the clamping on the spindle nut
- [7] Detach, inspect and, if necessary, replace the spindle nut
 - ! WAF 95
- [8] Screw on the mounting mandrel
- [9] Take off the hub unit

! Do not damage the threads!

- [10] Disassemble and dispose of the O-ring, if necessary
- [11] Disassemble the mounting mandrel
- [12] Clean the axle stub, check the thread and, if necessary, rework with the thread chaser

! The use of chemical cleaners is allowed. For stubborn residues, the use of an abrasive pad is allowed if the locations can be cleaned with the hand!

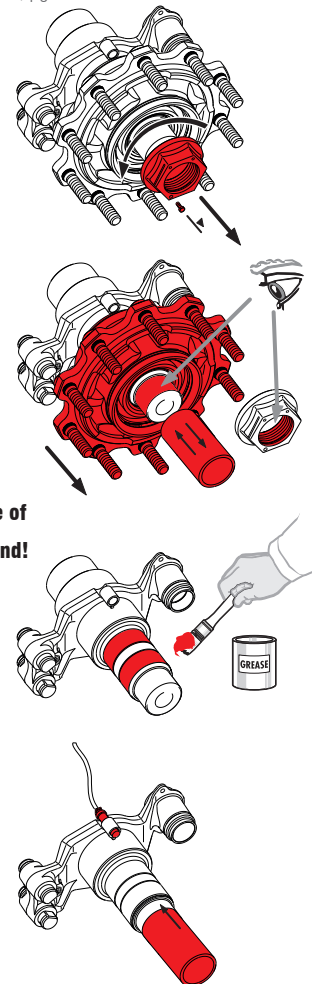
- [13] If necessary, slide on the O-ring until stop
- [14] Check ABS sensor ring; replace if unevenness is $> 0.2 \text{ mm}$ → 2.3, pg. 82
- [15] Slightly grease bearing seat (Molykote TP42)

! Do not grease the bearing surfaces and the threads!

- [16] Screw on the mounting mandrel

Rear inductive sensor ABS on the hub or on the brake disc:

- » Push the inductive sensor ABS through until the front is visible
- » Clean the front (if the inductive sensors ABS are stiff or stuck, they must be removed—including the bush—, re-greased and re-installed.)



[17] Push the hub unit until stop

! Do not incline the hub unit!

[18] Rear inductive sensor ABS on the hub or on the brake disc:






Adjust the distance to the ABS sensor ring at 0.15 mm

[19] Disassemble the mounting mandrel


[20] Lightly grease the bearing surface of the spindle nut

! The threads must be free of grease!

[21] Tighten the spindle nuts while turning the wheel hub

	WAF 95	M68x1.5	5.5 t - 7 t	700 Nm \pm 25 Nm
	WAF 95	M68x1.5	9 t - 10 t	700 Nm \pm 25 Nm
	WAF 95	M68x1.5	10.5 t	700 Nm \pm 25 Nm
	WAF 95	M68x1.5	12 t	700 Nm \pm 25 Nm
	WAF 95	M76x1.5	12 t	870 Nm \pm 25 Nm

[22] Tighten safety bolt

 WAF 10 15 Nm

[23] Assemble the hub cap \rightarrow 2.1, pg. 74

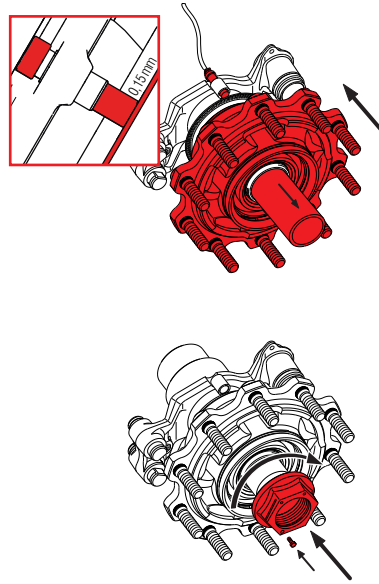
[24] Axles with brake drum: Assemble the brake drum \rightarrow 3.1.1, pg. 87

Brake disc axles: Assemble the brake calliper \rightarrow 4.2, pg. 107

[25] Adjust the brake \rightarrow 1.4, pg. 73

[26] Assemble the wheel \rightarrow 1.2, pg. 71

[27] Check the brake



2.2.2 COMPACT BEARING/STEPHUBUNIT (AXLE TYPE K2) WITH WHEEL FLANGE

! Be mindful of the spindle nut's left/right thread!

[1] Disassemble the wheel \rightarrow 1.2, pg. 71

[2] Release the brake \rightarrow 1.3, pg. 72

[3] Disassemble the brake pads according to the manufacturer's directions

[4] Disassemble the brake calliper \rightarrow 4.2.2, pg. 108

[5] Replace the two Torx screws with assembly bolts

 E 24

[6] Disassemble and dispose of the remaining Torx screws;
remove the hub odometer bracket, if necessary

[7] Take off the flange with brake disc via the assembly bolts

[8] Detach the retainer bolt of the spindle nut

 WAF 10

[9] Bend open the clamping on the spindle nut

! Do not damage the threads!

[10] Detach, inspect and, if necessary, replace the spindle nut

 WAF 95

[11] Take off the StepHubUnit

! If the StepHubUnit is stiff or stuck, it can be taken off using a puller tool. To do this, the adapter pieces can be screwed into the StepHubUnit!

[12] Remove O-ring from axle stub or from StepHubUnit and dispose of it

[13] Clean the axle stub, check the thread and, if necessary, rework with the thread chaser

! The use of chemical cleaners is allowed. For stubborn residues, the use of an abrasive pad is permitted if the locations can be cleaned by hand!

[14] Slightly grease bearing seat (Molykote TP42)

! Do not grease the bearing surfaces and the threads!

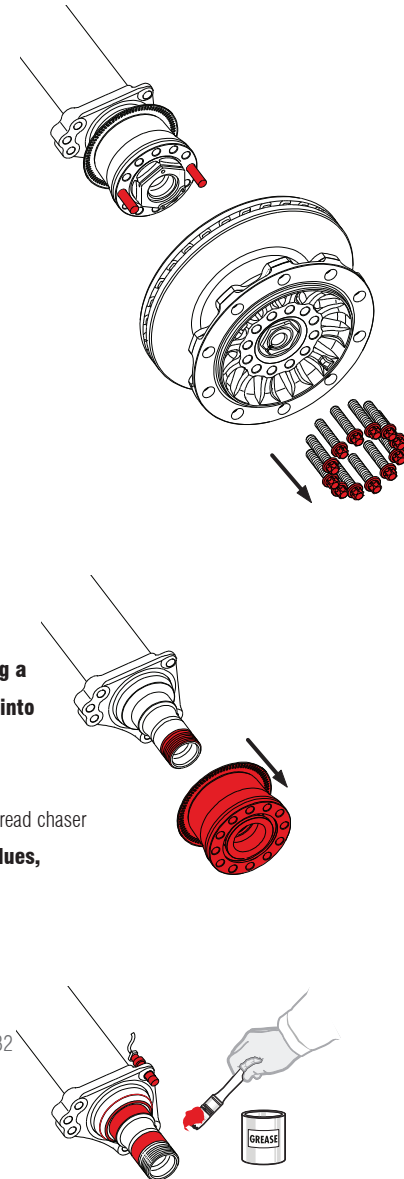
[15] Check ABS sensor ring; replace if unevenness is > 0.2 mm \rightarrow 2.3, pg. 82

[16] Rear inductive sensor ABS on the hub or on the brake disc:

» Push the inductive sensor ABS through until the front is visible

» Clean the front

(if the inductive sensors ABS are stiff or stuck, they must be removed - including the bush - re-greased and re-installed.)



- [17] Insert and slide new O-ring onto the StepHubUnit
! Make sure that the O-ring is properly seated!


- [18] Lightly grease the bearing surface of the spindle nut

! The threads must be free of grease!

- [19] Tighten the spindle nuts while turning the StepHubUnit
 (be mindful of the threads)

 WAF 95 M68x1.5 700 Nm \pm 25 Nm

- [20] Tighten safety bolt

 WAF 10 15 Nm

- [21] Rear inductive sensor ABS on the StepHubUnit:

Adjust the distance to the ABS sensor ring at 0.15 mm

- [22] Clean the surface areas of the brake calliper and brake carrier

- [23] Slide on flange with brake disc

- [24] Insert new Torx screws with the hand

- [25] Replace assembly bolts with Torx screws;

if necessary, attach the hub odometer bracket with 3 Torx screws and shifted by 120°!


! Mount the hub odometer on the bracket according to the manufacturer's specifications!

- [26] Evenly tighten the Torx screws in a criss-cross pattern

 E 24 470 Nm \pm 25 Nm

- [27] Position the brake calliper according to the rotational direction

- [28] Assemble the brake calliper according to the tightening sequence (1 = fitting screw)

 Pre-tightening E 22 25 Nm

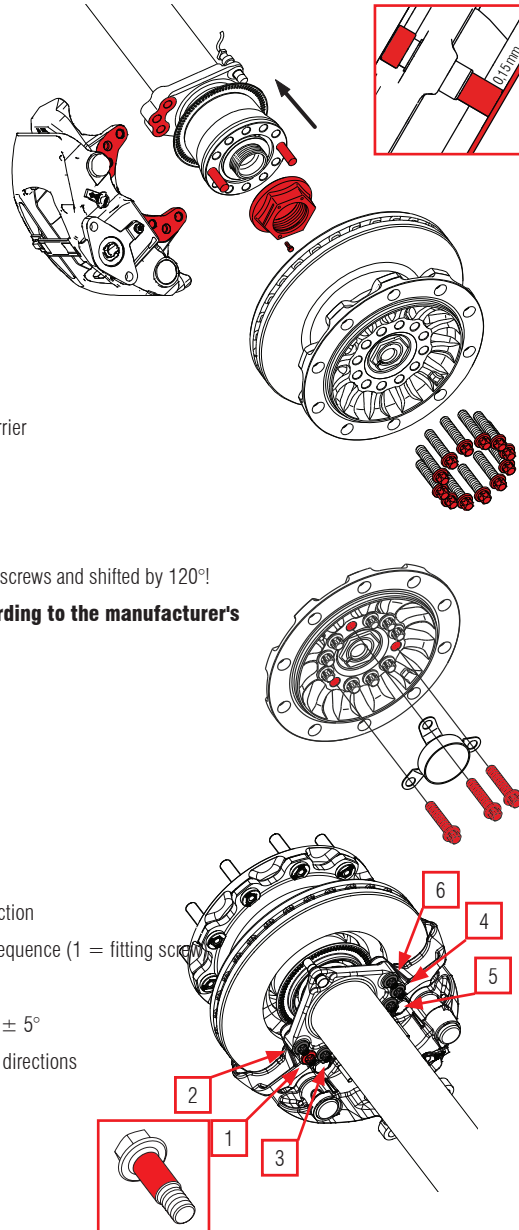
 Final tightening E 22 190 Nm \pm 5 Nm +60° \pm 5°

- [29] Assemble the brake pads according to the manufacturer's directions

- [30] Adjust the brake → 1.4, pg. 73

- [31] Assemble the wheel → 1.2, pg. 71

- [32] Check the brake



2.2.3 CONVENTIONAL DUAL-BEARING TECHNOLOGY H7 - 12T (DRUM IN FRONT OF THE HUB OR WASHER, WITH SCREWED HUB CAP)

! Be mindful of the spindle nut's left/right thread!

- [1] Disassemble the wheel → 1.2, pg. 71

- [2] Release the brake → 1.3, pg. 72

- [3] Take off, check and, if necessary, replace the brake drum → 3.1.1, pg.

- [4] Disassemble the hub cap → 2.1, pg. 74

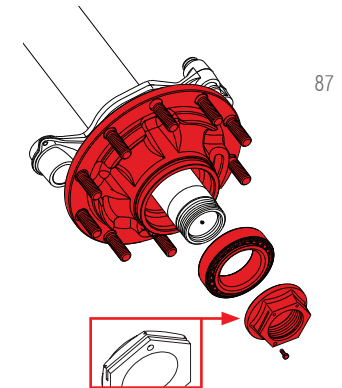
- [5] Detach the retainer bolt of the spindle nut

! WAF 13

- [6] Bend open the clamping on the spindle nut

! Do not damage the threads!

- [7] Detach, inspect and, if necessary, replace the spindle nut



! WAF 120

- [8] Take off the front tapered roller bearing

- [9] Remove hub from the axle stub

- [10] Check thread and, if necessary, rework with the thread chaser

- [11] Disassemble, inspect and, if necessary, replace the combined hub sealing ring with ABS sensor ring from the back of the hub

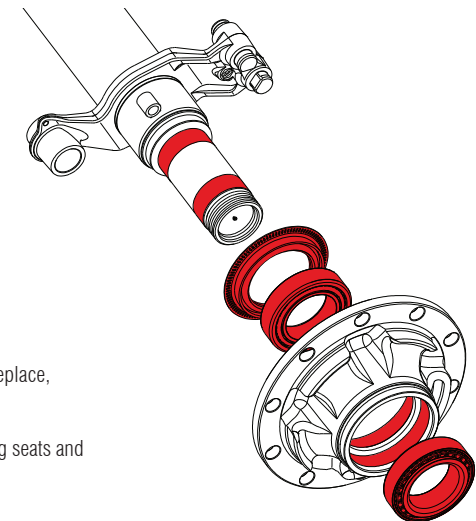
- [12] Disassemble rear tapered roller bearing

- [13] Clean the tapered roller bearing and bearing seats and check for wear or damage (tempering colours, significant run marks and noticeable imprints and breaks) and replace, if necessary

→ Replacement: Push out the bearing clamps, clean the bearing seats and evenly insert the new bearing clamps

- [14] Clean the axle stub

! The use of chemical cleaners is allowed. For stubborn residues, the use of an abrasive pad is permitted if the locations can be cleaned by hand!



- [15] Slightly grease bearing seat (Molykote TP42)
- [16] Rear inductive sensor ABS on the hub or on the brake disc:
- » Push the inductive sensor ABS through until the front is visible
 - » Clean the front (if the inductive sensors ABS are stiff or stuck, they must be removed - including the bush - re-greased and re-installed.)

[17] Grease the tapered roller bearing until the empty spaces between the rollers are filled

[18] Grease the bearing clamps

[19] Insert the rear greased tapered roller bearing into the hub

[20] Insert the hub sealing ring (filled with 75% grease) with ABS sensor ring into the hub without tilting

[21] Check ABS sensor ring;
replace if unevenness is $> 0.2 \text{ mm}$ → 2.3, pg. 82

[22] Push the hub unit until stop

[23] Use grease to fill the empty space between the hub and axle stub to the seat of the front tapered roller bearing

[24] Grease and insert the front tapered roller bearing

[25] Install spindle nut and pre-tighten while turning the wheel hub to set the bearing

 WAF 120 200 Nm

! The threads must be free of grease!

[26] Detach the spindle nut

[27] Tighten the spindle nuts while turning the wheel hub

 WAF 120 120 Nm $\pm 10 \text{ Nm}$

[28] Tighten safety bolt

 WAF 13 22.5 Nm $\pm 2.5 \text{ Nm}$

[29] Rear inductive sensor ABS on the hub or on the brake disc:

Adjust the distance to the ABS sensor ring at 0.15 mm

[30] Fill the hub cap with grease

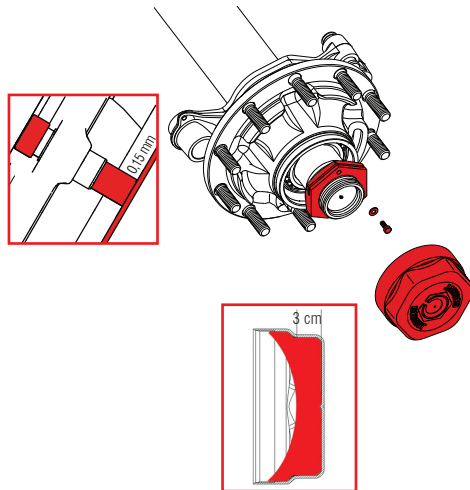
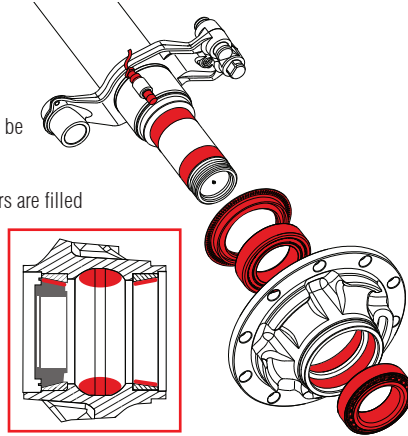
[31] Assemble the hub cap → 2.1.1, pg. 74

[32] Assemble the brake drum → 3.1.1, pg. 87

[33] Adjust the brake → 1.4, pg. 73

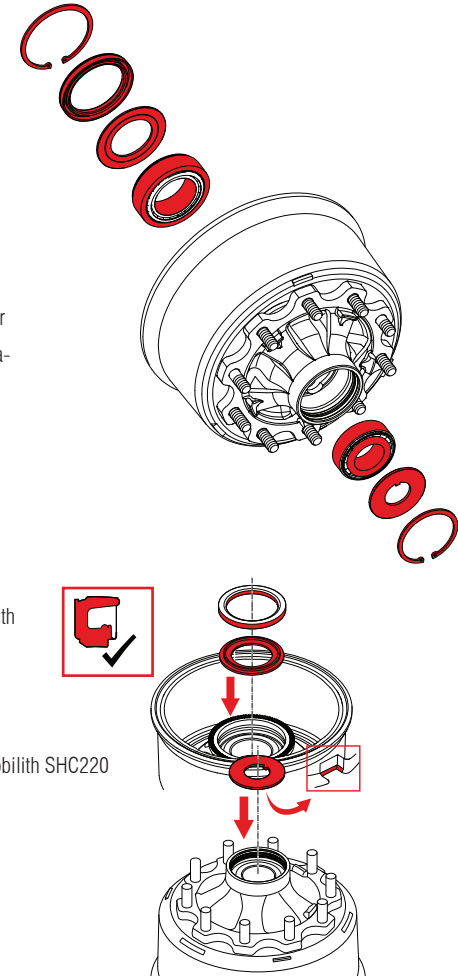
[34] Assemble the wheel → 1.2, pg. 71

[35] Check the brake



2.2.4 CONVENTIONAL DUAL-BEARING TECHNOLOGY GAH1 (DRUM BEHIND THE HUB, CLIPPED HUB CAP)

- [1] Disassembling the hub unit with brake drum → 3.2.2, pg. 100
- [2] Disassemble, clean, inspect and, if necessary, replace the circlip, wear plate, and front tapered roller bearing
- [3] Clean the front tapered roller bearing and bearing ring and check for wear or damage (tempering colours, significant run marks and noticeable imprints and breaks) and replace, if necessary → Replacement: Push out bearing ring, clean bearing seat and evenly insert in new bearing ring (do not incline)
- [4] Remove the circlip of the rear tapered roller bearing
- [5] Take off and dispose of the seal
- [6] Take off wear ring and rear tapered roller bearing
- [7] Clean the rear tapered roller bearing and bearing ring and check for wear or damage (tempering colours, a lot of run marks and noticeable imprints and breaks) and replace, if necessary
- [8] Lightly grease the front and rear bearing ring, fill the gaps with approx. 165 g Mobilith SHC220
- [9] Evenly grease and insert the rear tapered roller bearing with approx. 90 g Mobilith SHC220
- [10] Insert the thrust washer with the flat side facing the bearing
- [11] Evenly grease and insert the seal's inner and outer ring with Mobilith SHC220 and insert it
- [12] Insert the circlip of the rear tapered roller bearing
- [13] Grease front bearing seat
- [14] Evenly grease the front tapered roller bearing with approx. 65 g Mobilith SHC220 and insert it
- [15] Insert the thrust washer with the chamfer facing the bearing
- [16] Insert the front circlip
- [17] Assemble the hub unit with brake drum → 3.2.2, pg. 100

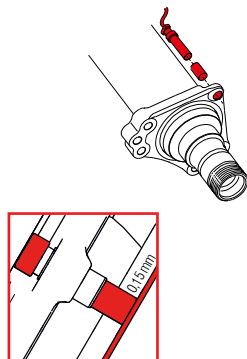


2.3 DISASSEMBLE/ASSEMBLE ABS

2.3.1 INDUCTIVE SENSOR ABS ON THE HUB/BRAKE DISC

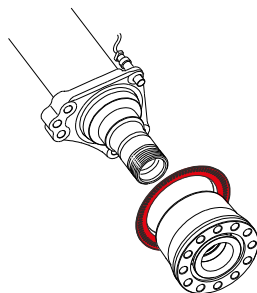
2.3.1.1 DISASSEMBLE/ASSEMBLE THE INDUCTIVE SENSOR ABS

- [1] Remove the inductive sensor ABS and bush
 - [2] Grease the new bush and press in until stop
 - [3] Push through the inductive sensor ABS until the front is visible
 - [4] Adjust the distance to the ABS sensor ring at 0.15 mm
- ! While doing so, do not deform the ABS sensor ring!**
- [5] Clean the front
(if the inductive sensors ABS are stiff or stuck, they must be removed - including the bush - re-greased and re-installed.) Clean the hole for the ABS sensor bracket
 - [6] Check ABS functionality



2.3.1.2 DISASSEMBLE/ASSEMBLE THE ABS SENSOR RING

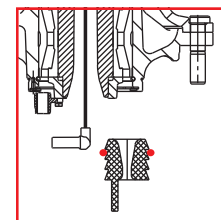
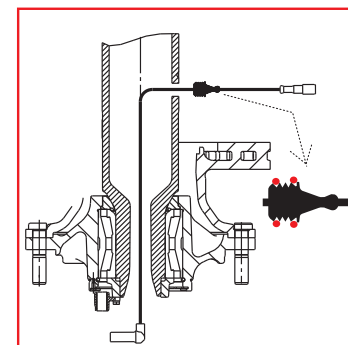
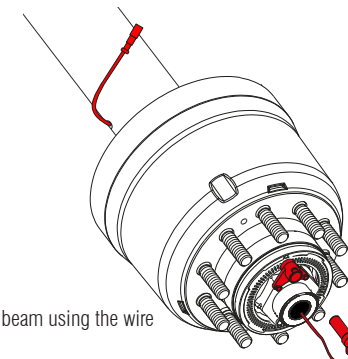
- [1] Disassemble the wheel → 1.2, pg. 71
 - [2] Release the brake → 1.3, pg. 72
 - [3] Disassemble the hub cap → 2.1, pg. 74
 - [4] Disassemble the hub unit → 2.2, pg. 75
 - [5] Disassemble the ABS sensor ring from the hub unit
 - [6] Install (new) ABS sensor ring on the hub unit and evenly press until the stop
(using the washer with a diameter of 220 mm and thickness of 15 mm)
 - [7] Assemble the hub unit → 2.2, pg. 75
 - [8] Adjust the distance to the ABS sensor ring at 0.15 mm
- ! While doing so, do not deform the ABS sensor ring!**
- [9] Check ABS functionality and inspect the inductive sensor ABS, if necessary
 - [10] Assemble the hub cap → 2.1, pg. 74
 - [11] Adjust the brake → 1.4, pg. 73
 - [12] Assemble the wheel → 1.2, pg. 71
 - [13] Check the brake



2.3.2 INDUCTIVE SENSOR ABS BEHIND THE HUB CAP

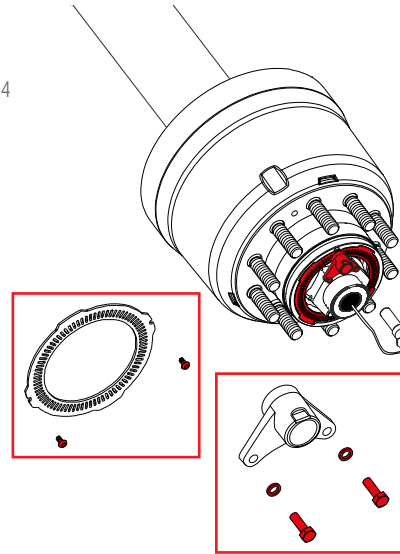
2.3.2.1 DISASSEMBLING/ASSEMBLING THE INDUCTIVE SENSOR ABS

- [1] Disassemble the hub cap → 2.1.2, pg. 74
 - [2] Remove the inductive sensor ABS and bush
 - [3] Check the inductive sensor ABS and replace, if necessary
 - » Axles with brake drum
 1. Disassemble the wheel → 1.2, pg. 71
 2. Release the brake → 1.3, pg. 72
 3. Disassemble brake drum, and disassemble the dust cover, if necessary → 3.1.1, pg. 87
 - » Brake disc axles
 1. Disassemble the wheel → 1.2, pg. 71
 - [4] Disconnect inductivesensor ABS from sensor cable
 - [5] Take off rubber profiles from the axle tube
 - [6] Take off the ABS cable with rubber grommet from the hole in the axle tube.
 - [7] Clean all ducts and make sure that they are free of grease
 - [8] Run a wire forward through the hole in the axle beam to the axle stub
 - [9] Fasten new inductive sensor ABS cable to wire
 - [10] Thread the inductive sensor ABS cable from the axle stub to the hole in the axle beam using the wire
 - [11] Coat the rubber sealing rings with sealant (Teroson MS 9120) and insert them
 - [12] Clean the hole for the ABS sensor bracket
 - [13] Grease the new bush and press in until stop
 - [14] Grease and push through the inductive sensor ABS until the front is visible
 - [15] Clean the front (if the inductive sensors ABS are stiff or stuck, they must be removed - including the bush - re-greased and re-installed.)
 - [16] Adjust the distance to the ABS sensor ring at 0.15 mm
- ! While doing so, do not deform the ABS sensor ring!**
- » Axles with brake drum
 1. Assemble brake drum and, if necessary, assemble dust cover → 3.1.1, pg. 87
 2. Adjust brake → 1.4, pg. 73
 3. Assemble wheel → 1.2, pg. 71
 - » Assemble brake disc axles
 - Assemble wheel → 1.2, pg. 71
- [17] Check the brake



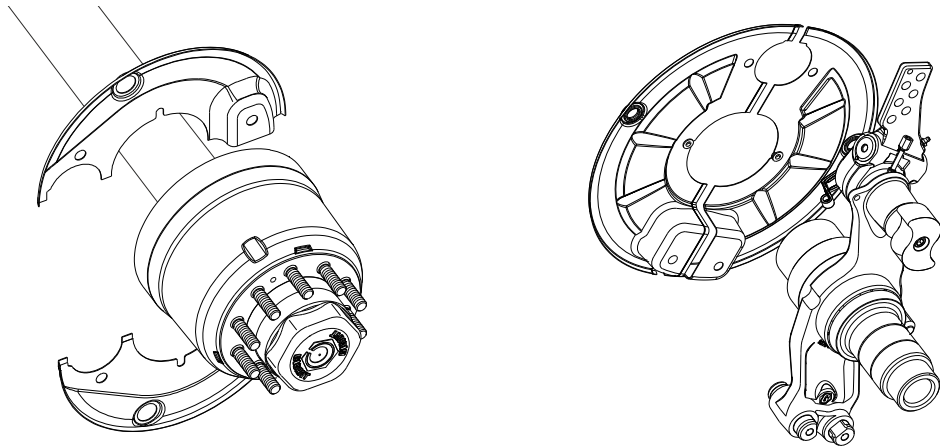
2.3.2.2 DISASSEMBLING/ASSEMBLING ABS SENSOR RING

- [1] Disassemble the hub cap → 2.1.2, pg. 74
- [2] Remove the inductive sensor ABS and bush
- [3] Check the inductive sensor ABS and replace, if necessary → 2.1.2, pg. 74
- [4] Check ABS sensor ring on the hub unit and if unevenness is > 0.2 mm, replace → if OK, then continue with [10]
- [5] Removing the ABS sensor bracket
 - ⌘ WAF 10
- [6] Detach the screws on the ABS sensor ring and disassemble by turning
 - ⌘ S 3
- [7] Clean the ABS sensor bracket and ABS sensor ring contact areas
- [8] Install new ABS sensor ring by turning and screw tight
 - ⌘ S 3 5 Nm
- [9] Assemble ABS sensor bracket
 - ⌘ WAF 10 15 Nm
- [10] Install the inductive sensor ABS → 2.1.2, pg. 74



2.4 DISASSEMBLING/ASSEMBLING THE DUST COVER(S)

gigant differentiates between two types of dust covers:



A screwed version with locknut/screw and washer

Screwed version through brake carrier (GEOKH2)

2.4.1 DISASSEMBLING/ASSEMBLING THE DUST COVER(S)

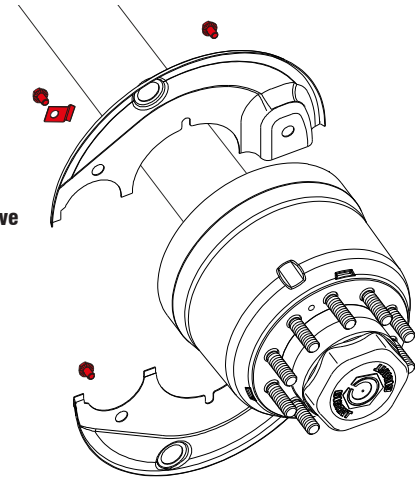
! Dust covers can be in one or two pieces!

- [1] Disassemble, inspect and, if necessary, replace the dust cover(s) and, if necessary, the bracket
 - ⌘ WAF 10
 - ⌘ WAF 13
 - ⌘ WAF 17

! On some axle types, the clamp for the cable of the inductive sensor ABS cable is fastened using the fastening screw!

- [2] Assemble dust cover(s) and, if necessary, the bracket
(For axle type GEOKH2 10010 4218, the microencapsulated fastening screws must be replaced; use Loctite 2701, if necessary)
 - ⌘ WAF10 10 Nm
 - ⌘ WAF13 22.5 Nm ± 2.5 Nm
 - ⌘ WAF17 22.5 Nm ± 2.5 Nm
- [3] Ensure that the dust cover is properly seated

! The dust cover must sit in the brake drum but cannot touch it!
This could lead to noise formation and dust cover damage!



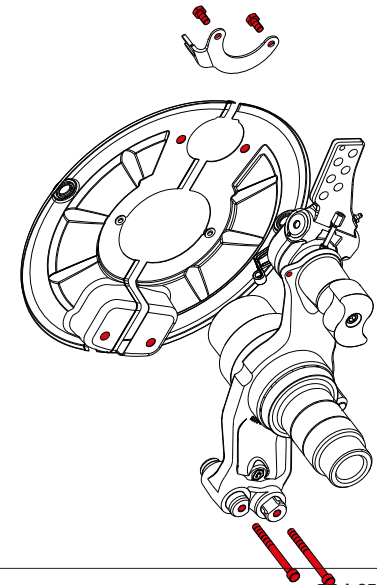
2.4.2 DISASSEMBLE/ASSEMBLE THE DUST COVERS WITH SCREW THROUGH THE BRAKE CARRIER

- [1] Disassemble the brake drum → 3.1.1, pg. 87
- [2] Disassemble, inspect and, if necessary, replace the dust covers and bracket
 - ⌘ S 8
 - ⌘ WAF 13
- [3] Install the dust covers and bracket

! Replace the microencapsulated fastening screws of the bracket and use Loctite 2701 where applicable!

- ⌘ S 8 45 Nm ± 5 Nm
- ⌘ WAF 13 22.5 Nm ± 5 Nm
- [4] Assemble the brake drum → 3.1.1, pg. 87
- [5] Check that the dust cover is correctly fitted

! The dust cover must sit in the brake drum but cannot touch it!
This could lead to noise formation and dust cover damage!



3. DRUM-BRAKED AXLES

gigant differentiates between two varying axle types

- » K2 and GH7 Drum in front of the hub
- » GAH1 Drum behind the hub

3.1 AXLE TYPES K2, K3 AND GH7 12T

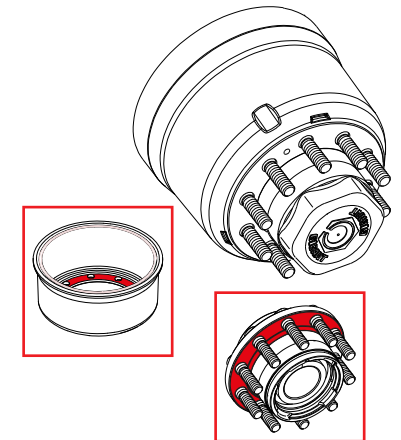
3.1.1 DISASSEMBLING/ASSEMBLING THE BRAKE DRUM

! In case the braking system does not work due to overheating of the brakes, check the bearings and replace, if necessary! → 2.2, pg. 75

- [1] Disassemble the wheel → 1.2, pg. 71
- [2] Release the brake → 1.3, pg. 72
- [3] Disassemble, inspect and, if necessary, replace the brake drum

! If the brake drum is stuck: Insert two SK screws through the threaded holes and press the brake drum from the hub!

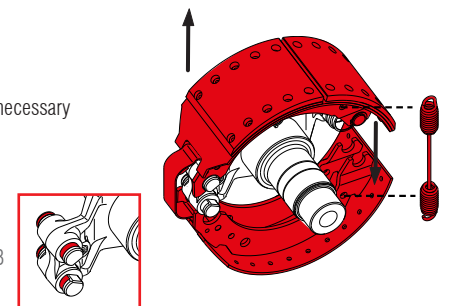
- [4] Clean the brake drum and hub contact surface
- [5] If necessary, take off the brake drum and slide on until stop
- [6] Assemble the wheel → 1.2, pg. 71
- [7] Adjust the brake → 1.4, pg. 73
- [8] Check the brake



3.1.2 DISASSEMBLING/ASSEMBLING THE COMPLETE BRAKE SHOE

! In case the braking system does not work due to overheating of the brakes, check the bearings and replace, if necessary! → 2.2, pg. 75

- [1] Disassemble the brake drum → 3.1.1, pg. 87
- [2] Disassemble the fixed point spring
- [3] Remove the complete brake shoe via the brake cam and mark, if necessary
- [4] Remove the release spring and dispose of it
- [5] Clean, inspect and, if necessary, replace the anchor pin bushes and coat with copper paste
- [6] Check the brake linings and replace, if necessary → 3.1.3, pg. 88
- [7] Check the cam roller and replace, if necessary → 3.1.4, pg. 89



- [8] Attach new release springs
- [9] Place the complete brake shoe over the brake cam
 - ! **Pay attention to the marking, if necessary!**
 - ! **Ensure proper fit and correct with a plastic hammer, if necessary!**
- [10] Assemble the fixed point spring using a plastic hammer
 - ! **For the best wear pattern, overtighten the brake pads!**
- [11] Assemble the brake drum → 3.1.1, pg. 87

3.1.3 DISASSEMBLING/ASSEMBLING THE BRAKE PADS

! In case the braking system does not work due to overheating of the brakes, check the bearings and replace, if necessary! → 2.2, pg. 75

- [1] Disassemble the brake drum → 3.1.1, pg. 87
- [2] Disassemble and mark the complete brake shoe → 3.1.2, pg. 87
- [3] Take off the rivets on the brake linings
- [4] Clean the brake shoes

! Take off rust and unevenness from the contact surface and, if necessary, thinly and evenly spray corrosion protection (zinc spray)!

! Use the brake pads with the appropriate oversize on skimmed brake drums!

- [5] Rivet the brake pad according to the prescribed sequence

I Riveting force = 20.5 kN ± 2.5 kN

- [6] Monitor the riveting process

! Crack formation is not allowed!

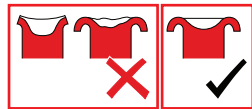
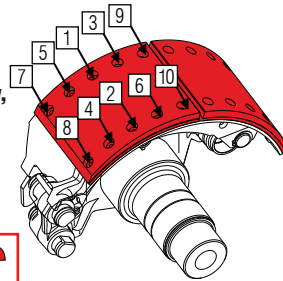
! Use the feeler gauge to measure the gap between the pad and the brake pad (≥ 0.15 mm is not allowed)!

! Sound test:

If a light sound is produced when gently hit by a hammer, then the riveting is OK!

If the sound is muffled, then the riveting is loose!

- [7] Check the cam roller and replace, if necessary → 3.1.4, pg. 89
- [8] Attach new release springs
- [9] Assemble the complete brake shoe → 3.1.2, pg. 87
- [10] Assemble the brake drum → 3.1.1, pg. 87



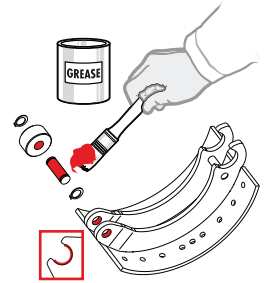
3.1.4 DISASSEMBLING/ASSEMBLING THE CAM ROLLER

! In case the braking system does not work due to overheating of the brakes, check the bearings and replace, if necessary! → 2.2, pg. 75

- [1] Disassemble the brake drum → 3.1.1, pg. 87
- [2] Disassemble the complete brake shoe → 3.1.2, pg. 87
- [3] Remove and dispose of the circlips

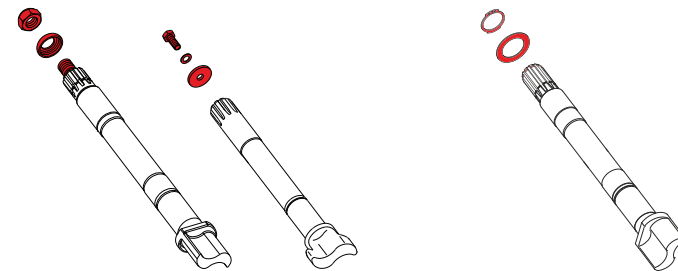
! Brake shoes can have different openings: closed or opened by ¼!

- [4] Take off bolt, take off and dispose of the cam roller
- [5] Clean the brake pad carrier's pin seat and cover with copper paste
- [6] Coat bolt and bolt guide with copper paste and assemble
- [7] Assemble new circlips
- [8] Take off excess copper paste and check functionality
- [9] Assemble the complete brake shoe → 3.1.2, pg. 87
- [10] Assemble the brake drum → 3.1.1, pg. 87



3.1.5 DISASSEMBLE/ASSEMBLE THE AUTOMATIC SLACK ADJUSTER

gigant differentiates between two types of automatic slack adjuster fastenings:



A screwed version with locknut/screw and washer version with circlip and washer

3.1.5.1 DISASSEMBLE/ASSEMBLE AUTOMATIC SLACK ADJUSTER(SCREWED VERSION WITH LOCKNUT/SCREW AND WASHER)

- [1] If necessary, disassemble the wheel for axle types N, Z or P → 1.2, pg. 71
- [2] Release the brake → 1.3, pg. 72
- [3] Unhook the return spring
- [4] Mark bolt hole
- [5] Remove split pin and bolt
- [6] Disassemble, inspect and, if necessary, replace the automatic slack adjuster fastening

⌘ Screw: WAF 17
 ⌘ Nut: WAF 32

- [7] Disassemble, inspect and, if necessary, replace the automatic slack adjuster
- [8] Check the brake camshaft splines and replace the brake camshaft, if necessary → 3.1.6, pg. 92
- [9] Coat the brake camshaft splines with copper paste
- [10] Check the bracket and replace, if necessary → 3.1.8, pg. 96
- [11] Slide on the automatic slack adjuster until it hits the stop (be mindful of the working direction), tighten

🔧 Screw: WAF 17 43 Nm ± 3 Nm
 🔧 Nut: WAF 32 65 Nm ± 5 Nm

! **Ensure that the bracket is properly seated**

- [12] Grease the automatic slack adjuster, bearing points and bolts

! **LB = Long Brake camshaft**

» Grease should emerge from the protective sleeves!

! **SB = Short Brake camshaft**

» Grease should emerge between the brake carrier and automatic slack adjuster!

! **Check for grease leaks on the brake camshaft head on the brake side.**

In case of grease leaks, check seals and bushes and replace, if necessary!

- [13] Adjust the automatic slack adjuster until a connection can be made between the cable lug and lever arm

! **Be mindful of the marking on the automatic slack adjuster!**

! **Pay attention to the brake power calculation!**

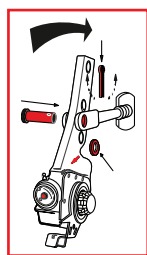
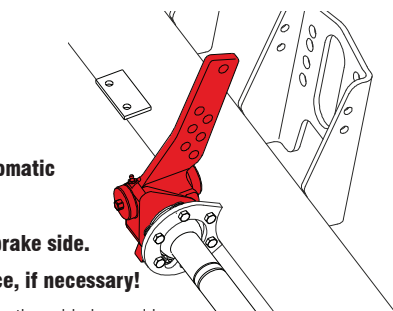
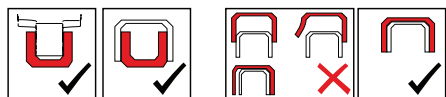
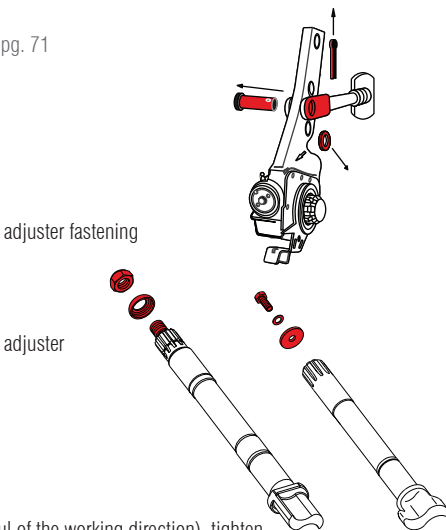
⌘ Ring spanner WAF 17

- [14] Grease bolt, insert, and secure with a split pin

- [15] Adjust the brake → 1.4, pg. 73

- [16] Assemble the wheel → 1.2, pg. 71

- [17] Check the brake



3.1.5.2 DISASSEMBLE/ASSEMBLE AUTOMATIC SLACK ADJUSTER (VERSION WITH CIRCLIP AND WASHER)

- [1] If necessary, disassemble the wheel for axle types N, Z or P → 1.2, pg. 71
- [2] Release the brake → 1.3, pg. 72
- [3] Unhook the return spring
- [4] Mark bolt hole
- [5] Remove split pin and bolt
- [6] Disassemble, inspect and, if necessary, replace the automatic slack adjuster fastening
- [7] Disassemble, inspect and, if necessary, replace the automatic slack adjuster
- [8] Check the brake camshaft splines and replace the brake camshaft, if necessary → 3.1.6, pg. 92

- [9] Coat the brake camshaft splines with copper paste

- [10] Check the bracket and replace, if necessary → 3.1.8, pg. 96

- [11] Slide on the automatic slack adjuster until the stop (be mindful of the working direction), and ensure that the bracket is properly seated

- [12] Slide on the washer and secure with the circlip

! **Ensure that the circlip is properly seated in the groove of the splines!**

- [13] Check lateral clearance » 0.5 - 2 mm permissible

- [14] Grease the automatic slack adjuster, bearing points and bolts

! **LB = Long Brake camshaft**

» Grease should emerge from the protective sleeves!

! **SB = Short Brake camshaft**

» Grease should emerge between the brake carrier and automatic slack adjuster!

! **Check for grease leaks on the brake camshaft head on the brake side. In case of grease leaks, check seals and bushes and replace, if necessary!**

- [15] Adjust the automatic slack adjuster until a connection can be made between the cable lug and lever arm

! **Be mindful of the marking on the automatic slack adjuster!**

! **Pay attention to the brake power calculation!**

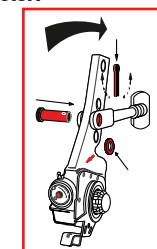
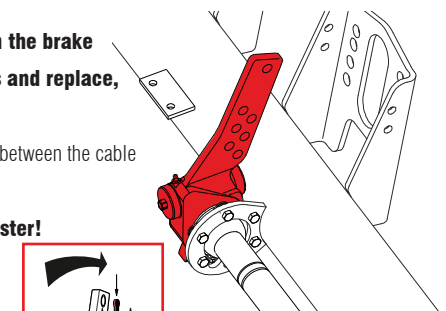
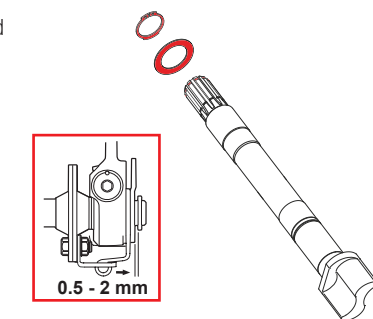
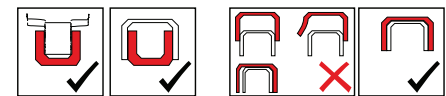
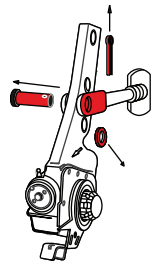
⌘ Ring spanner WAF 17

- [16] Grease bolt, insert, and secure with a split pin

- [17] Adjust the brake → 1.4, pg. 73

- [18] Assemble the wheel → 1.2, pg. 71

- [19] Check the brake



3.1.6 DISASSEMBLING/ASSEMBLING THE BRAKE CAMSHAFT

The standard brake camshaft is installed in long and short versions.

- » **LB = Long Brake camshaft» rigid axles**
- » **SB = Short Brake camshaft» self-steering, forced-steering, and walking beam axles**

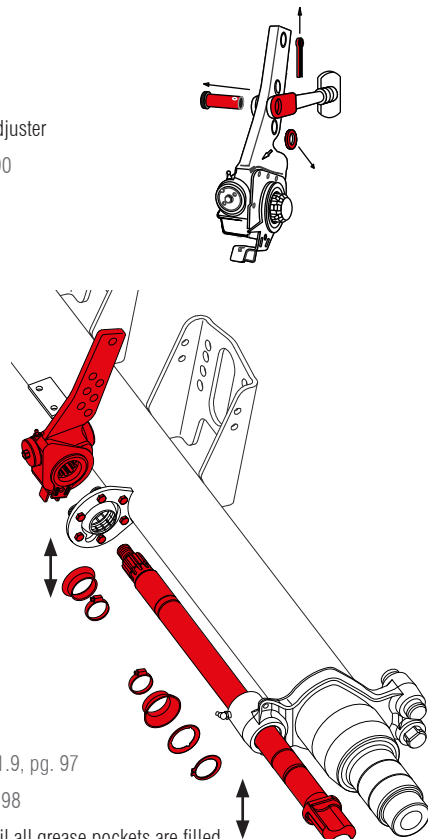
- [1] Disassemble the wheel → 1.2, pg. 71
- [2] Disassemble the brake drum → 3.1.1, pg. 87
- [3] Disassemble the complete brake shoe → 3.1.2, pg. 87
- [4] Disassemble the hub unit → 2.1, pg. 74
- [5] Unhook the return spring
- [6] Mark bolt hole
- [7] Remove split pin and bolt
- [8] Check the brake camshaft clearance on the brake carrier and on the automatic slack adjuster (LB) → 3.1.7, pg. 95
- [9] Disassemble, inspect and, if necessary, replace the automatic slack adjuster
 - » Screwed version with locknut/screw and washer → 3.1.5.1, pg. 90
 - » Version with circlip and washer → 3.1.5.2, pg. 91
- [10] LB: Slightly loosen the fitting on the spherical camshaft bearing
 - I WAF 13
 - I WAF 19

- [11] LB →
 - » If necessary, remove the circlip from the brake camshaft splines, and remove the cable ties, protective sleeve, and circlip
 - » Remove the brake camshaft and the components

- [12] SB →
 - » Remove the brake camshaft and the components
- [13] Clean and inspect the brake carrier's brake camshaft, bracket, spherical camshaft bearing (LB), and bush and replace if there is > 0.8 mm bearing clearance

- » Disassembling/assembling the bracket → 3.1.8, pg. 96
- » Disassembling/assembling the spherical camshaft bearing → 3.1.9, pg. 97
- » Disassembling/assembling the brake carrier bush → 3.1.10, pg. 98

- [14] Grease the brake carrier and spherical camshaft bearing (LB) bush until all grease pockets are filled



- [15] Prepare brake camshaft

→ **Brake 3010, 3020**

Slide on plastic ring and greased O-ring

→ **Brake 3015, 3515**

Slide on washer (outer diameter = 58 mm) and greased O-ring

→ **Brake 3620, 4218, 4220**

Slide on circlip and insert in the groove

Slide on washer (outer diameter = 55 mm), plastic bushing, and greased O-ring

- [16] Insert the brake camshaft

→ **SB:** insert completely

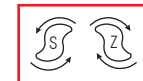
→ **LB:** insert halfway

! Pay attention to the camshaft's working direction with respect to the travel and rotation direction!

! S = left travel direction

Z = right travel direction

! If the working direction of the brake cylinder runs against the travel direction in SS and FS axles, this information may be reversed!



- [17] Slide on the components

→ **LB, Brake 3010, 3020, 3620, 4218, 4220**

Slide on conical sealing ring, circlip, and two protective sleeves

→ **LB, Brake 3015, 3515**

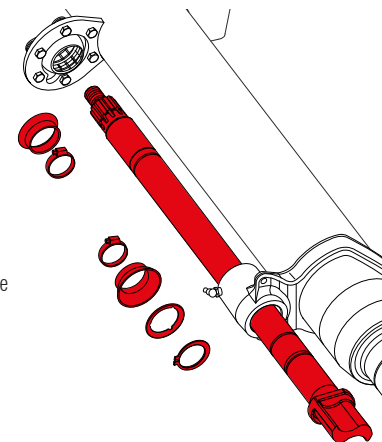
Slide on washer (outer diameter = 58 mm), circlip, and two protective sleeves

→ **SB, Brake 3015, 3515**

Slide on spacer and washer (outer diameter = 58 mm, only use when the clearance on the automatic slack adjuster > 2 mm)

→ **SB, Brake 3020, 3620, 4218, 4220**

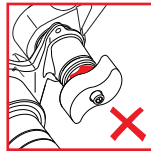
Slide on washer



[18] **LB** →

- » Slide the brake camshaft through the spherical camshaft bearing until the stop
- » Slide on conical sealing ring or washer until the stop and place circlip in the groove
- » Install circlip (brake 3010, 3020, 3620, 4218, 4220)
- » Tighten the fastening screws of the spherical camshaft at the torque
- 🔧 WAF 13 22.5 Nm ± 5 Nm
- 🔧 WAF 19 80 Nm ± 5 Nm
- » Check the brake camshaft's freedom of movement
- » Slide on protective sleeves until the stop and secure with cable ties
- » Grease the bush of the brake carrier and the spherical camshaft bearing until grease emerges from the protective sleeves

! Grease leakage on the bush on the brake carrier is not permitted » disassemble and re-assemble!

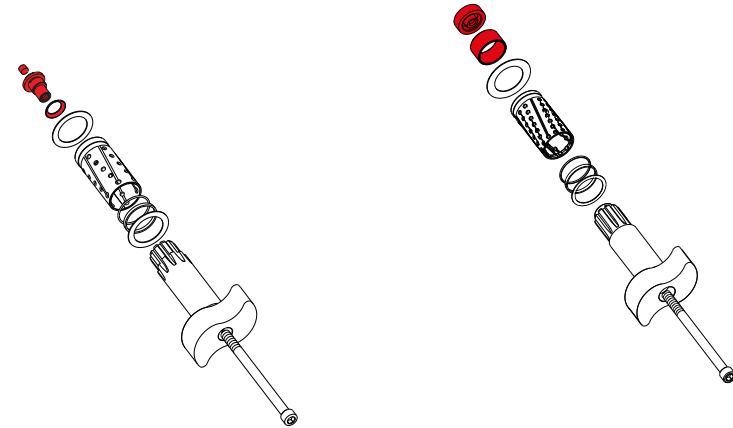


[19] Assemble the automatic slack adjuster

- » Screwed version with locknut/screw and washer → 3.1.5.1, pg. 90
- » Version with circlip and washer → 3.1.5.2, pg. 91

3.1.7 DISASSEMBLING/ASSEMBLING THE AUTOMATIC SLACK ADJUSTER AND BRAKE CAMSHAFT (GEOKH2 09010 4218)

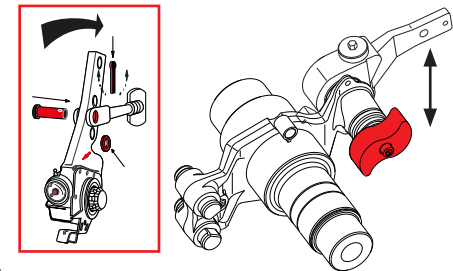
! If this axle stub is installed on inloaders and the automatic slack adjuster is controlled via the brake linkage, follow the vehicle manufacturer's instructions!



Kit 1: Brake camshaft kit with eccentric nut replaced by Kit 2

Kit 2: Brake camshaft kit with eccentric nut and spacer sleeve replaces Kit 1

- [1] Disassemble the complete brake shoe → 3.1.2, pg. 87
- [2] Disassemble the hub unit → 3.2.2, pg. 100
- [3] Unhook the return spring
- [4] Mark bolt hole
- [5] Remove split pin and bolt
- [6] Completely loosen the cylinder bolt
- ⓘ S 10



- [7] Disassemble, inspect and, if necessary, replace the brake camshaft

! Secure the automatic slack adjuster and other components against falling down!

! If the brake camshaft cannot be removed

→ screw in the cylinder screw by three rotations and detach the eccentric nut with hammer blows!

! Kit 1 must be replaced by Kit 2!

- [8] Clean and inspect the bush and replace if bearing clearance is > 0.8 mm → 3.1.10, pg. 98

! The maximum wear limit has been reached if the grease leaks on the brake side or if the

! lubrication groove's base groove depth has been reached!

- [9] Push the disc (outer diameter = 51 mm), plastic bushing, and O-ring seal onto the brake camshaft

- [10] Grease the brake camshaft and bush

[11] Stick the washer (outer diameter = 65 mm) with some grease to the bearing seat on the rear

[12] Insert the brake camshaft until the spline is visible

[13] Slide on the spacer sleeve (outer diameter = 42 mm, length = 23 mm)

[14] Slide on the automatic slack adjuster (be mindful of the working direction) and ensure that the bracket is properly seated

[15] Push through the brake camshaft until the plastic bushing and O-ring seal are in front of the brake carrier

[16] Slide in the brake camshaft swivelling with pressure until it hits the stop

! **The swivelling motion centres the plastic ring**

[17] Insert the eccentric nut into the automatic slack adjuster and slide in and tighten the cylinder screw

 S 10 65 Nm \pm 5 Nm

[18] Check lateral clearance » 0.5 - 2 mm permissible

[19] Grease the brake camshaft and automatic slack adjuster until fresh grease emerges

! **Grease must emerge between the automatic slack adjuster and brake carrier!**

Grease leakage on the head of the brake camshaft

on the brake side is not permitted » disassemble and re-assemble!

[20] Adjust the automatic slack adjuster until a connection can be made between the cable lug and lever arm

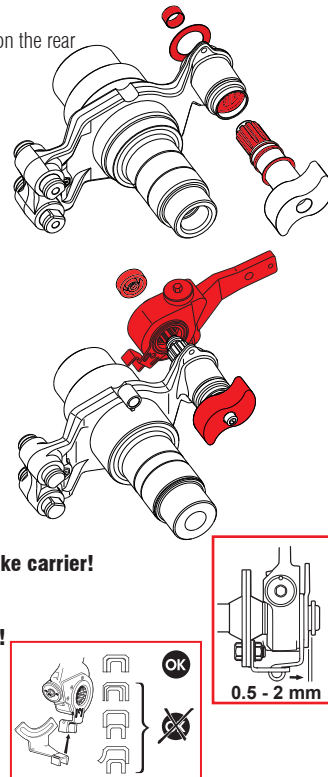
! **Be mindful of the marking on the automatic slack adjuster!**

! **For inloaders: Follow the manufacturer's instructions!**

[21] Insert bolt and secure with a split pin or screws

[22] Assemble the complete brake shoe → 3.1.2, pg. 87

! **In the "drum in front of the hub" system, the tyre must be installed or the brake drum must be secured with two wheel nuts!**



3.1.8 DISASSEMBLING/ASSEMBLING THE BRACKET

gigant differentiates between two mounting types of the bracket

» **Welded version on the axle beam**

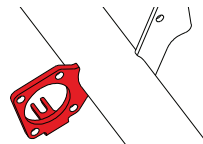
» **Screwed version on the retainer plate of the spherical camshaft bearing**

[1] **Welded version:** Clean and inspect bracket and align, if necessary

Screwed version: Disassemble the bracket

I WAF 13

I WAF 19



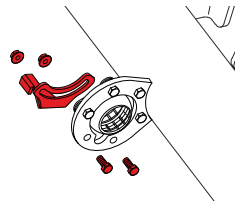
[2] Align the new bracket

[3] Assemble screws with new locknuts or, for the GEOKH2, with microencapsulated fastening screws (or screw with Loctite 2701)

! **Place the washers below the locknut if there are four fastening screws on the spherical camshaft bearing!**

 WAF 13 22.5 Nm \pm 5 Nm

 WAF 19 80 Nm \pm 5 Nm



3.1.9 DISASSEMBLING/ASSEMBLING THE SPHERICAL CAMSHAFT BEARING

[1] Disassemble the fitting

I WAF 13

I WAF 19

[2] Remove, clean, inspect fixed-point latch, half-shells, and spherical camshaft bearings and replace if the bearing clearance is > 0.8 mm

! **If the half-shells are installed from the inside, disassemble the brake camshaft! → 3.1.6, pg. 92**

[3] Check the grease nipple for clearance and replace, if necessary

[4] Grease O-rings

[5] Install half-shells

! **The spherical camshaft bearing must be movable in the half-shells!**

[6] Slide half-shells and spherical camshaft bearing into the brake camshaft with the grease nipple first

[7] Insert the screws towards the middle of the axle

[8] Install bracket with nose facing the middle of the axle

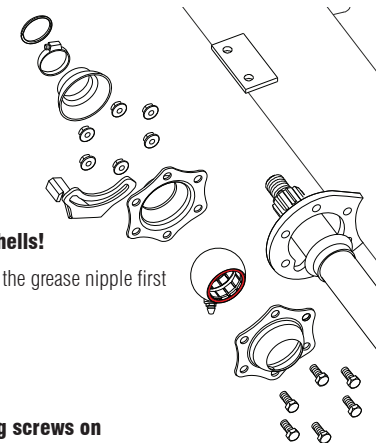
[9] Assemble screws with new locknuts

! **Place the washers below the locknut if there are four fastening screws on the spherical camshaft bearing!**

 WAF 13 22.5 Nm \pm 5 Nm

 WAF 19 80 Nm \pm 5 Nm

[10] Slide on protective sleeves



3.1.10 DISASSEMBLING/ASSEMBLING THE BRAKE CARRIER BUSH

! These bushes may only be removed/installed using the appropriate drifts/burr arbours!

! Align the circumferential lubricating groove to the grease nipple's through bore!

! After installing the bush, lubricate it and fill all the grease pockets with grease!

[1] Disassemble the brake camshaft → 3.1.6, pg. 92

[2] Clean the bush and brake carrier

[3] Push out the bush

→ **Brake3015, 3515 – all axle types**

bush: Inner diameter = 37 mm/outer diameter = 40 mm

→ **brake 3010, 3020, 3620, 4218, 4220 – rigid axles**

bush: Inner diameter = 42 mm/outer diameter = 46 mm

→ **brake 3020, 3620, 4218, 4220 – SS and FS axles**

bush: Inner diameter = 42 mm/outer diameter = 46 mm

→ **brake 4218 – GEOKH2 10010 4218/axle stub**

brake: Inner diameter = 42 mm / outer diameter = 46 mm

» Insert long mounting mandrel through the bush

» Insert and secure short disassembly pin from the rear

» Screw on the striker and push out the bush towards the front

[4] Check the grease supply and replace grease nipple, if necessary

[5] Clean the bearing seat

[6] Lightly grease the new bush on the outside and, with the circumferential lubrication groove on the front, insert towards the grease nipple

→ **Brake 3015, 3515 – all axle types**

Distance in bearing seat towards the grease nipple: 4 mm

→ **Brake 3010, 3020, 3620, 4218, 4220 – Rigid axles**

Bush fits flush

→ **Brake 3020, 3620, 4218, 4220 – SS and FS axles**

» Short bush: Fits flush

» Long bush: Distance in the bearing seat towards axle stub: 7 mm

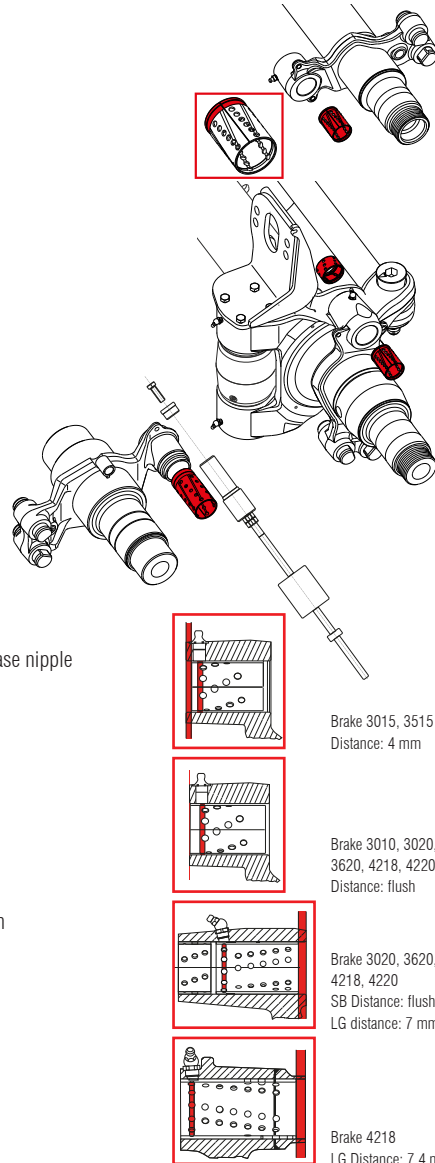
→ **Brake 4218 – GEOKH2 10010 4218/axle stub**

Distance in bearing seat towards axle stub: 7.4 mm

[7] Insert brake camshaft and test ease of movement

[8] Re-check grease supply

[9] Assemble brake camshaft → 3.1.6, pg. 92



3.2 AXLE TYPE GAH1

3.2.1 DISASSEMBLE/ASSEMBLE THE AUTOMATIC SLACK ADJUSTER

[1] Release the brake → 1.3, pg. 72

[2] Unhook the return spring

[3] Mark bolt hole

[4] Remove split pin and bolt

[5] Disassemble, inspect and, if necessary, replace the circlip and washer

[6] Disassemble, inspect and, if necessary, replace the automatic slack adjuster and two washers

[7] Clean, inspect and, if necessary, replace the brake camshaft spline → 3.1.6, pg. 92

[8] Grease brake camshaft spline

[9] Check the bracket and replace, if necessary → 3.1.8, pg. 96

[10] Slide on two washers

[11] Slide on the automatic slack adjuster until the stop (be mindful of the working direction), and ensure that the bracket is properly seated

[12] Slide on a washer and circlip

[13] Check lateral clearance » 0.5 - 2 mm permissible

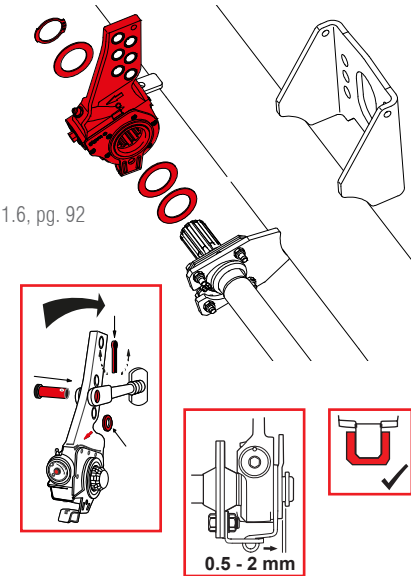
[14] Grease the automatic slack adjuster until fresh grease emerges

[15] Adjust the automatic slack adjuster until a connection can be made between the cable lug and lever arm

! Be mindful of the marking on the automatic slack adjuster!

[16] Insert bolt and secure with a split pin

[17] Adjust the brake → 1.4, pg. 73



[18] Check the brake

3.2.2 DISASSEMBLING/ASSEMBLING HUB UNIT WITH BRAKE DRUM

- [1] Disassemble the wheel → 1.2, pg. 71
- [2] Release the brake → 1.3, pg. 72
- [3] Disassemble the hub cap → 2.1.2, pg. 74
- [4] Lever off, disassemble, and dispose of the safety collar on the spindle nut

 WAF 75

- [5] Take off hub unit incl. bearings and brake drum
- [6] Clean axle stub, check the thread and, if necessary, rework with the thread chaser

! The use of chemical cleaners is allowed.

For stubborn residues, the use of an abrasive pad is allowed if the locations can be cleaned with the hand.

- [7] Slightly grease bearing seat (Optimol white paste)

! Do not grease the bearing surfaces and the threads!

- [8] Check the ABS sensor ring and replace, if necessary → 3.2.4.2, pg. 105
- [9] Grease inductive sensor ABS and press until the front is just visible

! If the inductive sensors ABS are stiff or stuck, they must be removed - including the bush- re-greased and reinstalled!

- [10] Clean the front of the inductive sensor ABS

- [11] Push the hub unit until stop

! Place the hub unit's wear plate with nose into the axle stub's groove!

- [12] Tighten the new spindle nuts while turning the wheel hub

 WAF 75 630 ± 30 Nm

- [13] Using an awl and hammer, drive the spindle nut safety collar into the groove of the axle stub

- [14] Adjust the distance to the ABS sensor ring at 0.15 mm

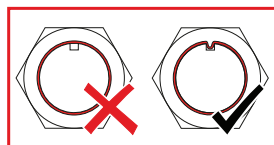
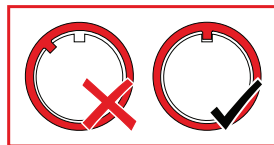
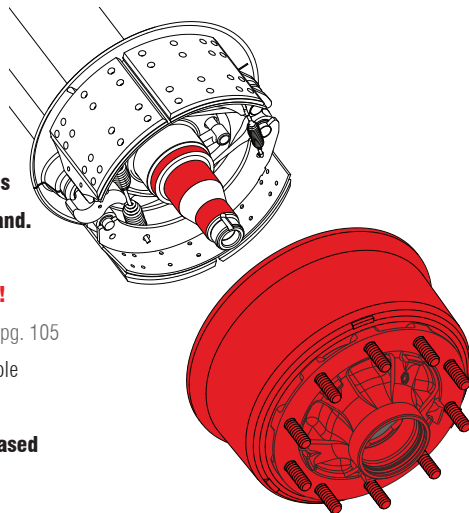
! While doing so, do not deform the ABS sensor ring!

- [15] Assemble the hub cap → 2.1.2, pg. 74

- [16] Adjust the brake → 1.4, pg. 73

- [17] Assemble the wheel → 1.2, pg. 71

- [18] Check the brake



3.2.2.1 DISASSEMBLING/ASSEMBLING THE BRAKE DRUM

! In case the braking system does not work due to overheating of the brakes, check the bearings and replace, if necessary!

! The bearings must be protected from contamination!

- [1] Disassemble the hub unit → 3.2.2, pg. 100

! Cover open bearing areas on the hub unit!

- [2] Push out, inspect and, if necessary, replace wheel studs

! Do not damage the threads!

- [3] Take off and dispose of the brake drum

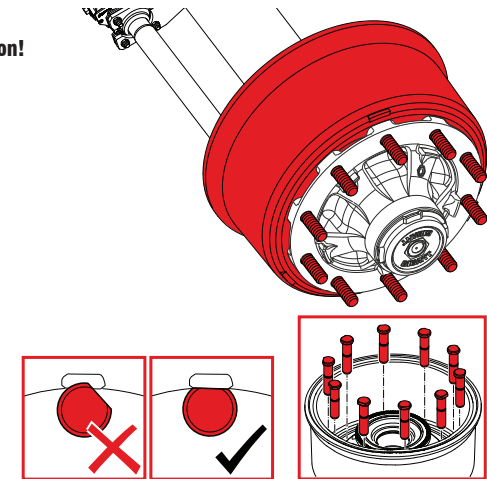
- [4] Clean the hub and brake drum contact surface

- [5] Slide on brake drum

- [6] Push in wheel stud

! Pay attention to the position of the anti-rotation protection!

- [7] Assemble the hub unit → 3.2.2, pg. 100



3.2.2.2 DISASSEMBLING/ASSEMBLING THE COMPLETE BRAKE SHOE

! In case the braking system does not work due to overheating of the brakes, check the bearings and replace, if necessary!

- [1] Disassemble the hub unit → 3.2.2, pg. 100

- [2] Disassemble and dispose of fixed-point spring

- [3] Remove, inspect and, if necessary, replace the complete brake shoe

! Mark the upper and lower brake shoe!

- [4] Remove the release spring and dispose of it

- [5] Push out, check and, if necessary, replace the fixed-point bearing → 3.2.2.3, pg. 102

- [6] Push out, check and, if necessary, replace the roller unit → 3.2.2.4, pg. 102

- [7] Attach new release springs

- [8] Place the upper brake shoe on the brake camshaft and the fixed point

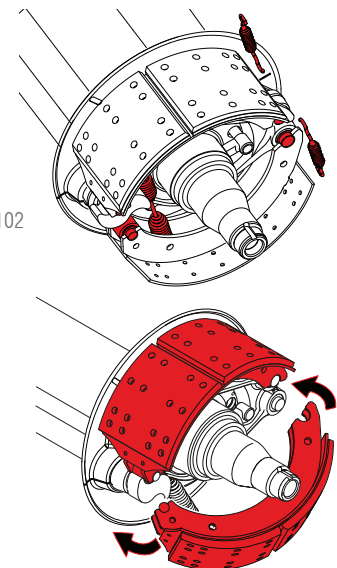
- [9] Slightly bend the lower brake pad and place it on the brake camshaft and the fixed point

! Ensure proper fit and correct with a plastic hammer, if necessary!

- [10] Attach new release fixed point spring

! For the best wear pattern, overtighten the brake pads!

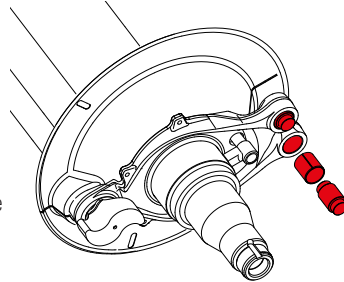
- [11] Assemble the hub unit → 3.2.2, pg. 100



3.2.2.3 DISASSEMBLING/ASSEMBLING THE FIXED-POINT BEARINGS

! In case the braking system does not work due to overheating of the brakes, check the bearings and replace, if necessary!

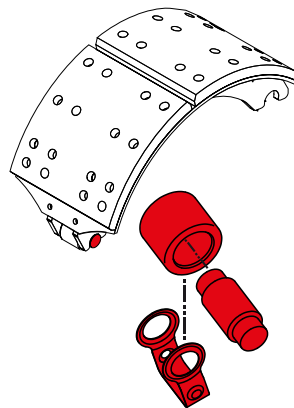
- [1] Disassemble the complete brake shoe → 3.2.2.2, pg. 101
- [2] Push out, check and, if necessary, replace the fixed-point bearing
- [3] Push out, check and, if necessary, replace the fixed-point bearing bush
- [4] Push out the bush and clean the bearing seat
- [5] Drive in the new bush until it is flush
- [6] Grease and insert the fixed-point bearing (Mobilith SHC 220); take off excessive grease
- [7] Coat the brake shoe seat of the fixed-point bearing with copper paste
- [8] Assemble the complete brake shoe → 3.2.2.2, pg. 101



3.2.2.4 DISASSEMBLING/ASSEMBLING THE ROLLER UNIT

! In case the braking system does not work due to overheating of the brakes, check the bearings and replace, if necessary!

- [1] Disassemble the complete brake shoe → 3.2.2.2, pg. 101
- [2] Push out, check and, if necessary, replace the fixed-point bearing → 3.2.2.3, pg. 102
- [3] Clean, check and, if necessary, replace the roller unit → if OK, continue with [11]
- [4] Remove, disassemble, and clean the cam roller with bracket
- [5] Clean, check and, if necessary, replace the cam roller axle
- [6] Clean and inspect bush; replace if the inner diameter is ≥ 24.5 mm
- [7] Check the bracket and replace if deformed or if it shows cracks
- [8] Grease the roller (Mobilith SHC 220) and place in the bush
- [9] Install bracket and take off excess grease
- [10] Insert the roller unit into the brake shoe
- [11] Assemble the complete brake shoe → 3.2.2.2, pg. 101



3.2.3 DISASSEMBLING/ASSEMBLING THE BRAKE CAMSHAFT

- [1] Disassemble the automatic slack adjuster → 3.2.1, pg. 99
- [2] Disassemble the complete brake shoe → 3.2.2.2, pg. 101
- [3] Take off fitting on spherical brake camshaft bearing
I WAF 13
- [4] Detach circlip on brake carrier
- [5] Inspect the spherical brake camshaft bearing and replace if bearing clearance is > 0.8 mm
- [6] Disassemble, inspect and, if necessary, replace brake camshaft, washers and lock plate
- [7] Clean, inspect and, if necessary, replace brake camshaft
- [8] Check the seal on the brake carrier's bearing seat

! If the brake camshaft's head leaks grease, replace the seal!

→ 3.2.3.2, pg. 104

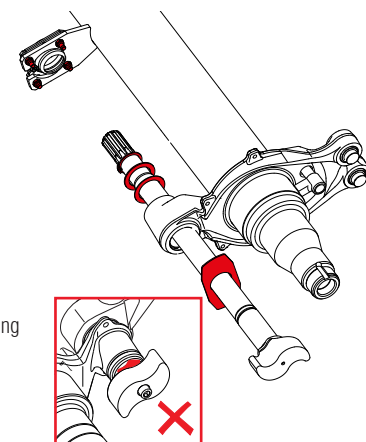
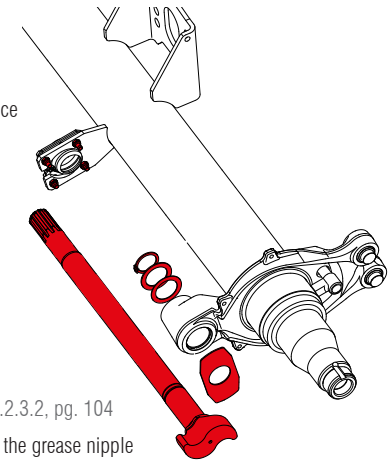
- [9] Clean, inspect and, if necessary, replace the bush on the brake carrier → 3.2.3.2, pg. 104
- [10] Check the consistency of the lubrication channel and, if necessary, replace the grease nipple

! The maximum wear limit has been reached if the grease leaks or if the lubrication groove's base depth has been reached!

- [11] Grease the brake carrier and spherical camshaft bearing (Mobilith SHC 220) bush until all grease pockets are filled
- [12] Lightly grease the inner surfaces of the sealing ring on both sides of the brake carrier
- [13] Slide on the lock plate onto the brake camshaft
- [14] Slide in the brake camshaft halfway
- [15] Slide the washers and circlip onto the brake camshaft
- [16] Fully insert the brake camshaft into the spherical camshaft bearing
- [17] Insert circlip into the groove
- [18] Take off excess grease
- [19] Tighten fastening screws
WAF 13 22 Nm
- [20] Check the brake camshaft's freedom of movement
- [21] Lubricate the brake camshaft on the brake carrier and spherical camshaft bearing until grease emerges

! No grease may leak on the brake carrier's seal on the brake side » disassemble and reinstall!

- [22] Assemble the automatic slack adjuster → 3.2.1, pg. 99
- [23] Assemble the complete brake shoe → 3.2.2.2, pg. 101



3.2.3.1 DISASSEMBLING/ASSEMBLING THE SPHERICAL CAMSHAFT BEARING

[1] Disassemble the automatic slack adjuster → 3.2.1, pg. 99

[2] Detach fitting and remove bracket

! WAF 13

[3] Take off and dispose of the spherical camshaft bearing

[4] Clean contact surfaces

[5] Position new spherical camshaft bearing in the bracket

! The spherical camshaft bearing must be movable in the half-shells!

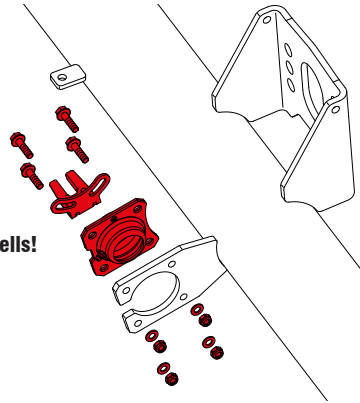
[6] Tighten and assemble bracket

WAF 13 22 Nm

! Brake camshaft must move freely!

[7] Lubricate spherical camshaft bearing until grease comes out

[8] Assemble the automatic slack adjuster → 3.2.1, pg. 99



3.2.3.2 DISASSEMBLING/ASSEMBLING THE BRAKE CARRIER'S SEAL/BUSH

[1] Disassemble the brake camshaft → 3.2.3, pg. 103

[2] Take off and dispose of the seals

[3] Push out and dispose of the bush

! Bush: Inner diameter = 42, outer diameter = 46

[4] Clean the bush's seat

[5] Check the consistency of the lubrication channel and, if necessary, replace the grease nipple

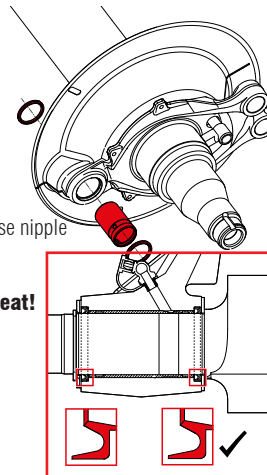
[6] Insert new bush up to the inner stop

! Align the surrounding lubrication groove to the axle stub's bearing seat!

[7] Insert both sealing rings with the openings facing the middle of the axle

[8] Grease bush until all grease pockets are filled

[9] Assemble brake camshaft → 3.2.3, pg. 103



3.2.4 DISASSEMBLE/ASSEMBLE THE ABS

3.2.4.1 DISASSEMBLE/ASSEMBLE THE INDUCTIVE SENSOR ABS

[1] Detach, inspect and, if necessary, replace the dust cover

! WAF 13

[2] Remove the ABS plug and bush

[3] Clean, inspect and, if necessary, replace the ABS sensor ring

→ 3.2.4.2, pg. 105

[4] Grease the new bush and press in until stop

[5] Push through the inductive sensor ABS until the front is visible

[6] Clean the front

(if the inductive sensors ABS are stiff or stuck, they must be removed - including the bush - re-greased and re-installed.)

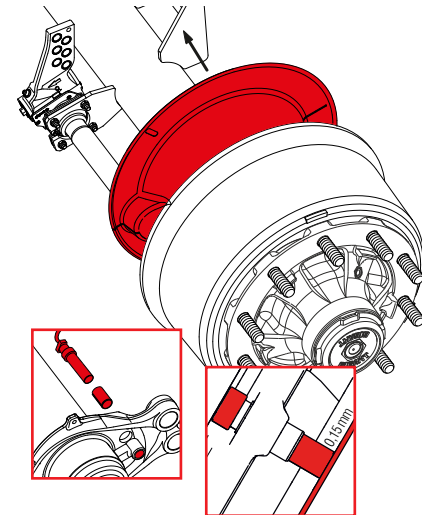
! While doing so, do not deform the ABS sensor ring!

[7] Adjust the distance to the ABS sensor ring at 0.15 mm

! While doing so, do not deform the ABS sensor ring!

[8] Install dust cover and tighten screws

WAF 17 22.5 Nm ± 2.5 Nm



3.2.4.2 DISASSEMBLE/ASSEMBLE THE ABS SENSOR RING

[1] Disassemble the hub unit → 3.2.2, pg. 100

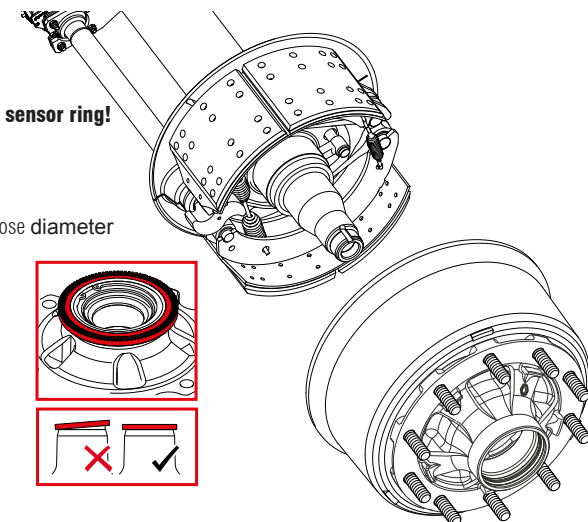
[2] Disassemble and inspect the ABS sensor ring

! While doing so, do not deform the ABS sensor ring!

[3] Clean contact surfaces

[4] Install new ABS sensor ring on the hub unit and evenly press until stop (using the washer whose diameter is 220 mm and thickness is 15 mm)

[5] Assemble the hub unit → 3.2.2, pg. 100



4. DISC-BRAKED AXLES

! Please follow the brake calliper manufacturer's installation, approval, testing, and installation instructions!



www.haldex.de

→ Services & Support → Literature and Documents



inform.wabco-auto.com



www.knorr-bremse.de

→ Commercial Vehicles → Download & Services
→ Download Documentation

4.1 DISASSEMBLING/ASSEMBLING THE BRAKE CYLINDER

! Please follow the brake cylinder manufacturer's installation, approval, testing, and installation instructions!

- [1] If necessary, disassemble the wheel → 1.2, pg. 71
- [2] Release the brake → 1.3, pg. 72

! Make sure of following for brake cylinders with parking brake functionality:

» **No pressure in the system!**

» **Fully take off and mechanically lock the spring-storage brake cylinder!**

- [3] Clean, take off and protect the air connections from contamination

- [4] Take off and dispose of the fastening nut

! WAF 24

- [5] Disassemble the brake cylinder

- [6] Clean the brake cylinder and brake calliper contact surfaces and leave them free of dirt, wetness, and rust

- [7] Grease the spherical cap (molybdenum disulphide-free)

- [8] Assemble the brake cylinder with the ventilation/drainage hole facing downwards (disassemble the lower plugs)

- [9] Alternatively and evenly tighten the new fastening nuts

WAF 24 180 Nm ± 20 Nm

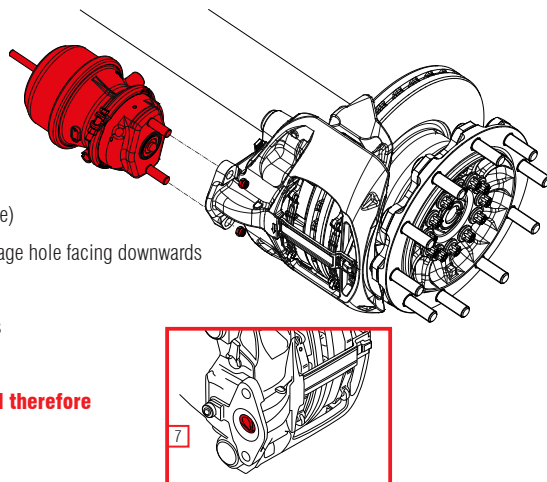
! Avoid tension! This can lead to leaking and therefore brake failure!

- [10] Install the air connections

! Do not disconnect or clamp the brake hoses!

! The brake calliper must remain movable!

! Trigger the pressure-relief mechanism on brake cylinders with parking brake functionality!



- [11] Fill the system with pressurised air and check for leaks

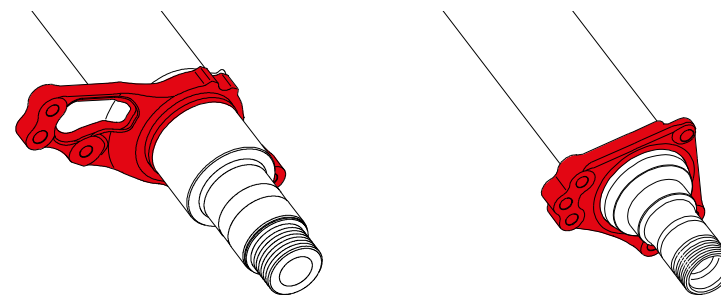
- [12] Adjust the brake → 1.4, pg. 73

- [13] Assemble the wheel → 1.2, pg. 71

- [14] Check the brake

4.2 DISASSEMBLING/ASSEMBLING THE BRAKE CALLIPER

gigant differentiates between two versions of the brake calliper connection



6-hole brake carrier, large

6-hole brake carrier, small

4.2.1 DISASSEMBLING/ASSEMBLING THE BRAKE CALLIPER OF THE LARGE 6-HOLE BRAKE CARRIER

- [1] Disassemble the wheel → 1.2, pg. 71

- [2] Release the brake → 1.3, pg. 72

- [3] Disassemble the brake cylinder → 4.1, pg. 106

- [4] Take off the brake pads according to the brake calliper manufacturer

- [5] Take off and dispose of the screws

! WAF 22

! WAF 24

! WAF 30

! Mark the position of the fitting screw!

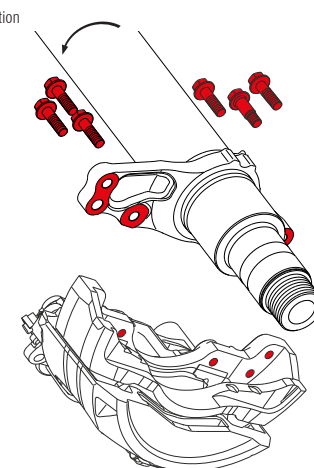
- [6] Check the brake calliper and repair or replace, if necessary

- [7] Clean the surface areas of the brake carrier and brake calliper


- [8] Assemble the brake calliper

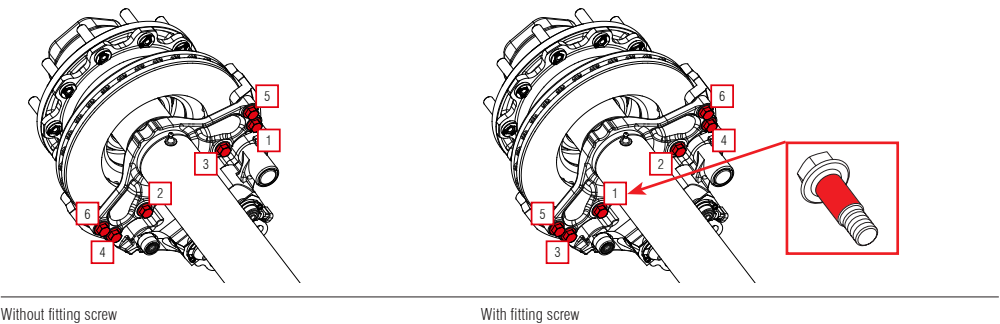
! Pay attention to the rotation direction!

← Direction of travel/rotation



[9] Insert fitting screw and screws and evenly tighten according to the order

 Manufacturer	Type	WAF	Screws	Amount	Fitting screw	Torque
WABCO	PAN17	22	M14x1.5x35	6	No	180 Nm ± 20 Nm
WABCO	PAN 19	24	M16x1.5x55	6	Yes	290 Nm ± 20 Nm
WABCO	PAN 22	24	M16x1.5x55	6	Yes	290 Nm ± 20 Nm
KNORR	SB/SN6	24	M16x1.5x55	6	Yes	290 Nm ± 20 Nm
KNORR	SB/SN7	24	M16x1.5x55	6	Yes	290 Nm ± 20 Nm



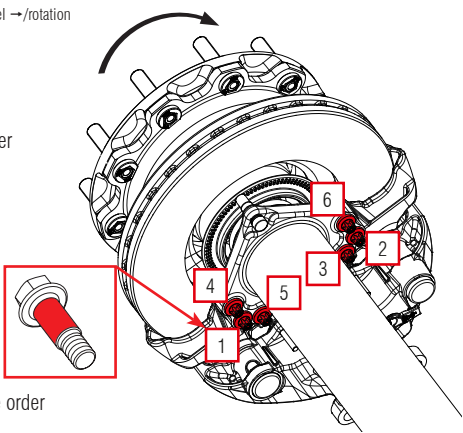
4.2.2 DISASSEMBLING/ASSEMBLING THE SMALL 6-HOLE BRAKE CARRIER'S BRAKE CALLIPER

- [1] Disassemble the wheel → 1.2, pg. 71
- [2] Release the brake → 1.3, pg. 72
- [3] Disassemble the brake cylinder → 4.1, pg. 106
- [4] Take off the brake pads according to the brake calliper manufacturer
- [5] Take off and dispose of the brake calliper screws
I E 24
- [6] Check the brake calliper and repair or replace, if necessary
- [7] Clean the surface areas on the brake carrier and brake calliper
- [8] Assemble the new brake calliper


! Pay attention to the rotation direction!

[9] Insert fitting screw and screws and evenly tighten according to the order

 25 Nm



[10] Fully tighten the fitting screw and screws

 Manufacturer	Type	WAF	Screws	Amount	Fitting screw	Torque
HALDEX	DBT22LT	24	M16x1.5x57	6	Yes	190 Nm ± 5 Nm + 60° ± 5°
HALDEX	DBT19	24	M16x1.5x55	6	Yes	190 Nm ± 5 Nm + 60° ± 5°
KNORR	ST7-430	24	M16x1.5x55	6	Yes	190 Nm ± 5 Nm + 60° ± 5°

4.3 DISASSEMBLING/ASSEMBLING THE BRAKE DISC

- [1] Disassemble the hub unit
 - » Compact bearing (K2) with hub cap → 2.2.1, pg. 75
 - » Compact bearing (K2) with wheel flange → 2.2.2, pg. 77

! The compact bearing must be protected from contamination!

[2] Push out, inspect and, if necessary, replace wheel studs

! Do not damage the threads!

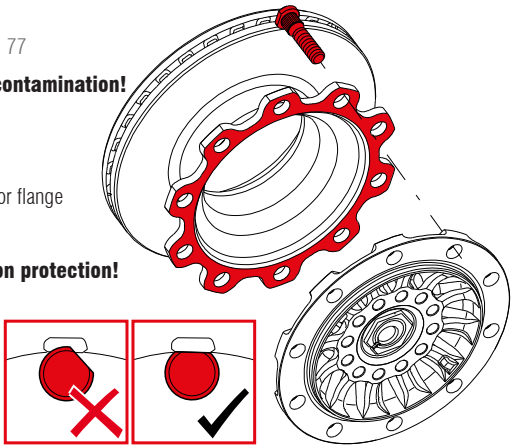
[3] Clean the surface areas of the new brake disc and the hub or flange

[4] Align and insert the bolts

! Pay attention to the position of the anti-rotation protection!

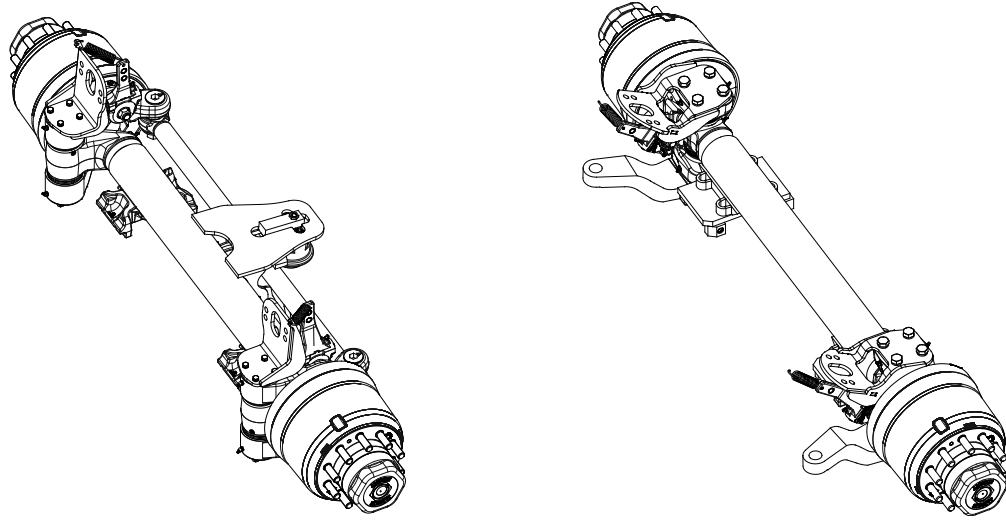
[5] Assemble the hub unit

- » Compact bearing (K2) with hub cap → 2.2.1, pg. 75
- » Compact bearing (K2) with wheel flange
→ 2.2.2, pg. 77



5. STEERING AXLES

gigant differentiates between two variants



Self-steering axles (SS) with a direction bar, stabilisation and locking unit, and forced steering axles (FS) with steering lever for hydraulic or mechanical steering

5.1 DISASSEMBLING/ASSEMBLING THE STABILISATION UNIT

! Make sure of the following: No pressure in the system!

- [1] Disassemble the locknuts and stop shafts

! WAF 13
! WAF 27

- [2] Press together and remove the convoluted boot

- [3] Clean the convoluted boot contact surfaces

- [4] Check and, if necessary, replace the guide flange → continue to [10] if OK

- [5] Pull out guide flange towards the inside and clean

- [6] Push out the bush

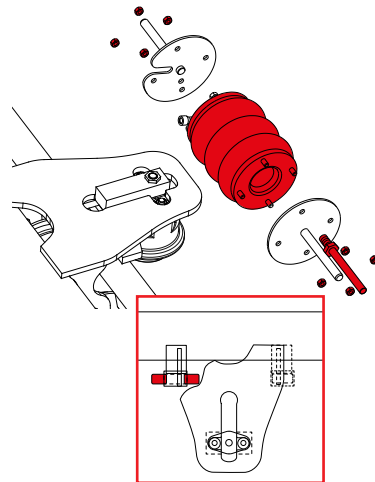
! Bush: Inner diameter = 20 mm / outer diameter = 22.5 mm

- [7] Clean the bearing seats

- [8] Insert a new bush per bearing flush from the interior and exterior

- [9] Insert a new guide flange

! Observe the left and right side, see the recess on the stop shaft!



- [10] Assemble convoluted boot with new nuts

- [11] Coat the stop shaft threads with Loctite 2701 and tighten firmly

! WAF 27

- [12] Tighten locknuts

WAF 13 43 Nm ± 3 Nm

- [13] Apply pressurised air to the system and check for leaks

! Adjust the pressure in the stabilisation bellow to the loading pressure:

» **Empty state: min. 1 bar**

» **Loaded: approx. 6 bar**

5.2 DISASSEMBLING/ASSEMBLING THE LOCKING UNIT

! Make sure of the following: No pressure in the system!

- [1] Take off the double nut

! WAF 24

- [2] Detach and dispose of the locknuts

! WAF 19

- [3] Inspect the brake cylinder and replace, if necessary

- [4] Clean, check and, if necessary, replace locking block

- [5] Assemble brake cylinder with new locknuts

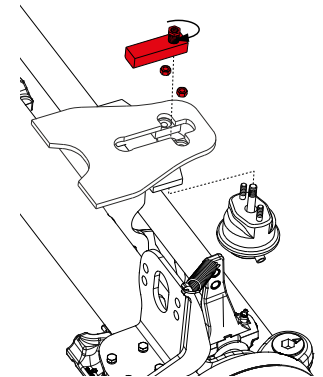
! WAF 19 70 Nm ± 15 Nm

- [6] Coat the double nut on the outside and inside with Loctite 2701 and assemble it on the brake cylinder's piston rod via the locking block (align the chamfer towards the locking plate)

! WAF 24 200 Nm ± 20 Nm

- [7] Apply pressurised air to the system and check for leaks

! Engagement pressure in locking cylinder: 6-8 bar



5.3 DISASSEMBLING/ASSEMBLING THE DIRECTION BAR AND SILENT BLOCK ON SELF-STEERING AXLES

! **Make sure of the following: No pressure in the system!**

- [1] Disassemble the locking unit → 5.2, pg. 111
- [2] Take off the nut of the eccentric bolt until no thread can be seen

⌘ WAF 36

! **If necessary, detach the eccentric bolt with a plastic hammer!**

- [3] Disassemble the direction bar
- [4] Check and, if necessary, replace the silent block → continue to [5] if OK
 - » Push out the silent block
 - » Clean the bearing seat
 - » Press in the new silent block using a suitable tool

! **For silent blocks made of rubber/steel:**

Soapy solution = allowed, oils and greases = not allowed!

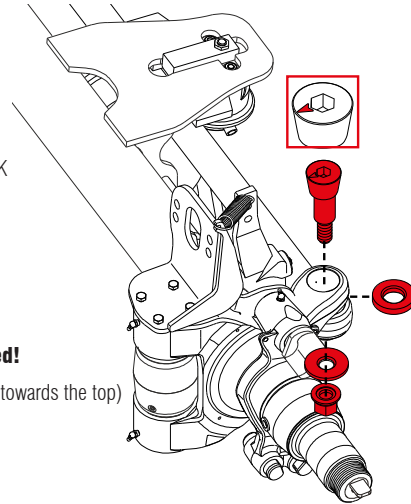
- [5] Push the eccentric bolt through the bracket, conical cap (large opening towards the top) and direction bar

! **Align the arrows on the eccentric bolts forwards in the direction of travel!**

- [6] Assemble locknut with washer under bearing
 - ⌘ WAF 36 Pre-tightening 10 - 15 Nm
- [7] Installing the locking unit → 5.2, pg. 111
- [8] Apply 3 bar of air pressure to the stabilisation unit
- [9] Adjust the toe-in by turning the eccentric bolt → 2.1, pg. 118
- [10] Tighten the locknut of the eccentric bolt

⌘ WAF 36 550 Nm ± 25 Nm

! **Do not warp the eccentric bolt!**

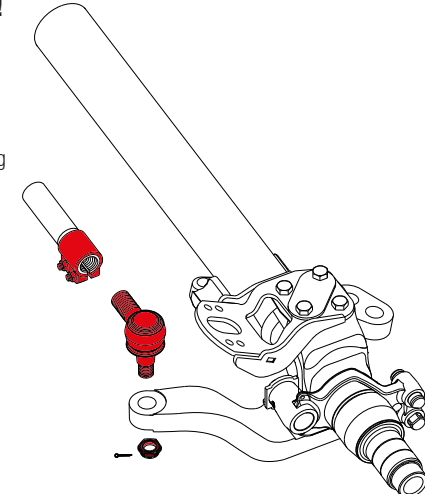


5.4 DISASSEMBLING/ASSEMBLING THE STEERING ROD AND STEERING ROD END ON FORCED-STEERING AXLES

! **Only on forced-steering axles with hydraulic additional steering; for other versions, follow the instructions of the vehicle manufacturer.**

! **Make sure of the following: » No pressure in the system!**

- [1] Disassemble and dispose of the castellated nut's split pin
- [2] Detach the castellated nut
 - ⌘ WAF 46
- [3] Disassemble the steering rod → if the steering rod ends are in working order, continue to [8]
- [4] Make note of the clearance of the steering rod ends from each other!
- [5] Detach the locknuts on the clamp
 - ⌘ WAF 19
- [6] Unscrew and dispose of the steering rod end
- [7] Screw in the new steering rod end and adjust to the clearance
- [8] Mount the steering rod
 - ⌘ WAF 46 450 Nm, continue turning until the split pin fits
- [9] Adjust the toe-in by turning the steering rod → 2.1, pg. 118
- [10] Align the clamps of the steering rod ends with the spring clamp and tighten
 - ⌘ WAF 19 80 Nm ± 10Nm



5.5 DISASSEMBLING/ASSEMBLING THE KINGPIN AND BUSH

- [1] Remove the axle
- [2] Disassemble the direction bar, brake, and hub unit
- [3] Disassemble dust cover, brake carrier or steering lever from axle pivot

- ⌘ WAF 17
- ⌘ WAF 30

- [4] Remove and dispose of the V-ring
- [5] Place and support the axle on a press

! Ensure at least 2 t of compressive force and 300 mm empty space!

- [6] Heat the axle stub to 300°C for approx. 5 minutes

- [7] Press out the kingpin using a dummy pin

- ⌘ Diameter 57.7 mm ± 0.1 mm x 300 mm

- [8] Remove and dispose of both hexagon sockets from the axle stub

- ⌘ S 5

- [9] Take off axle from the press

- [10] Take off axle stub from the steering knuckle and clean (take off all adhesive residue)

- [11] Take off and dispose of the thrust washer and washer with the holes

- [12] Clean, inspect and, if necessary, replace the axle pivot's bush → if OK, continue with [13]

! Maximum wear limit: The lubrication groove's base groove depth has been reached!

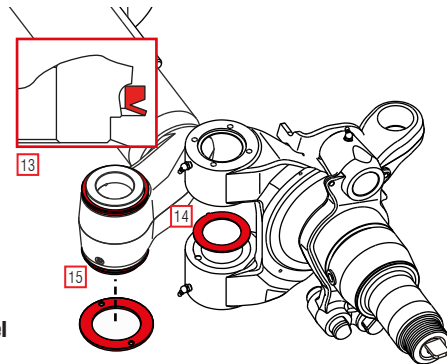
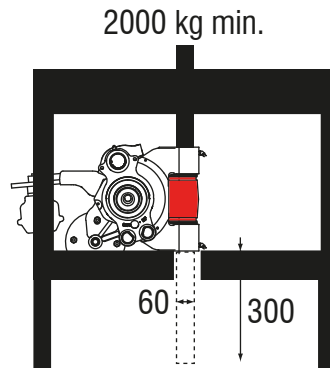
- » Push out the bushes with the expulsion arbour
(inner diameter = 60 mm, outer diameter = 65 mm)
- » Clean the bearing seats
- » Insert new bushes (circumferential groove towards the grease nipple) flush towards the first stop
- » Check the bush inner diameter: 60H9

- [13] Slide the V-rings onto the larger diameter of the axle stub

- [14] Grease the thrust washer and, with the flat side with the nose in the groove, install onto the lower steering knuckle

- [15] Place the washer with the holes on the axle stub's hollow dowel pin

! If the washer cannot be attached by the hollow dowel pin, replace it!



- [16] Assemble the axle beam and axle pivot

- [17] Insert dummy pin

- [18] Place and support the axle on the press

! If no press is available: Drive in with a hammer if a screw (M20) is screwed on top in the kingpin until stop!

- [19] Press in the new spring bolt grease-free

! Press in 2 mm ± 0.5 mm up to the lower edge!

- [20] Lubricate O-ring and insert on top and on the bottom

- [21] Install the dust covers, brake cylinder carriers or steering levers

- ⌘ WAF 17 45 Nm ± 3 Nm

- ⌘ WAF 30 415 Nm ± 15 Nm

! When installing the dowel pins (1 or 2 per hole) in the steering lever, the slot must be aligned according to the illustrations!

- [22] Move the installed V-ring to the smaller diameter of the axle stub

- [23] Install the direction bar, brake, and hub unit

- [24] Press in the full content of the adhesive injector to the lower opening of the axle stub

! The temperature of the components that touch the adhesive must be at least 15°C; heat them, if necessary heat up (max. 40°C)!

- [25] Press in the adhesive until adhesive comes out of the upper opening

- [26] Screw in the upper hexagon socket flush

- ⌘ S 5

- [27] Take off adhesive injector

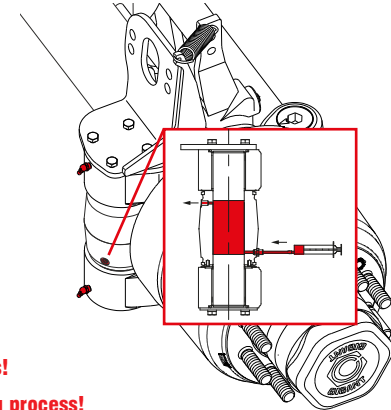
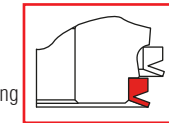
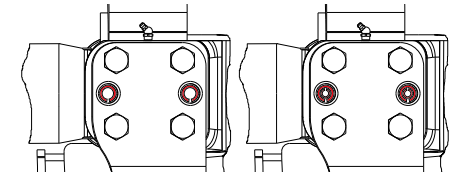
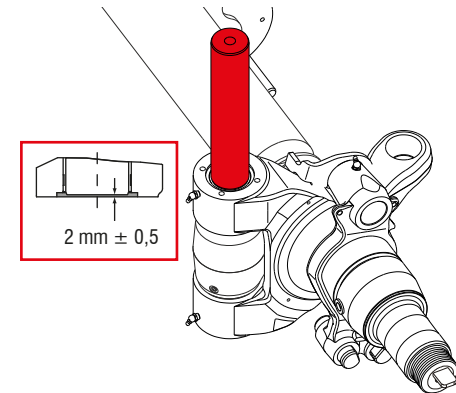
- [28] Screw in the lower hexagon socket flush

- ⌘ S 5

! Do not move the axle for 30 minutes after the gluing process!

! Axles may be installed at the earliest 24 hrs. after the gluing process!

- [29] Lubricate the spring bolt while moving it





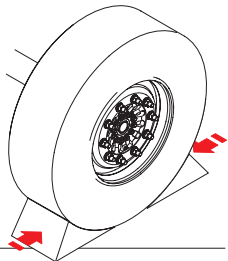
REPAIR – SUSPENSIONS

SUSPENSIONS

1. GENERAL PREPARATIONS AND ACTIVITIES

1.1 SECURE THE VEHICLE

- » Secure the vehicle from rolling away on even, firm ground
- » Disconnect the brake and air supply lines from the tractor; disassemble the wheel, if necessary
- » Jack up the frames in an accident-proof manner, if necessary
- » If necessary, raise the axle or component and support it in an accident-proof manner



2. SUSPENSION-INDEPENDENT REPAIRS

2.1 ADJUST THE TRACK

- ! Steering axles must be aligned in the straight driving position!
- ! Self-steering axles: Apply at least 3 bar pressure to the stabilisation bellow!

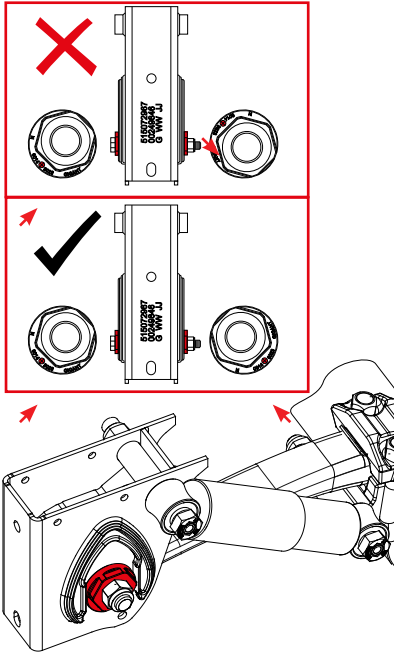
- [1] Align the eccentric nut marking to 6 o'clock
- [2] Tighten the locknut at the spring bolt at 200 Nm
- [3] Adjust the air suspension to driving height
- [4] Fit the track measuring device in accordance with the manufacturer's instructions and align it
- [5] Perform a track inspection and, if necessary, make adjustments via the eccentric nuts

! Configure both eccentric nuts identically per side!

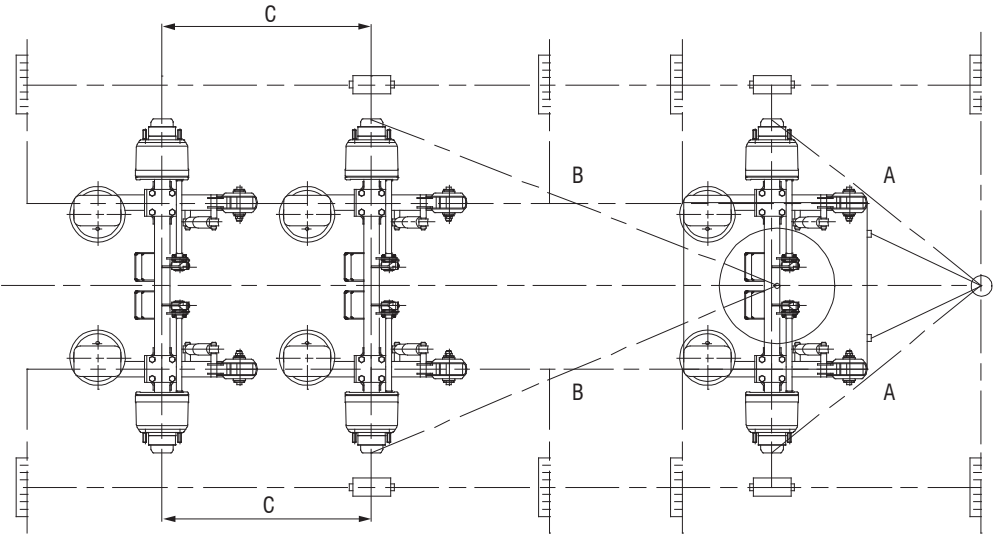
- [6] Tighten spring bolt
 - GL70 WAF 36 M24 $340 \text{ Nm} \pm 20 \text{ Nm} + 90^\circ \pm 3^\circ$
 - FB 100 WAF 41 M27x1.5 $575 \text{ Nm} \pm 25 \text{ Nm}$
 - LK WAF 46 M30 $775 \text{ Nm} \pm 25 \text{ Nm}$
 - GKT WAF 36 M24 $675 \text{ Nm} \pm 25 \text{ Nm}$

! Do not warp the eccentric nut!

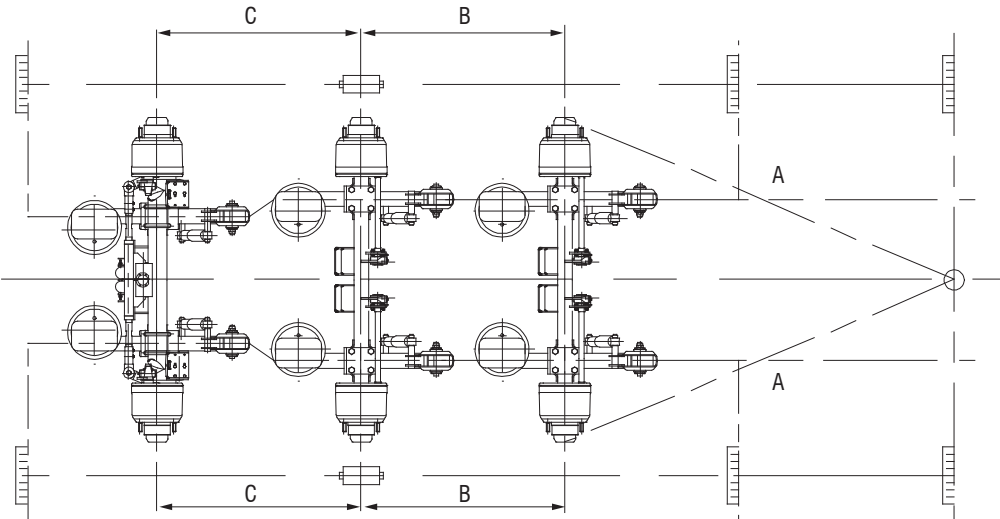
- [7] Disassemble the track measuring device in accordance with the manufacturer's instructions



Tracking on the trailer



Tracking on the semitrailer



Camber and toe-in

- » Self-steering axles Adjust toe-in → 5.3, pg. 112
- » Forced-steering axles Adjust toe-in → 5.4, pg. 113

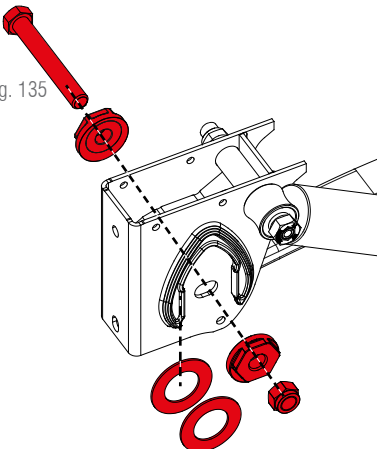
Axle type	Camber		Toe-in	
Rigid axles	0° ± 12'	0 mm/m ± 3 mm/m	0° ± 12'	0 mm/m ± 3 mm/m
Forced-steering axles	0° 30' ± 10'	8 mm/m ± 3 mm/m	0° ± 12'	0 mm/m ± 3 mm/m
Self-steering axles	0° 30' ± 10'	8 mm/m ± 3 mm/m	0° 17' ± 4'	5 mm/m ± 1 mm/m

3. AIR SUSPENSIONS

3.1 DISASSEMBLING/ASSEMBLING THE SPRING BOLT/SILENT BLOCK

! No grease may be used!

- [1] Detach the spring bolt
 - ⌘ GL70 WAF 36
 - ⌘ FB100 WAF 41
 - » Disassemble the axle lift on GL70 suspensions, if necessary → 5.2.2, pg. 135
 - » Disassemble the upper clamp of the twin lift on FB100 suspensions, if necessary → 5.3.1, pg. 136



- [2] Remove the locknut, eccentric nut, and spring bolt
- [3] Lower the spring until the spring eye is visible

! Avoid overstretching the bellow!

- [4] Check the wear plate and thrust plate and replace, if necessary:
 - » GL70 < 2 mm
 - » FB100 < 4.5 mm

- [5] Push out the silent block on the inner steel bush

! If necessary, remove the spring if the silent block is made of steel/rubber/steel!

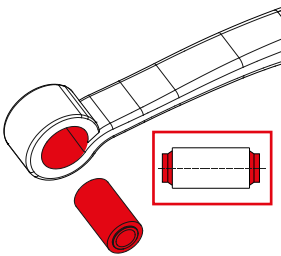
- [6] Clean the link eye

- [7] Press in the silent block using a suitable tool

! For silent blocks made of rubber/steel:

Soapy solution = allowed, oils and greases = not allowed!

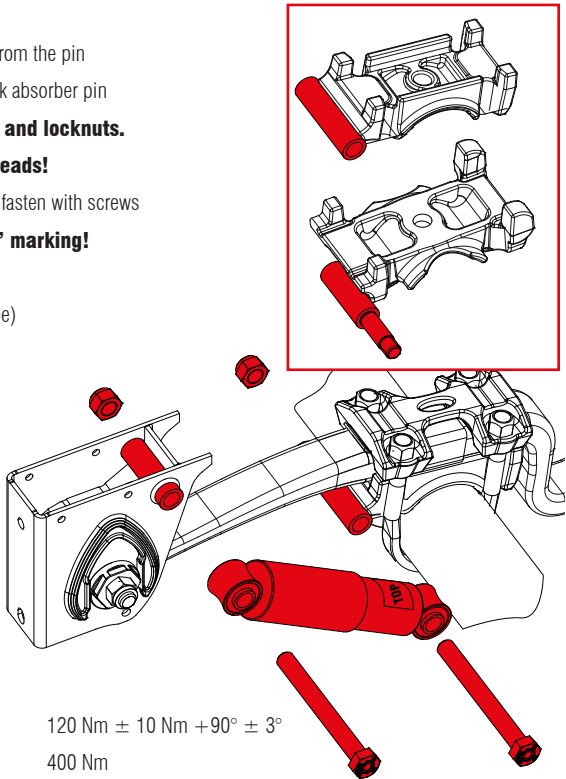
! The inner steel sleeve evenly protrudes on both sides!



- [8] Slide the wear plates onto the silent block's steel bush
 - » FB100 Affix the spacers inside the air suspension bracket using a magnet
- [9] Lift spring and insert spring bolt with the eccentric nut fitted
- [10] Install eccentric nut and locknut
- [11] Align the eccentric nut marking to 6:00
 - ⌘ WAF 60
- [12] Pre-tighten the locknut
 - ⌘ GL70 WAF 36 200 Nm
 - ⌘ FB100 WAF 41 200 Nm
- [13] Adjust the track → 2.1, pg. 118

3.2 DISASSEMBLING/ASSEMBLING THE SHOCK ABSORBER

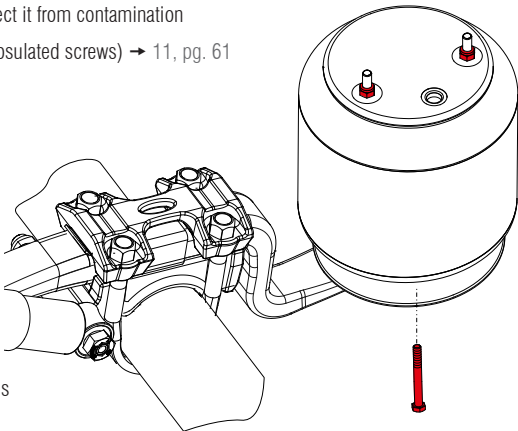
- ! **Replace each shock absorber per axle!**
- ! **No grease may be used!**
- [1] Detach the locknuts on the shock absorber
I WAF 36
- [2] Pull out the screws and take off the shock absorber from the pin
- [3] Clean and check the retaining tube, screw, and shock absorber pin
! **gigant recommends replacing the screws and locknuts.**
! **Trim the pin if there is damage on the threads!**
- [4] Slide the shock absorber onto the pin until stop and fasten with screws
where applicable, pay attention to the "TOP" marking!
- [5] Assemble the shock absorber and ensure proper fit
(inner diameter Washer = inner diameter Mount tube)



- [6] Tighten shock absorber fitting connection
- Screw/nut WAF 36 M24 120 Nm ± 10 Nm +90° ± 3°
- Threaded pin/nut WAF 36 M24 400 Nm

3.3 DISASSEMBLING/ASSEMBLING THE AIR BELLOW

- [1] Disassemble the wheel, if necessary
- [2] Ventilate the air bellow
- [3] Clean and disconnect the compressed air supply and protect it from contamination
- [4] Take off the lower bellow fitting (dispose of the microencapsulated screws) → 11, pg. 61
! **Mark the fastening position on the spring, the adapter plate, or the piston plate!**
! **The cone does not need to be removed for suspensions for rail loading!**
- [5] Detach and dispose of the top locknut → 11, pg. 61
- [6] Remove, inspect and, if necessary, replace the air bellow
- [7] Clean the contact surfaces on the spring and on the chassis
- [8] Assemble the air bellow with new locknut onto the chassis
- [9] Tighten the lower bellow mount → 11, pg. 61
- [10] Tighten the upper bellow mount → 11, pg. 61
- [11] Connect and apply compressed air supply
- [12] Set the vehicle to driving height and check the air bellow for leaks



3.4 DISASSEMBLING/ASSEMBLING THE BONDING/SPRING

- [1] Slightly detach the locknuts on the U-bolt

! WAF 30
! WAF 32
! WAF 36

! GL70: Replace the sandwich plate!

- [2] Disassemble the spring bolt → 3.1, pg. 121
[3] Disassemble the shock absorber → 3.2, pg. 122
[4] Detach the lower bellow mount → 11, pg. 61

! Mark the fastening position on the spring, the adapter plate, or the bevelled plate!

! The cone does not need to be removed for suspensions for rail loading!

- [5] Lower the axle
[6] Fully detach the locknuts on the U-bolt
[7] If necessary, detach the threaded pin of the axle plate
! S 10
[8] Remove, check and, if necessary, replace the spring

! If the spring breaks, the bonding, axle plate, and spring on the other side must also be inspected and replaced, if necessary!

- [9] Check the axle plate for concavity (concave permissible =)

- [10] GL70: Insert spring bolt into axle plate

FB100: The spring bolt is a component of the spring

- [11] Slide the sandwich plate over the spring
[12] Place and align the spring on the axle plate at a 90° angle

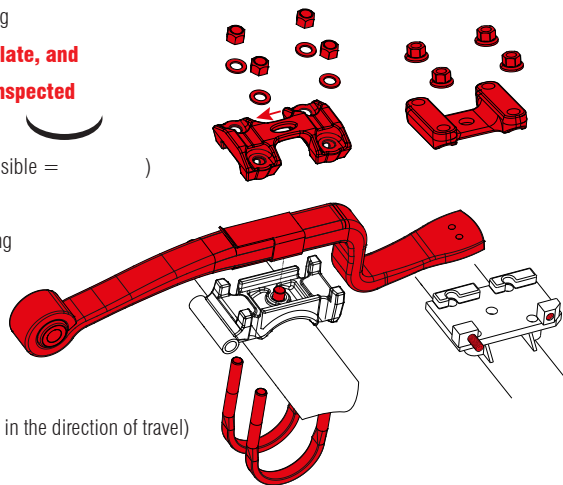
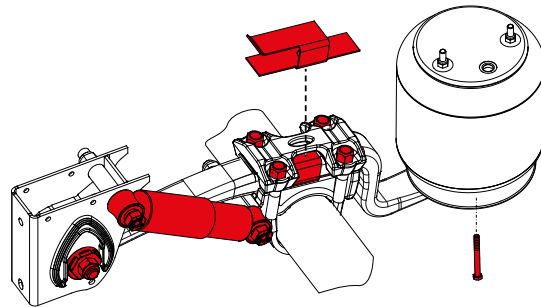
! Be mindful of the spring bolt position!

- [13] Install the clamp plate (if necessary, with the arrow in the direction of travel)

- [14] Assemble U-bolt with washers and locknuts

! The U-bolt must not tilt!

! Gradually and evenly tighten the locknuts crosswise!



! Axle plate with threaded pins:

- » **Before** tightening the U-bolt, slide the spring in the axle plate forward until it hits the spring bolt
- » Tighten the U-bolt hand-tight
- » Tighten the threaded pin

S10 415 Nm +/- 15 Nm

! The thread ends must protrude evenly!

Locknut	M20x1.5	WAF30	550 Nm ± 25 Nm
Locknut	M22x1.5	WAF32	700 Nm ± 25 Nm
Spigot wheel nut	M22x1.5	WAF32	675 Nm ± 25 Nm
Nut with washer	M24x1.5	WAF36	875 Nm ± 25 Nm

! Hold the spring in position while tightening!

- [15] Assemble the spring bolt → 3.4, pg. 124
[16] Assemble the air bellow → 3.3, pg. 123
[17] Assemble the shock absorber → 3.2, pg. 122
[18] Adjust the track → 2.1, pg. 118

4. MECHANICAL SUSPENSIONS

4.1 SUSPENSION-INDEPENDENT REPAIRS

4.1.1 DISASSEMBLING/ASSEMBLING THE SPRING BOLT/SILENT BLOCK

[1] Detach the spring bolt

⌘ GK	Spring width 80mm	WAF 30
⌘ GK	Spring width 100 mm	WAF 36
⌘ GKT		WAF 36
⌘ LK		WAF 46

[2] Remove the locknut, eccentric nut, and spring bolt

[3] Lower the spring until the silent block is visible

[4] Inspect the sliding plates and wear plates and replace, if necessary:

- » Sliding plate < 3 mm → 4.1.4, pg. 128
- » Wear plate < 3 mm → 4.2.4, pg. 131
- » Side plate < 3 mm

[5] Push out the silent block on the inner steel bush

[6] Clean the spring eye

[7] Press in the silent block using a suitable tool

! **For silent blocks made of rubber/steel:**

Soapy solution = allowed, oils and greases = not allowed!

! **The inner steel sleeve evenly protrudes on both sides!**

[8] LK: Place grease-free spacers inside the equalizer

[9] Lift torque arm/spring and insert spring bolt with the eccentric nut fitted

[10] Install eccentric nut and locknut

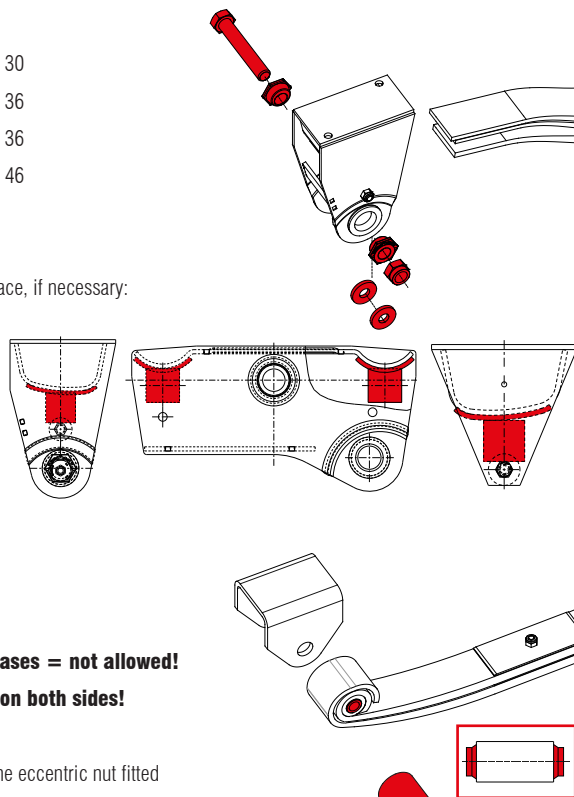
[11] Align the eccentric nut marking to 6:00

⌘ WAF 60

[12] Pre-tighten the locknut

⌘ GK	Spring width 80 mm	WAF 30	400 Nm ± 20 Nm
⌘ GK	Spring width 100 mm	WAF 36	675 Nm ± 25 Nm
⌘ GKT		WAF 36	200 Nm
⌘ LK		WAF 46	200 Nm

[13] Adjust the track



4.1.2 DISASSEMBLING/ASSEMBLING THE RUBBER ROLLER

[1] Detach and dispose of the locknuts and remove, inspect and, if necessary, dispose of screws

⌘ WAF 24

[2] Dispose of rubber roller with distance tube

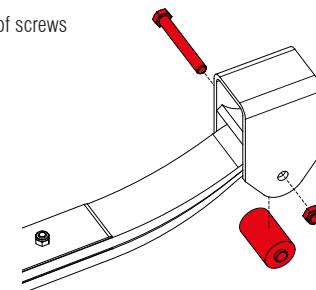
[3] Insert new rubber roller with distance tube

[4] Insert the screw and tighten the locknut

⌘ GK WAF 24 120 Nm ± 10 Nm

⌘ LK WAF 24 180 Nm ± 10 Nm

! **Spring/rubber roller must be able to move freely!**



4.1.3 DISASSEMBLING/ASSEMBLING THE BONDING/SPRING

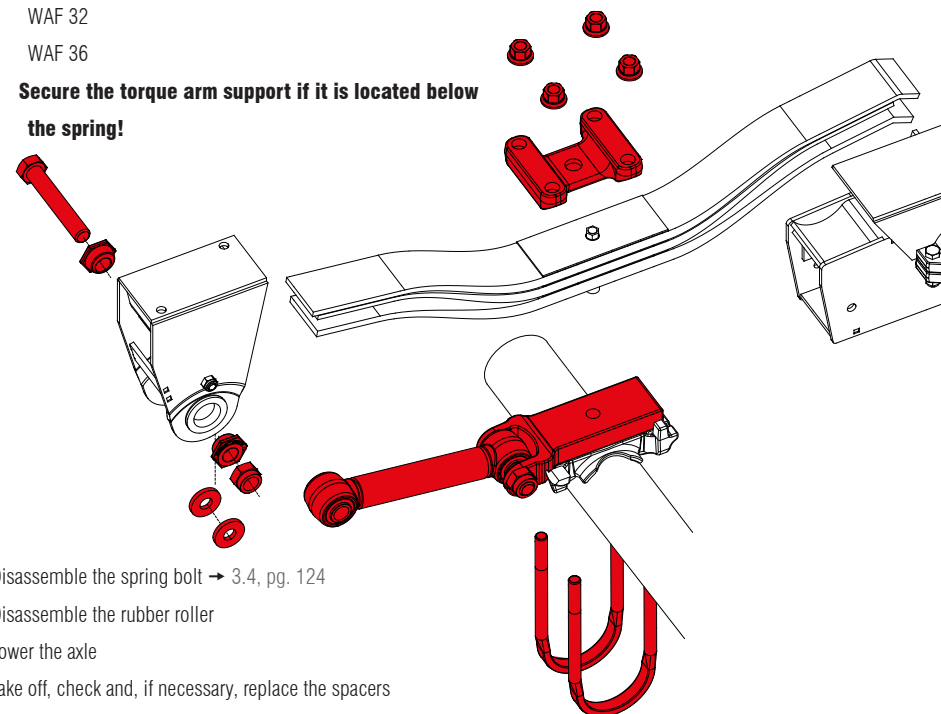
[1] Detach the U-bolt's locknut

⌘ WAF 30

⌘ WAF 32

⌘ WAF 36

! **Secure the torque arm support if it is located below the spring!**



[2] Disassemble the spring bolt → 3.4, pg. 124


[3] Disassemble the rubber roller

[4] Lower the axle

[5] Take off, check and, if necessary, replace the spacers

[6] Disassemble, inspect and, if necessary, replace the U-bolt and torque arm support

[7] Disassemble, inspect and, if necessary, replace the spring

- [8] Check the axle plate (concave permissible = )
- [9] Insert spring with spring bolt into the axle plate
- [10] Place and align the torque arm support and spring on the axle plate at a 90° angle

! Be mindful of the spring bolt position!

- [11] Assemble U-bolt with washers and locknuts

! The U-bolt must not tilt!


! Gradually and evenly tighten the locknuts crosswise!

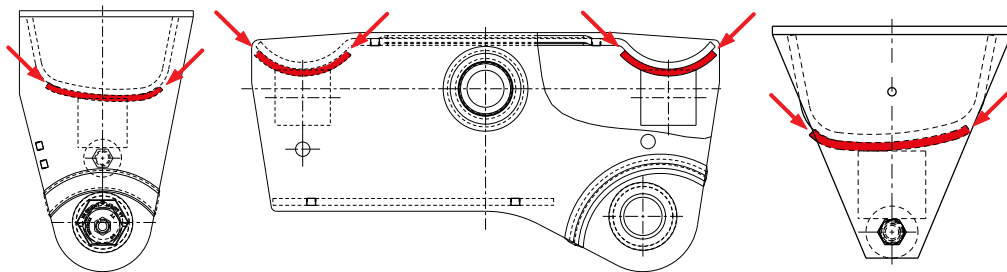
! The thread ends must protrude evenly!

 M20x1.5 (nut/washer)	WAF 30	605 Nm ± 25 Nm
 M22x1.5 (spigot wheel nut)	WAF 32	675 Nm ± 25 Nm
 M24x2 (nut/washer)	WAF 36	900 Nm ± 25 Nm

- [12] LK: Place grease-free spacers inside the equalizer
- [13] Assemble the spring bolt → 3.4, pg. 124
- [14] Assemble the rubber roller → 4.1.2, pg. 127
- [15] Adjust the track → 2.1, pg. 118

4.1.4 SLIDING PLATES

- [1] Disassemble spring and equaliser → 4.1.3, pg. 127 & 4.2.1, pg. 129
- [2] Separate weld seam
- ! Do not take off any carrier material!**
- [3] Fully detach the sliding plate (use a hammer and chisel, if necessary)
- [4] Fully remove weld seam residues and clean
- [5] Insert and weld on the new form-fitting sliding plate: 5  30 on centre



Front suspension bracket





Equaliser

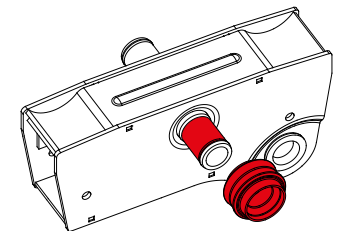
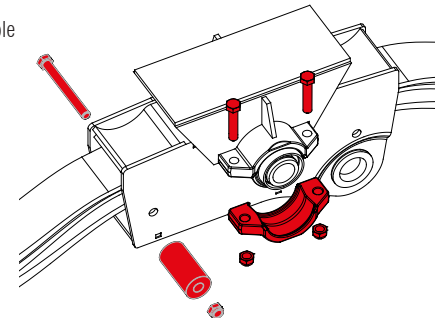
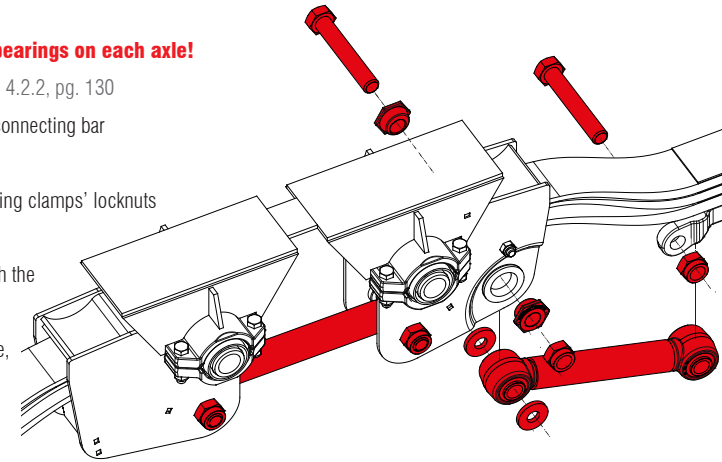
Sliding shoe

4.2 LK

4.2.1 DISASSEMBLING/ASSEMBLING THE CRADLE BEARING

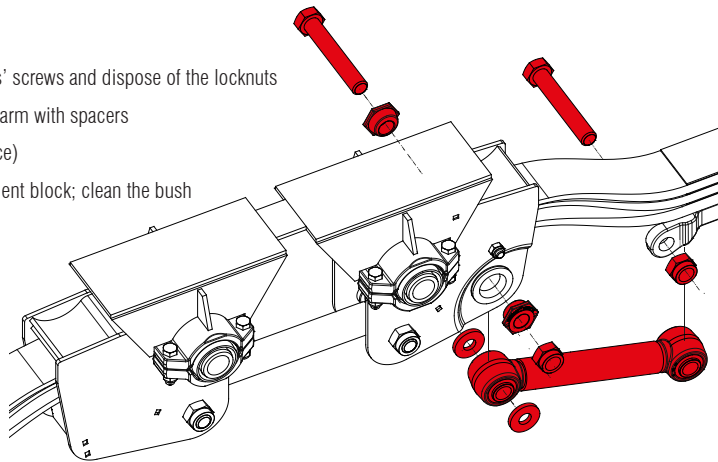
! Replace the equalizer bearings on each axle!

- [1] Disassemble the torque arm → 4.2.2, pg. 130
- [2] If necessary, disassemble the connecting bar
- [3] Disassemble the rubber rollers
- [4] Detach and dispose of the bearing clamps' locknuts
 WAF 24
- [5] Secure the equaliser and detach the lower bearing clamp
- [6] Check the equalizer and replace, if necessary
- [7] Disassemble the rubber bush
- [8] Clean the bearing seat
- [9] Coat the new rubber bush with soap water and press fit using a suitable tool (the short nose facing the equaliser)
- [10] Position the equalizer
- [11] Assemble the bearing clamps with new locknuts and tighten them crosswise gradually and alternately
 WAF 24 180 Nm ± 10 Nm
- [12] If necessary, assemble the connecting bar
 WAF 46 775 Nm ± 25 Nm
- [13] Assemble rubber rollers with distance tube and tighten using new locknuts
 WAF 24 180 Nm ± 10 Nm
- ! Spring/rubber roller must be able to move freely!**
- [14] Assemble the torque arm → 4.2.2, pg. 130
- [15] Adjust the track → 2.1, pg. 118



4.2.2 DISASSEMBLING/ASSEMBLING THE SILENT BLOCK ON THE TORQUE ARM

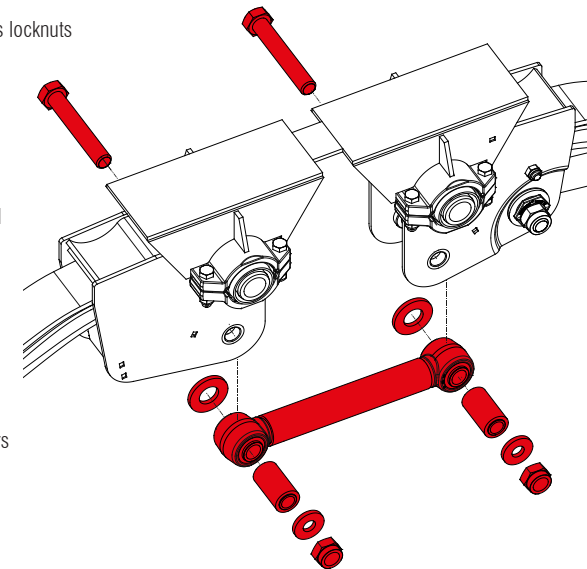
- [1] Detach the spring bolt fitting and dispose of locknuts
I WAF 46
- [2] Disassemble the eccentric nut
- [3] Detach the torque arm supports' screws and dispose of the locknuts
- [4] Remove the screws and torque arm with spacers
(check and, if necessary, replace)
- [5] Press out and dispose of the silent block; clean the bush



- [6] Press in the new silent block using a suitable tool
! For silent blocks made of rubber/steel:
Soapy solution = allowed, oils and greases = not allowed!
! The silent block protrudes equally on both sides!
- [7] Fasten the torque arm with screw and eccentric nut to the torque arm support
- [8] Install eccentric nut on the screw
- [9] Place torque arm with spacers in the front suspension bracket and the equaliser
! The screw connection and components must be absolutely free of grease!
- [10] Install and tighten the eccentric nut and new locknut on the steering plate
 ⚙ WAF 46 775 Nm \pm 25 Nm
- [11] Install and tighten the eccentric nut and new locknut on the front suspension bracket and on the equaliser
- [12] Pre-tighten the locknut
! Align the eccentric nut marking to 6:00!
 I WAF 60
 ⚙ WAF 46 200 Nm
- [13] Adjust the track → 2.1, pg. 118

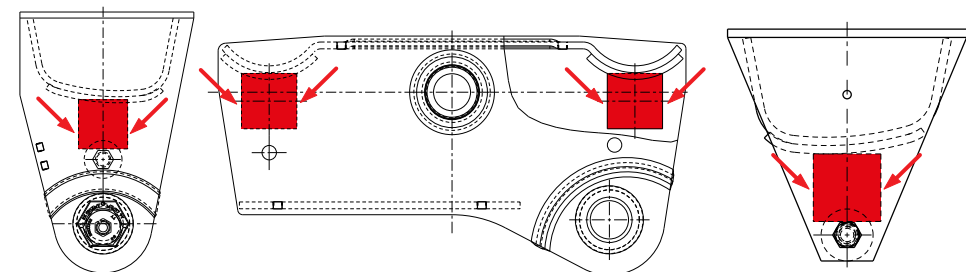
4.2.3 DISASSEMBLING/ASSEMBLING THE CONNECTING BAR'S SILENT BLOCK

- [1] Detach and dispose of the connecting bar fitting's locknuts
I WAF 46
- [2] Tighten screws and remove connecting bar along with spacers
- [3] Press out the silent block and clean the bush
- [4] Press in the new silent block using a suitable tool
! For silent blocks made of rubber/steel:
Soapy solution = approved,
oils and greases = not approved!
! The silent block protrudes equally on both sides!
- [5] Assemble and tighten connecting bar with spacers and new locknuts
 ⚙ WAF 46 775 Nm \pm 25 Nm



4.2.4 DISASSEMBLING/ASSEMBLING THE WEAR PLATE

- [1] Mark the position of the wear plate on the side plate
- [2] Disconnect the tack weld on the front side
! Do not take off any carrier material!
- [3] Fully detach the wear plates (use a hammer and chisel, if necessary)
- [4] Fully remove weld seam residues and clean
- [5] Install the new wear plates according to the markings and adhere approx. 1 cm on both sides



Front suspension bracket

Equaliser

Sliding shoe

4.3 GK / GKT

4.3.1 DISASSEMBLING/ASSEMBLING THE CRADLE BEARING

- [1] Detach the spring eye fitting and dispose of locknuts

⌘ WAF 30

- [2] Disassemble the rubber roller

⌘ WAF 24

- [3] Detach the cradle bearing fitting and dispose of locknuts

⌘ WAF 46

- [4] Take off screw and take off, check and, if necessary, replace the equalizer

! Side plate thickness < 3 mm → Replace equalizer!

- [5] Check the silent block in the spring eye and replace, if necessary → 4.3.2, pg. 133

- [6] Press out the equaliser's silent block and clean the bush

- [7] Press in the new silent block using a suitable tool

! For silent blocks made of rubber/steel:

Soapy solution = allowed, oils and greases = not allowed!

! The silent block protrudes identically on both sides!

- [8] Position the equaliser and assemble with new locknuts

⌘ WAF 46 775 Nm ± 25 Nm

- [9] Assemble the spring eye fitting (GKT: Assemble the eccentric nut)

⌘ WAF 30 400 Nm ± 20 Nm

⌘ WAF 36 675 Nm ± 25 Nm

! Align the eccentric nut marking to 6:00!

⌘ WAF 60 Pre-tightening: 200 Nm

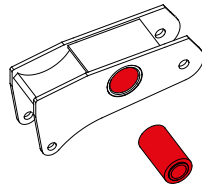
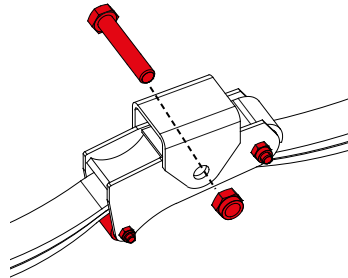
- [10] Assemble rubber rollers with distance tube

- [11] Tighten locknuts

⌘ WAF 24 120 Nm ± 10 Nm

! Spring/rubber roller must be able to move freely!

- [12] GKT: Adjust the track → 2.1, pg. 118



4.3.2 DISASSEMBLING/ASSEMBLING THE SILENT BLOCK SPRING EYE

- [1] Detach the spring eye fitting and dispose of locknuts

⌘ WAF 30

- [2] Lower the spring on the front until the spring eye is freely accessible

- [3] Press out the silent block

- [4] Clean the bush

- [5] Press in the new silent block

! For silent blocks made of rubber/steel:

Soapy solution = allowed, oils and greases = not allowed!

! The silent block protrudes identically on both sides!

- [6] Lift the spring until the spring eyes align in the suspension bracket/equaliser

- [7] GKT: Place the spacers inside the suspension bracket/equaliser

- [8] Place the spring bolts (GKT: Assemble the eccentric nut)

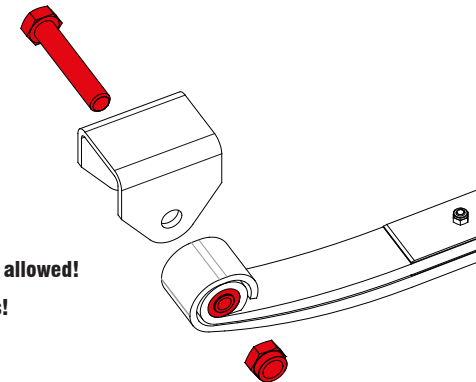
- [9] Assemble new locknuts

- [10] Tighten fitting on the spring eye

⌘ GK WAF 30 400Nm ± 20 Nm

⌘ GKT WAF 30 Pre-tightening 200 Nm

- [11] GKT: Adjust the track → 2.1, pg. 118





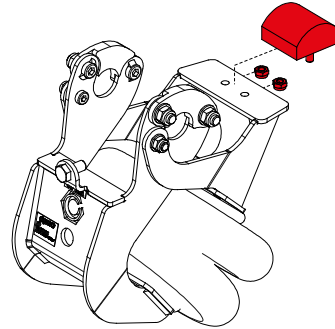
5. AXLE LIFTS

gigant differentiates between the Twinlift, one-sided (EAL, EAL-T) and centre axle lift (MAL) versions.

5.1 DISASSEMBLING/ASSEMBLING THE WEAR BLOCK

- [1] Relieve the pressure in the axle lift system
- [2] Detach and dispose of the locknuts
- [3] Take off wear block and clean the contact surfaces
- [4] Install new wear block and tighten using new locknuts:

 GL70	WAF 13	40 Nm ± 5 Nm
 EAL/MAL, EAL-T/MAL-T	WAF 13	25 Nm
- [5] Apply pressurised air to the system
- [6] Perform a leak and functionality test



5.2 GL70


5.2.1 DISASSEMBLING/ASSEMBLING THE AIR BELLOW

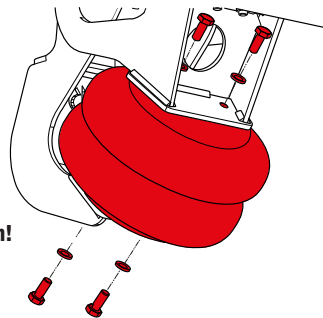
- [1] Relieve the pressure in the axle lift system and take off the air connection
- [2] Press down on the lift support
- [3] Detach fastening screws and dispose with the spring washers

⌘	WAF 17
---	--------
- [4] Dispose of the two-fold bellow and clean the contact surfaces
- [5] Connect the air connection to the new two-fold bellow

! gigant recommends that you always assemble a new air connection!

- [6] Insert two-fold bellow
- [7] Assemble with new spring washers and screws (use Loctite 2701)

 WAF17	M12	40 Nm ± 5 Nm
--	-----	--------------
- [8] Apply pressurised air to the system
- [9] Perform a leak and functionality test




5.2.2 DISASSEMBLING/ASSEMBLING THE AXLE LIFT


- [1] Relieve the pressure in the axle lift system and take off the air connection
- [2] Detach the anchor plate fitting and dispose of the locknuts

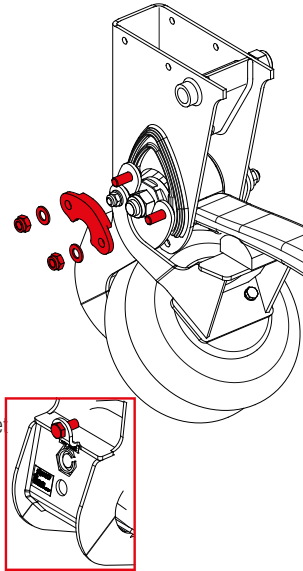
⌘	WAF 22
---	--------
- [3] Take off the axle lift
- [4] Disassemble the anchor plate of the new axle lift

⌘	WAF 22
---	--------
- [5] Turn back the axle lift's screw (do not unscrew)

⌘	WAF 22
---	--------
- [6] Position the axle lift on the spring bolt fitting
- [7] Secure the anchor plate with the washers under bearing and the new locknuts

 WAF 22	120 Nm ± 10 Nm
--	----------------
- [8] Lift axle lift and tighten with a screw through the long hole on the air suspension bracket

 WAF 22	80 Nm ± 5 Nm
--	--------------
- [9] Connect air connection and apply pressurised air to the system
- [10] Perform a leak and functionality test




5.2.3 DISASSEMBLING/ASSEMBLING THE LIFT SUPPORT


- [1] Disassemble the axle lift
- [2] Loosen the screw for the air bellow fastening on the lift support

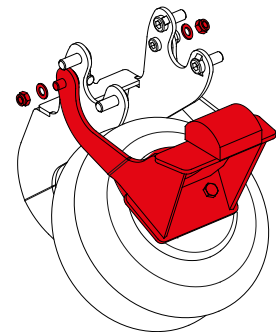
⌘	WAF 17
---	--------
- [3] Detach the locknuts of the lift support fitting and dispose of the locknuts

⌘	WAF 19
⌘	S 8
- [4] Remove the socket head screws and dispose of the lift support
- [5] Position the new lift support and insert the socket head screws from the inside

! Install new lift support and, if necessary, a wear block! → 5.1, pg. 134
- [6] Install washers under bearing
- [7] Coat the new locknuts with Loctite 2701 and tighten.

 WAF 19	80 Nm ± 5 Nm
⌘	S 8
- [8] Assemble the two-fold bellow with screws (use Loctite 2701) and washers

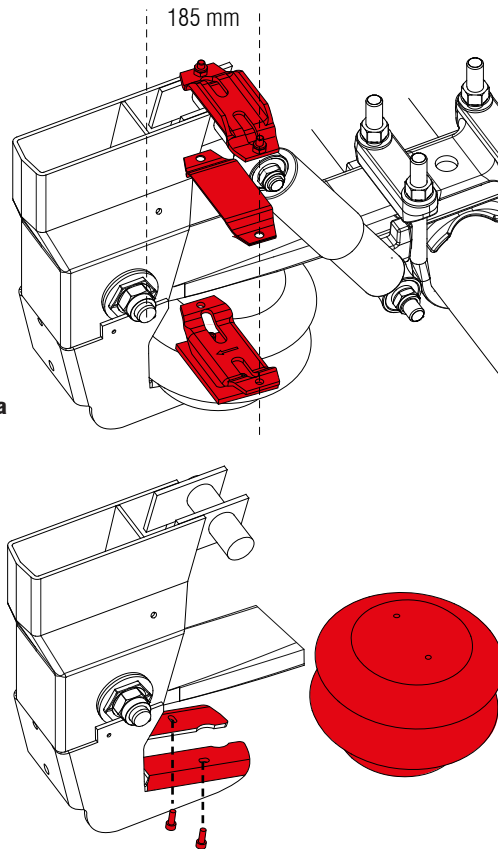
 WAF 17	40 Nm ± 5 Nm
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- [9] Assemble the axle lift → 5.2.2, pg. 135



5.3 FB100

5.3.1 DISASSEMBLING/ASSEMBLING THE AIR BELLOW

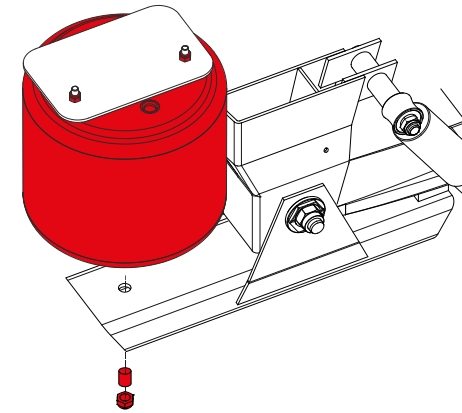
- [1] Detach the clamp and dispose of the locknuts
 I WAF 17
- [2] Press down on the two-fold bellow and remove, clean, inspect and, if necessary, replace the rubber sandwich plate
- [3] Detach the lower fastening screws of the two-fold bellow, remove, and clean the lift unit's contact surfaces
 I WAF 13
- [4] Assemble the lower clamp and air connection to the two-fold bellow
! gigant recommends that you always assemble a new air connection!
 I WAF 13 M8 25 Nm \pm 2.5 Nm
- [5] Use two-fold bellow and tighten with the lower fastening screws
 I WAF 13 M8 25 Nm \pm 2.5 Nm
- [6] Place the rubber intermediate strip around the spring and assemble the upper clamp with the new locknuts
! No contact is allowed between the spring and the clamps!
- [7] Align and tighten the clamp 185 mm from the centre of the spring bolt
 I WAF 17 M10 43 Nm \pm 3 Nm
- [8] Connect air connection and apply pressurised air to the system
- [9] Perform a leak and functionality test



5.4 EAL, MAL

5.4.1 DISASSEMBLING/ASSEMBLING THE AIR BELLOW

- [1] If necessary, disassemble the wheel
- [2] Relieve the pressure in the axle lift system and take off the air connection
- [3] Detach and dispose of the top locknuts
 I WAF 19
- [4] Take off and dispose of the lower fastening nut
 I WAF 30
- [5] Dispose of the air bellow and clean the contact surfaces
- [6] Install new air bellow on top with new locknuts
- [7] Install new fastening nut on the square tube, using an adapter sleeve, if necessary
 I WAF 30 M20 275 Nm \pm 25 Nm
- [8] Tighten top locknuts
 I WAF 19 M12 55 Nm \pm 5 Nm
- [9] Connect air connection and apply pressurised air to the system
- [10] Perform a leak and functionality test



5.4.2 DISASSEMBLING/ASSEMBLING THE LIFT SUPPORT

[1] Relieve the pressure in the axle lift system and take off the air connection

[2] Detach the spring bolt fitting and dispose of the locknut

[3] Detach and dispose of the lower fastening nut on the air bellow

⌘ WAF 30

[4] Remove spring bolt and remove lift support

! Maintain the spring in position for subsequent installation!

[5] Check the spring bolt and eccentric nuts and replace, if necessary

[6] Disassemble wear plate, if necessary → 5.1, pg. 134

[7] Slide the eccentric nut onto the spring bolt

! The spring bolt, eccentric nut, and eccentric bush must be grease-free!

[8] Put the new lift support in position and insert the spring bolt

[9] Insert eccentric nut and screw on the new locknut

[10] Insert the distance tube via the air bellow's pins and tighten the new locknut

🔧 WAF 30 275 Nm ± 25 Nm

[11] Tighten the spring bolt's new locknut

! Align the eccentric nut marking to 6:00!

🔧 WAF 41 Pre-tightening: 200 Nm

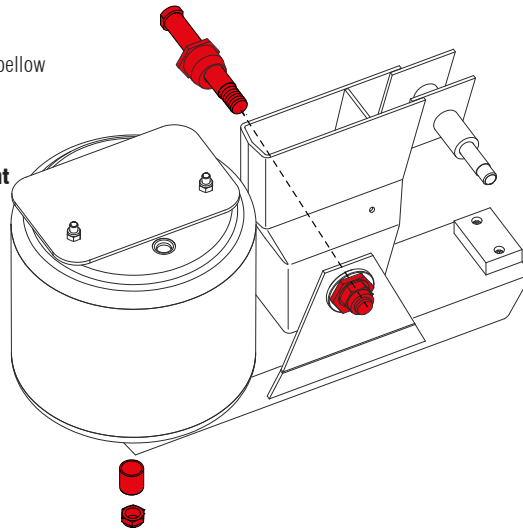
[12] For EAL/EAL-T: Adjust the track → 2.1, pg. 118

[13] Tighten axle lift type MAL/MAL-T

🔧 WAF 41 575 Nm ± 25 Nm

[14] Connect air connection and apply pressurised air to the system

[15] Perform a leak and functionality test



5.4.3 DISASSEMBLING/ASSEMBLING THE EAL-T SPRING

[1] Relieve the pressure in the axle lift system and take off the air connection

[2] Detach the lower air bellow attachment and dispose of the locknut

⌘ WAF 30

! Mark the pin position on the spring!

[3] Detach and dispose of the locknuts of the spring attachment on the suspension bracket

⌘ WAF 24

[4] Remove screws and remove spring from the suspension bracket

[5] Assemble new spring with screws and locknuts on the suspension bracket

[6] Assemble the lower air bellow pin on the spring

! Be mindful of the marking on the old spring!

[7] Tighten the locknuts of the link fitting

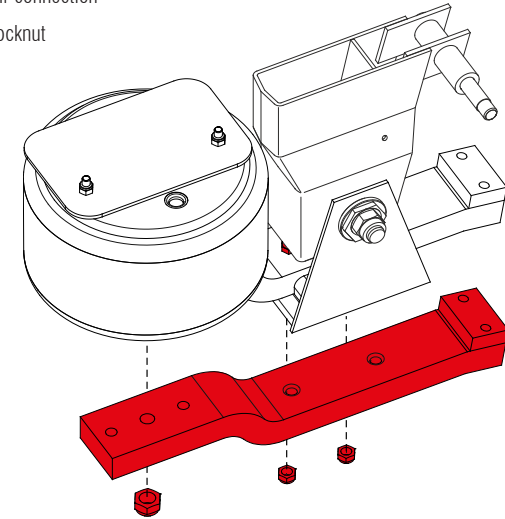
🔧 WAF 24 180 Nm ± 10 Nm

[8] Tighten the locknut of the lower bellow attachment

🔧 WAF 30 275 Nm ± 25 Nm

[9] Connect air connection and apply pressurised air to the system

[10] Perform a leak and functionality test





LUBRICANT AND SEPARATING AGENT | TOOLS

Product	Description	Containers	Item no.
gigant grease	Rhenus LKR25	1.0 kg	704290061
gigant grease	Rhenus LKR25	4.5 kg	704290063
gigant grease	Rhenus LKR25	9.3 kg	704290064
Grease (for GAH1)	Mobil Mobilith SHC 220	380 g	703016984
Copper paste	WEICON copper paste C-6	500 g	700000188
Separating agent, bearing seat	Molycote TP 42	100 g	704290082
Separating agent, bearing seat	Molycote TP 42	1.0 kg	704290080
Separating agent, bearing seat (GAH1)	Optimal White RV	100 g	703016984
Thread-locking fluid	Loctite 2701	5 ml	703013327
Sealant	Teroson MS 9120	310 ml	703450020

Product	Axle/suspension type or area of application	Dimensions	Item no.
Puller tool for brake cam	KPS	ID = 113	703017059
Axle nut socket	K2, KPS	WAF 95	710500968
Eccentric centring device	GL70	B = 125	700311130
Eccentric centring device	FB100	B = 153	700311047
Eccentric centring device	LK , GKT	B = 134	700311045
Magnet holder	FB100, LK, GKT		700090015
Mounting mandrel	K2 (9 t / 10 t, 3020 / 10,5 t, 3020, 3620 / 12 t, 3020) H7 12 t Walking beam axles (6 - 10 t, 3015, 3515)	Ø = 82, M68x1.5	709297005
Mounting mandrel	K2 (12 t, 3620, 4220, 4345) GEOKH2 10010 4218 Walking beam axles (10 t, 4218)	Ø = 90, M76x1.5	709297006
Mounting mandrel	K2 (5.5 t / 7 t; 3015)	Ø = 78, M68x1.5	709297008
Mounting mandrel	Axle pivot pin: Disassembling/assembling the bush	Ø ~59 / Ø ~65 L125	709713925
Extraction and puller tool (suitable for puller tool for brake cam)	Brake camshaft: Disassembling/assembling the bush, GEOKH2 10010 4218	Ø ~ 36 / Ø ~ 39 L115 Z = 7	770000000
Assembly bolts	D(N)OKH2	M18x1.5	700000606
Assembly bolts	D(N)OKH2 (Adapter puller tool)	M18x1.5 / G5/8	700190254

Product	Axle/suspension type or area of application	Dimensions	Item no.
Installation help	Threading pin rubber bush equaliser LK	Øi1 = 51, Øi2 = 60.5, Øi3 = 41, l1 = 45, l = 75	700100021
Installation help	Push tool pin rubber bush equaliser LK	Inner diameter = 65, outer diameter = 88.9 l = 85	700100020
Hubcap key	K2 (5.5 t / 7 t; 3015)	WAF 120	710500965
Hubcap key	K2 (9 t / 10 t, 3020 / 10,5 t, 3020, 3620 / 12 t, 3020) H7 - 12 t Walking beam axles (6 - 10 t, 3015, 3515)	WAF 160	710500962
Hubcap key	K2 (12 t, 3620, 4220, 4345) GEOKH2 10010 4218 Walking beam axles (10 t, 4218)	WAF 170	710500963
Wheel nut spanner, thin-walled	K2, 3020	WAF 22	700190191
Torx wrench	D(N)OKH2	E 24	700190182



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