KRONE TRAILER AXLE

OPERATOR MANUAL

The KRONE Trailer Axle

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CONTENTS

This operator manual provides information concerning the KRONE Trailer Axle In addition to the components used, it also contains information for maintenance and repair of the KRONE Trailer Axle. This manual should provide information for the user, and it should also serve as an information source for trained specialists and authorised specialist companies of the motor vehicle trade.

With regard to the information provided in this manual, we assume no responsibility for its accuracy, content, or actuality. The content and information of this manual constitute neither warranties nor assured characteristics as defined by German law or the German Civil Code (BGB), nor can the content and information of this manual be construed as such.

Claims arising from information, recommendation or consulting cannot be derived from the provision of this manual. Liability for damage is not accepted, except in the case of intent or gross negligence on our part, or unless required by law. The texts and graphics used in this manual are subject to the right of use and exploitation and ownership of Fahrzeugwerk Bernard Krone GmbH, duplication or dissemination in any form require our written consent. The brand names used, even if they are not marked in every case, are nevertheless subject to the regulations of trade mark law.

If disputes of a legal nature should arise from the use of the information in this operator manual, such disputes are subject to German law exclusively. The Rheine District Court is agreed as the place of jurisdiction. If speific clauses of this declaration of the restriction of liability do not or no longer conform to the applicable statutoryregulations, then the validity of the other clauses shall remain hereby unaffected.

Carefully read the information in this manual all the way through and particularly comply with the safety instructions on the following pages. If there are questions that are not answered in this manual, please contact KRONE Customer Service:

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Bernard-Krone-Straße 1
49757 Werlte, Germany
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Fax: +49 (0) 5951 209-367
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Internet: www.krone-trailer.com

The KRONE Mobility Hotline is available to you outside of office hours:
00800 225557663 or +49 (0) 7333 808512

Intended use

The KRONE Trailer Axle must only be used as intended within the manufacturer specifications prescribed by KRONE and in compliance with mandatory statutory regulations.
The owner is responsible for complying with the intended use.

This also includes:
- compliance with the instructions in this operator's manual
- compliance with the maintenance guidelines that apply for all KRONE axles and KRONE assemblies. These guidelines are a component of our warranty conditions
- execution of the following maintenance tasks in accordance with the prescribed intervals for compliance and the full operational readiness, as well as traffic safety and operational safety

The KRONE Trailer Axle can be loaded with a maximum axle load of 9,000 kg. Only mid-centred steel or aluminium rims, size 22.5 inches, with a press-in depth of 120 mm that are approved by KRONE may be used.

To maintain the validity of the operating permit for KRONE axles and assemblies, only use original KRONE spare parts or spare parts from other manufactures that are approved by KRONE. KRONE accepts no liability for installation of unsuitable or non-approved parts in the product. All uses other than the use described under "Intended use" are considered to be non-intended use.

Requirements imposed on personnel

The rectification of determined defects and replacement of worn components must only be executed by a specialist in qualified workshops or by authorised specialist companies in the motor vehicle trade, that have all the qualifications and the tools necessary for execution of these tasks. Maintenance must only be executed 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 by inadequately qualified personnel results in incalculable risks for people, material assets and the environment.

Prior to starting each trip, the driver must ensure for himself that the brake system and air suspension system are operational. With an air suspension system you must only drive drive in the ‘driving’ position. The air bags must not have any folds even after fast discharge or crane loading.

Former maintenance guidelines are not valid.

WARRANTY CONDITIONS

The KRONE Trailer Axle is designed for low maintenance to 6 years. We not only promise you quality, we deliver it to you. A check as part of your annual main inspection is sufficient and we grant you a full 6-year warranty on the bearing and axle body without mileage limit for the KRONE Trailer Axle. The manufacturer (hereinafter KRONE) grants to users of the axle systems and compact bearing axles of the KRONE Trailer Axle manufactured and delivered by KRONE since 01/10/2014, a warranty in accordance with the following conditions:

Scope of the warranty

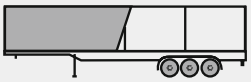
KRONE grants a warranty for product defects that are verifiably attributed to a material or manufacturing fault. The warranty exists in addition to the legal warranty for defects on the part of the seller arising from the purchase contract, with the first end user, and does not affect this legal warranty for defects. The warranty period is based on the normal use of the vehicle, which is defined in chapter 3. The warranty covers the costs for replacement of defective parts, as well as the wage costs incurred within the framework of the conditions specified by KRONE. The warranty only applies to faults or defects of the product which are attributable to KRONE. Consequential damage, in particular towing costs, rental costs for replacement vehicles, claims for lost profit or damage compensation are excluded from the warranty. A more extensive liability due to mandatory statutory regulations remains hereby unaffected.

Liability exclusions

Excluded from the warranty is wear to parts such as brake pads or brake discs and damage that occurs through:

- improper use of the KRONE axle systems,
- trailer/braking mis use,
- mechanical damage due to accidents, collision or other impact,
- negligent or wilful destruction, as well as fire,
- misuse of the vehicle
  (for example: Overload, overheating, use under abnormal conditions),
- incorrect maintenance, in particular neglecting the regular inspection and maintenance tasks described in the current KRONE inspection and maintenance guidelines (see www.krone-trailer.com),
- conversion of parts or modifications to the KRONE axle systems, or use of parts of a non-KRONE origin instead of original KRONE spare parts or use of unsuitable lubricants.

Also excluded from the warranty are such phenomena, as noises, odours, vibration, oil leaks, that have no influence on the merchantability of the KRONE axle systems. If the defect becomes evident within a period of 6 months after first delivery of the vehicle to the first customer, then the irrefutable assumption is that a material fault or manufacturing fault is involved.

Vehicle types	Standard	KRONE suspension assemblies		KRONE axles	
		On-road	Off-road	On-road	Off-road
Curtainsiders, refrigerated trailers, coil transporters 1–3 axles 	Wheel gauges: 2040/2090/2140 Spring centres: 1200/1235/1300/1400	ST	HD	3 x 9.0t axle DOKTX1	3 x 9.0t axle DOKTX1 HD

Warranty period

The warranty is valid from the date upon which the trailer is delivered to the customer. The warranty period is specified in the following table for the respective KRONE axle system. The extended warranty period depends on whether the vehicle is used in on-road or off-road conditions. The conditions in which the trailer is operated are determining factors for the classification of a KRONE axle system in the category on-road or off-road. If the vehicle is constantly used only on roads with paved asphalt or concrete surfaces, then this is considered on-road use. However if in addition the vehicle is occasionally operated off the paved surface, this is considered off-road use. Off-road use is always assumed for dump trucks, and use of the vehicle on construction sites, in quarries, in agriculture, for military purposes or gravel roads.

Extended warranty for the wheel bearing and the axle body

	ON-road	Off-road
EU (2014), Norway, Switzerland, Turkey	6 years	3 years
Non-EU-countries (2014)	2 years	1 year

After the extended warranty expires we recommend to check the bolted component parts in accordance with test or tightening torque.

24 months

- **Components:**
  Air spring bracket, trailing arms, brake cylinders, brake callipers without pads, axle lift, air spring bellows, ABS sensor and flywheel, brake shoes (without pads), spring shackle, shock absorbers

24 months, however wear is excluded as a reason for complaint

- **Components:**
  Brake discs, brake pads, seals, silent block

For determination of the precise mileage the data of ABS, EBS, and similar measuring systems are authoritative, if a through these displays a seamless recording of the vehicle's total mileage is possible. Specification of incorrect mileage or manipulation of the measurement devices invalidates the warranty. A warranty claim does not extend the warranty. Parts replaced as part of warranty claims, are warranted for 6 months, or at least for the running warranty period.

Enforcement of warranty claims

A warranty claim is enforced through the use of a KRONE warranty application submitted to KRONE. The KRONE warranty application must include the information asked for on the application. The KRONE warranty application can be downloaded at the address www.krone-trailer.com.

The following must be provided with the KRONE warranty application:
- copies of the maintenance verifications*
- if there are complaints regarding the wheel hub units, the digital EBS/ODR datasets
- if there are complaints regarding the brake components, the log of brake force/trailer match and the digital EBS/ODR datasets

A warranty claim must be enforced at KRONE without delay, at the latest 2 weeks after determination of the error. The removed faulty components must be kept safe and must only be disposed of after written consent from KRONE.
KRONE is entitled to bill for costs that are incurred due to wrongful warranty claims.

*KRONE reserves the right to request the original documents!

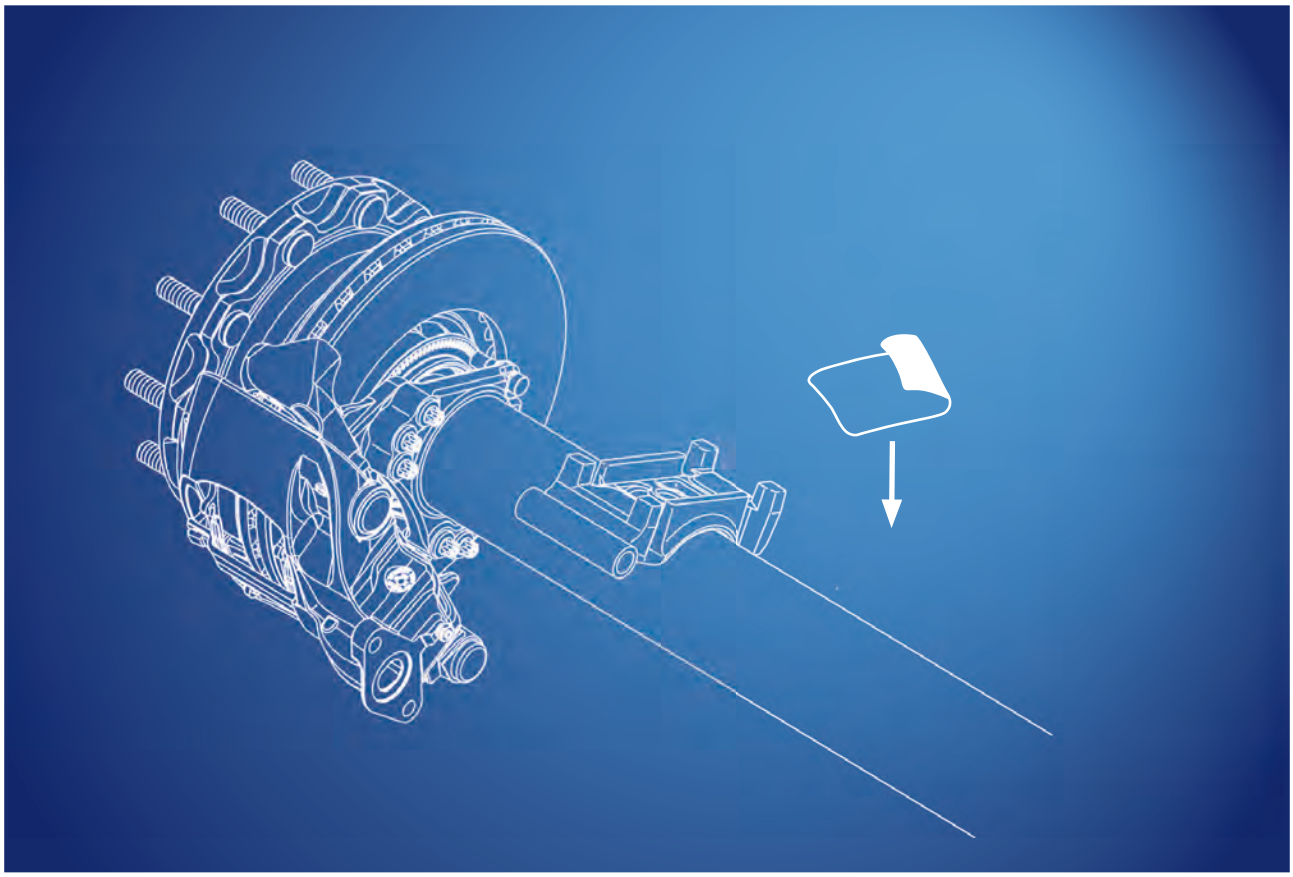
Approximate times for warranty tasks

All time specifications are in minutes. The times specified in the Work time column refer to one wheel side without set-up time.

No.	Component	Work step	Approxi-mate time	Upstream tasks	Work time, complete
1	Vehicle	Set-up time complete	30		
2	Wheel	Dismounting and mounting	10		
3	Brake air gap	Check and and adjust	6	2	16
4	EBS / ABS brake system	Read out error memory	30		
5	Brake callipers 1 piece	Check completely	7	2. 8	29
6	ABS wheel sensor	Remove and install	4		
7	Brake cylinder	Remove and install	15	2	25
8	Brake pad	Remove and install	12	2, 3	28
9	Brake calliper	Remove and install	25	2, 3, 7, 8	68
10	Wheel flange, complete	Remove and install	12	2, 3, 7, 8, 9	80
11	Brake disc	Remove and install	25	2, 3, 7, 9, 10	93
12	Wheel bearing unit	Remove and install	20	2, 3, 6, 7, 8, 9, 10	104
13	Wheel bolts per wheel	Remove and install	20	2	30
14	Pressure piece with bellows and inner seal	Remove, install and replace	25	2, 3, 8	53

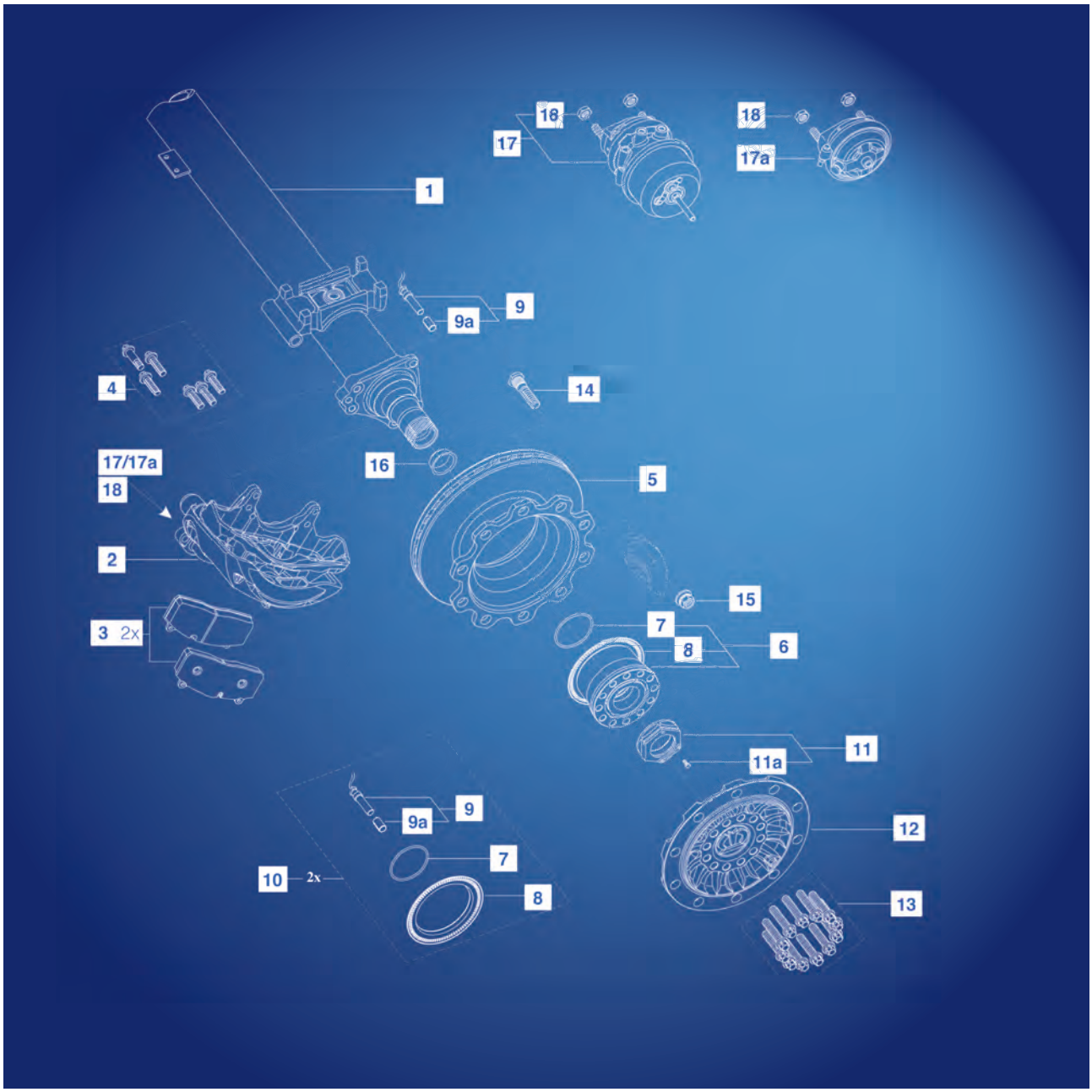
No.	Component	Work step	Approxi-mate time	Upstream tasks	Work time, complete
15	Guide bushing (Moveable bearings, DU-bearings)	Remove and install	15	2, 3, 7, 8, 9	83
16	Guide bushing Fixed bearing	Remove and install	20	2, 3, 7, 8, 9	88
17	Bellows, interior	Remove and install	9	2, 3, 7, 8, 9	77
18	Wheel alignment, 2 axles complete		65		
19	Wheel alignment, 3 axles complete		80		
20	Axle complete incl. track	Remove and install	195		
21	Air spring bellows (1 piece)	Remove and install	20		
22	Shock absorber (1 piece)	Remove and install	15		
23	Trailing arm (1 piece), including associated tasks, without track	Remove and install	95		
24	Clamp plate and/or spring shackle, 1 side, without composite	Remove and install	50		
25	Air spring bracket with eccentric support, incl. all associated tasks	Remove and install	195		
26	Spring shackle per side (2 piece)	Remove and install	25		
27	Axle lift	Remove and install	20		

Axle identification



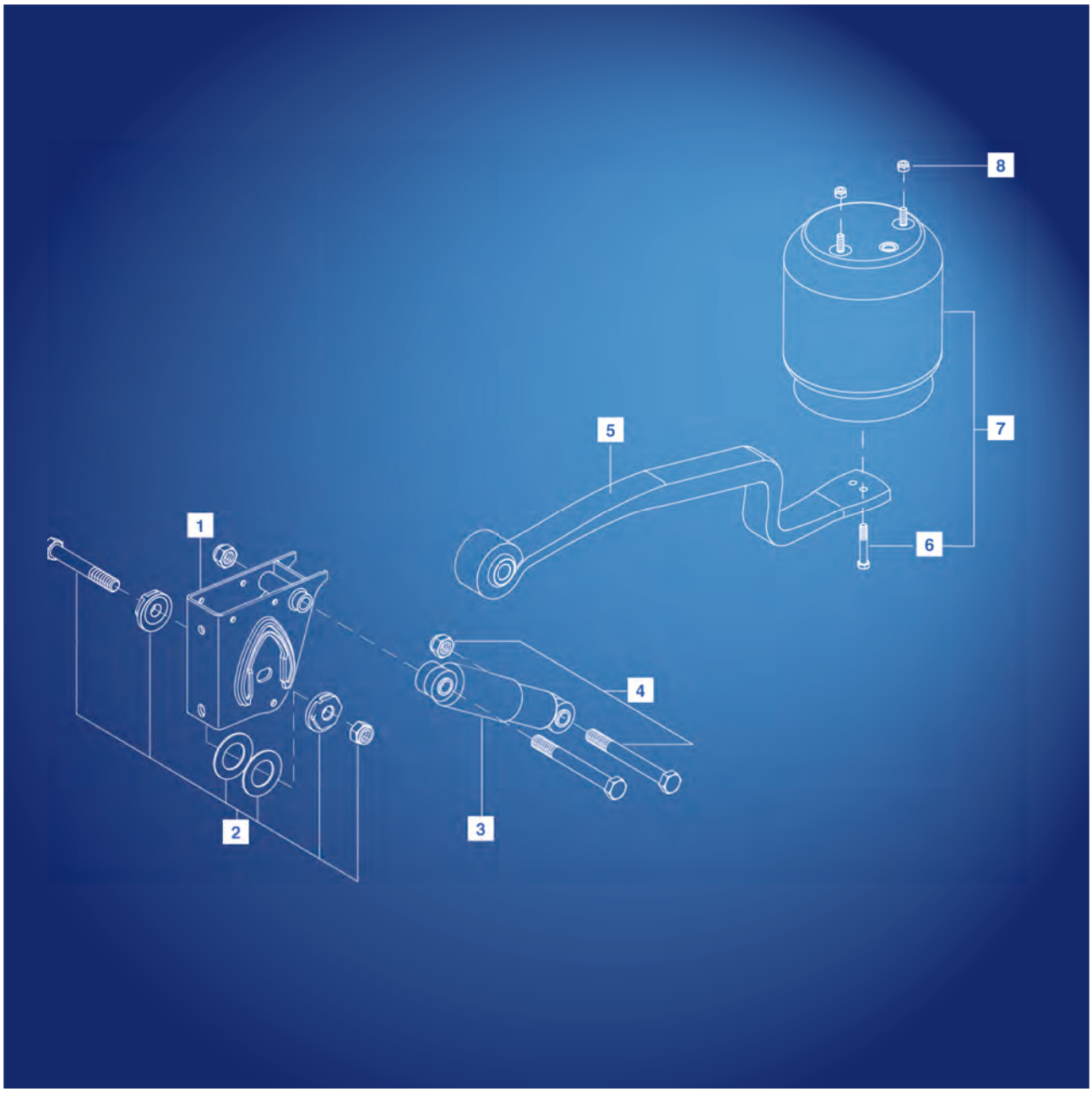
1 › Item no./date of manufacture
2 › Axle designation
3 › ID: Test log

Components of the axle



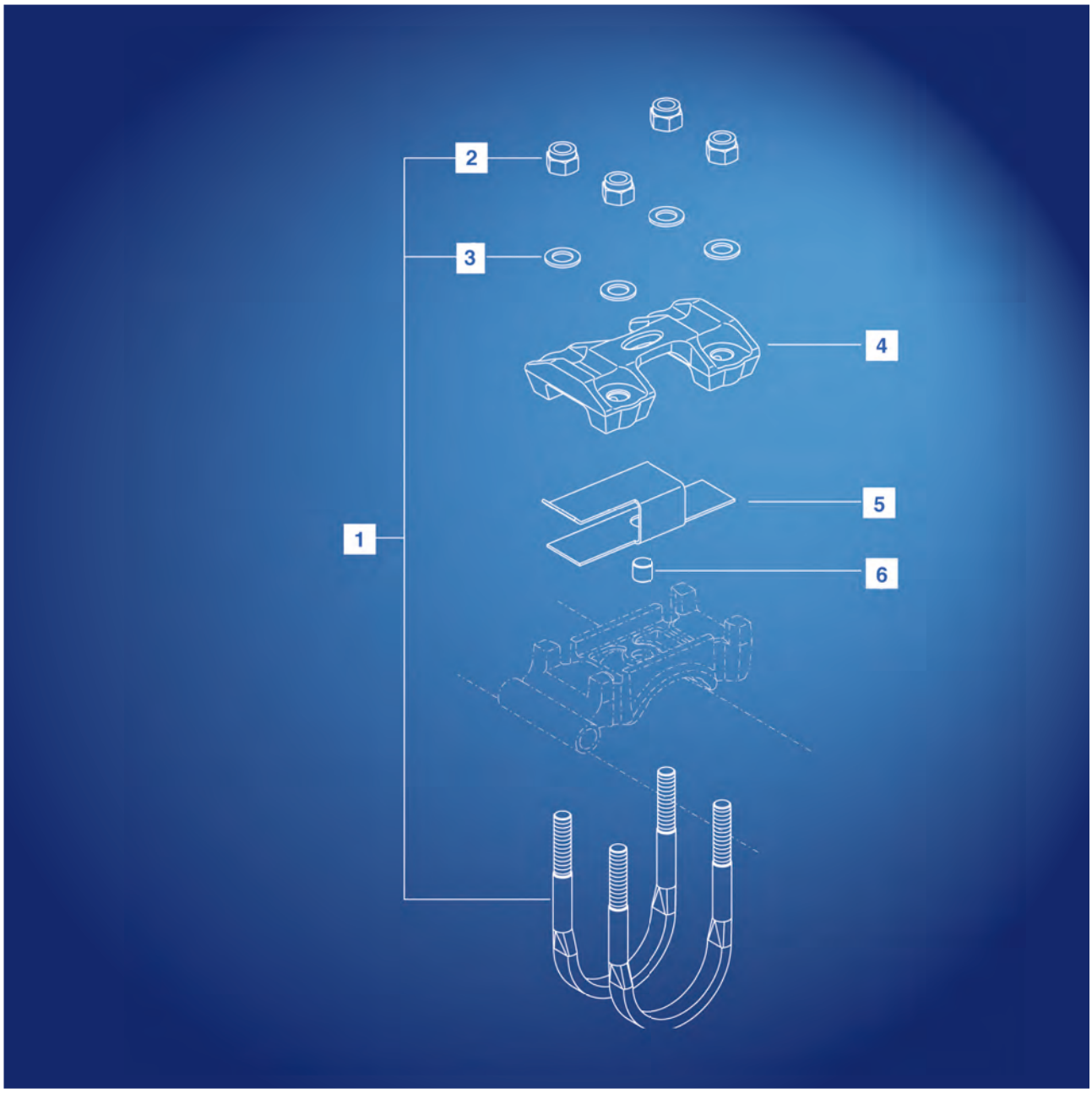
1	Axle body
2	Brake calliper
5	Brake disc
8	ABS flywheel
9	ABS sensor set
12	Hub flange
13	Torx screws
17/17a	Brake cylinder

Air suspension



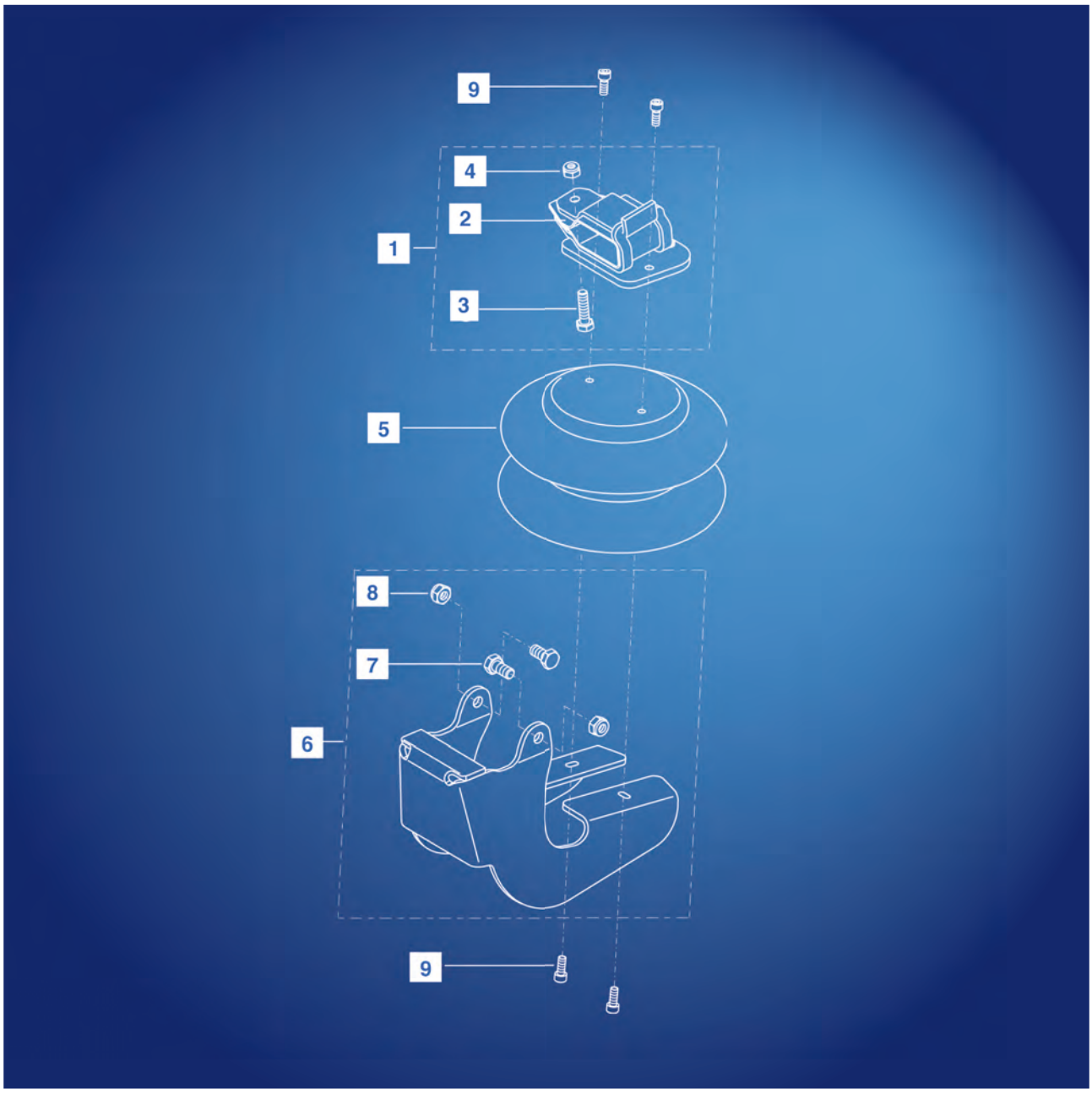
1 Air spring bracket
2 Connecting rod bolt set
3 Shock absorber
5 Connecting rod
7 Air spring bellows

Assembly

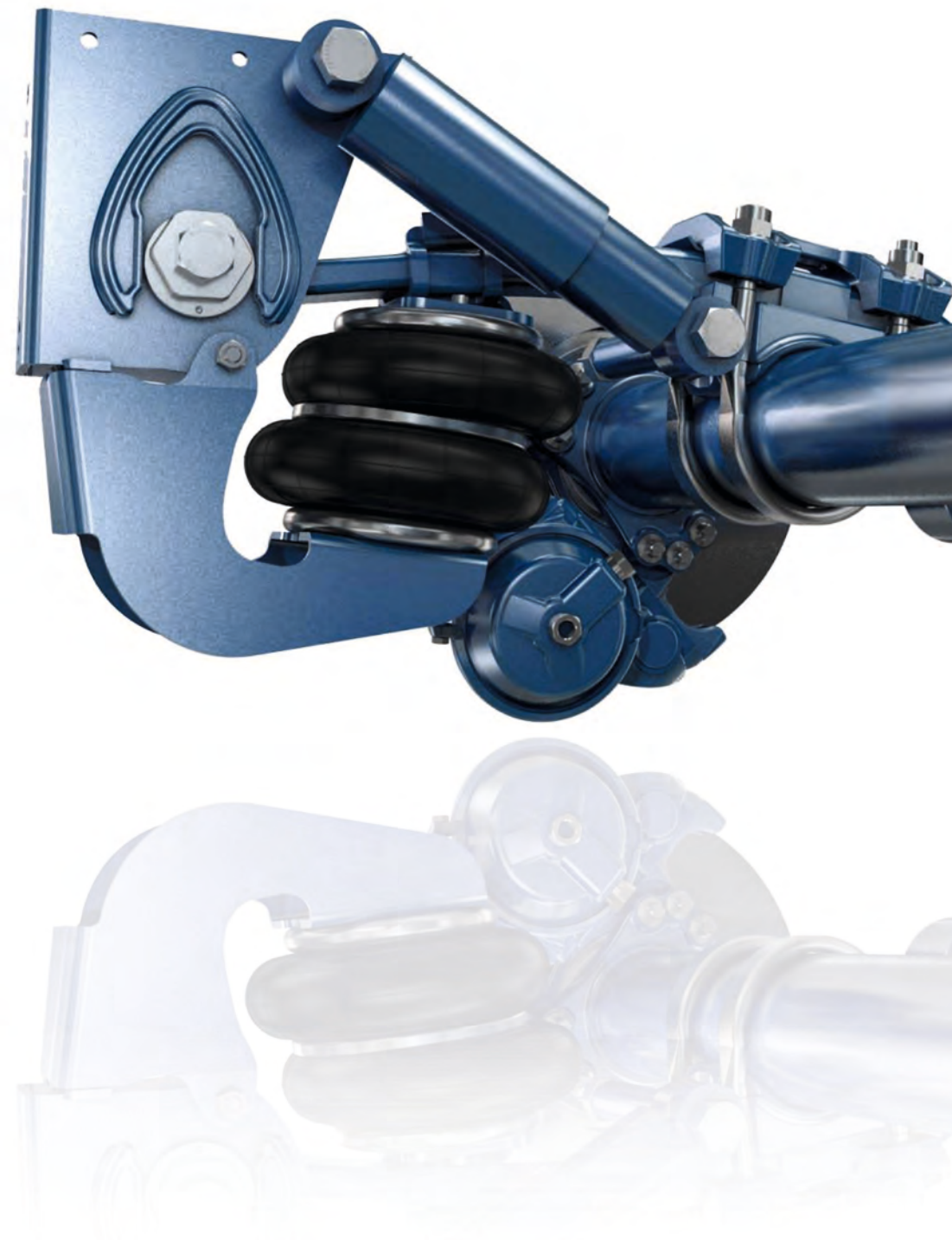


1 › Spring-loaded bar set
4 › Clamp plate
5 › Shim
6 › Centre bolt

Twinlift



1 Clamp
5 Air spring bellows
6 Twinlift lever



Symbols

Symbol	Explanation
●	Visual inspection - On-road
○	Visual inspection when changing the brake disc
■	Check
□	Maintenance task - On-road

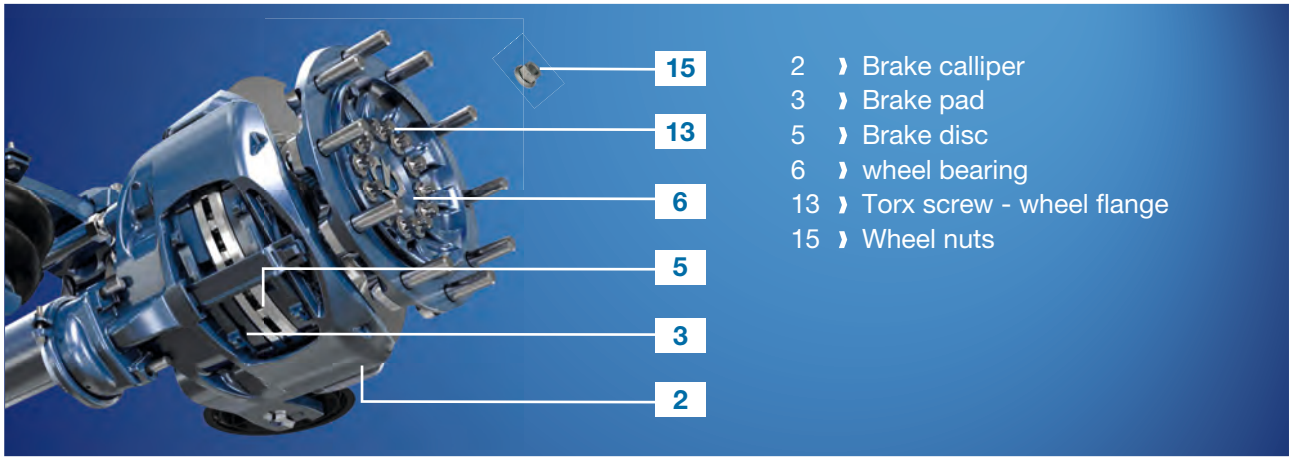
General information

Prior to starting maintenance and repair tasks, ensure that the vehicle is safeguarded against rolling off in accordance with the vehicle manufacturer's instructions. For tasks on the brake of the axle, the brake system must be vented and the disc brake must be brought into disengage position, so that dismounting of the brake components is possible. The maintenance guidelines apply for KRONE axles and KRONE assemblies. The maintenance guidelines are a component of the warranty conditions. To maintain full operational readiness, as well as traffic safety and operational safety, the following maintenance tasks must be executed in the prescribed intervals.

In addition to the general safety inspections in accordance with statutory regulations, for KRONE axle assemblies there is the visual inspection of the components and threaded unions. For the check, the threaded union should be checked visually as specified and if necessary checked for firm seat with the torque spanner. Relative to maintenance, the threaded unions must be replaced if necessary and tightened to the specified tightening torque (Among other things, rust and subsidence can be an indication of loose threaded).

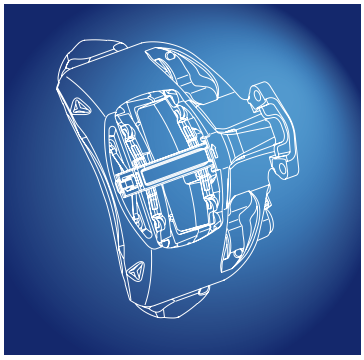
In the tables you will find the maximum service intervals for vehicle use in On-road implementation.
The intervals for service are reduced in accordance with the use of the vehicle in Off-road implementation, or driving style and must be adapted individually.

Axle



Symbol	Explanation
●	Visual inspection - On-road
○	Visual inspection when changing the brake disc
□	Maintenance task - On-road

Position	Designation	100 km after commissioning and each wheel change	When changing a brake disc	100 km after changing a brake disc	Every 3 months	Every 6 months	Yearly	Page
2	Brake calliper (Ease of movement/function/seals)						●	20
3	Brake pad				●			20
5	Brake disc					●		20
6	Wheel bearing		○					21
13	Torx screws - wheel flange			□				21
15	Wheel nuts	□						21

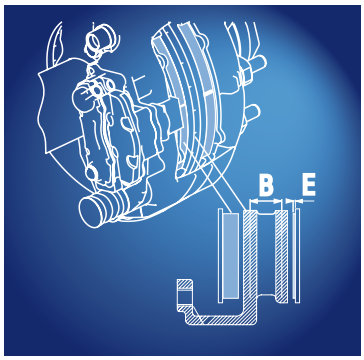


Position 2

Brake calliper

Check interval in accordance with overview page 19!

- Identification of the brake calliper is on page 31 and the maintenance guide-lines of the brake calliper manufacturer on the manufacturer's website

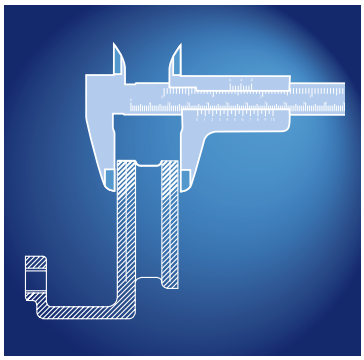


Position 3

Brake pad

Check interval in accordance with overview page 19!

- Check disc brake pads.
  At a residual brake pad thickness of < 2 mm change brake pads



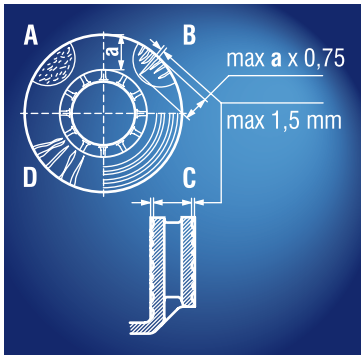
Position 5

Brake disc

Check interval in accordance with overview page 19!

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

Brake type	Brake disc	Thickness	Min thickness	Pad thick-ness min.
4345	430	45	37	2



Brake disc surface

Check interval in accordance with overview page 19!

- Carefully check the surface of the brake disc for further use

Net-like crack formation on the surface of the disc	A	✓
Crack formation in the middle area of the friction ring	B	✓
Unevenness of the disc surface to 1.5 mm	C	✓
Radial cracks that start from the outer edge and continuous cracks	D	⊖

Position 6

Compact bearing - wheel bearing unit
Check interval in accordance with overview page 19!

- Lubrication not required! Visual inspection each time a brake disc is replaced. Check the status of the bearing for loss of grease, in accordance with page 35.

Position 13

Torx screws for hub flange
Check interval in accordance with overview page 19!

- Tighten screws with torque spanner in a cross pattern.
  Screw E24: › 50 Nm + 90°

Position 15

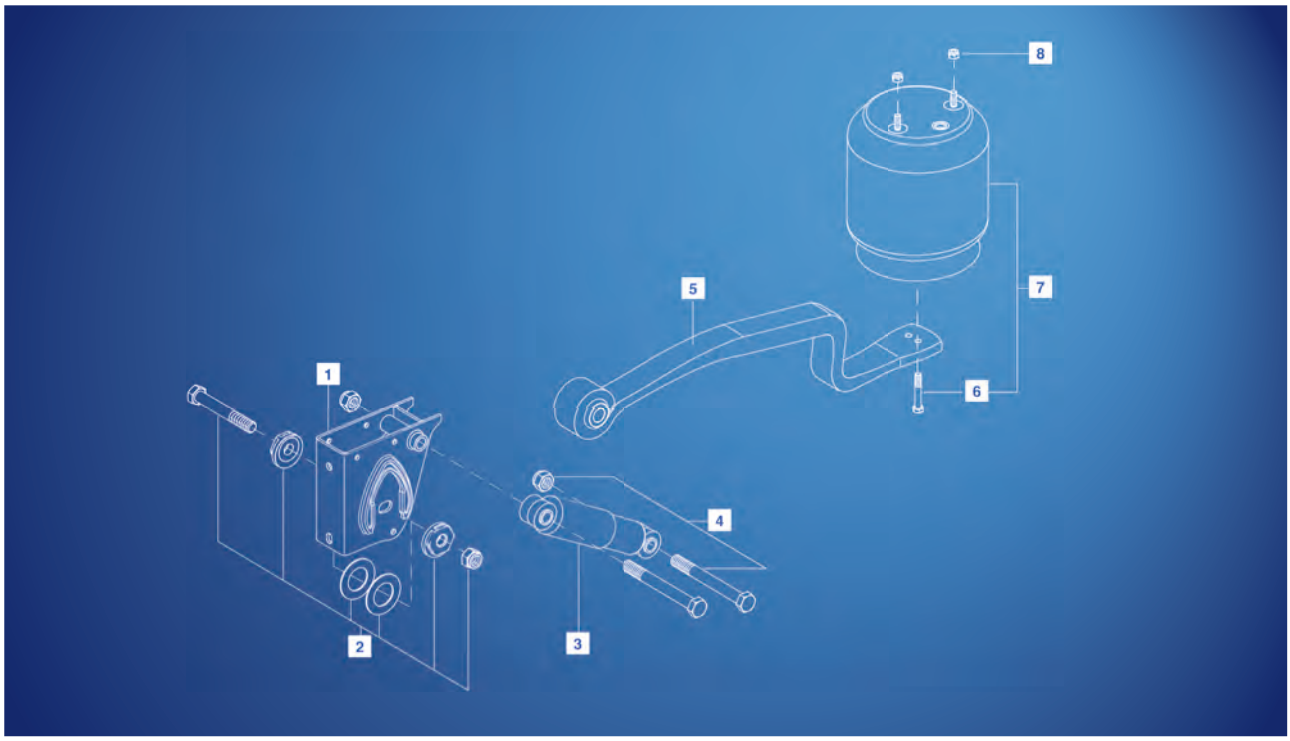
Wheel nuts
Check interval in accordance with overview page 19!

- At initial commissioning and after each wheel change after 100 km Retighten otherwise:
  › Fit on wheel, screw on wheel nuts, and tighten in accordance with the tightening arrangement for wheel bolts.
- Wheel change:
  › Prior to fitting on the wheel, clean contact surface of the wheel hub, rim and wheel nuts from rust and contamination. Ensure that the bores are centred relative to the wheel bolts.

Tightening torque:
M22 x 1.5 (AF32) › 600 Nm +/–30

› Tightening sequence for wheel bolts:

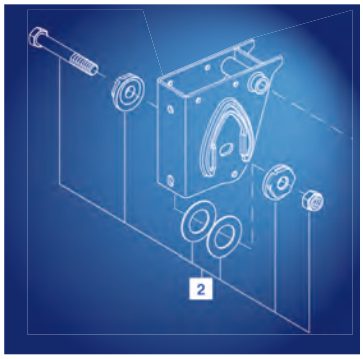
Air suspension



Symbol	Explanation
●	Visual inspection On-road
○	Visual inspection when changing the brake disc

Position	Designation	Yearly	Page
1	Connecting rod threaded union	●	23
2	Thrust washers	●	23
3	Shock absorbers (check for function and for leaks)	○	23
5	Silent bearing in the connecting rod eye	●	23
6	Threaded union - air bellows on the connecting rod	●	24
8	Lock nut - crimped plate	●	24

Air bag spring unit

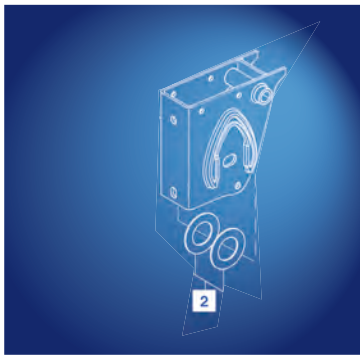


Position 1 Aggregate

Connecting rod threaded union

- Check interval in accordance with page 22!
  Check screw connection for firm seat, and check for prescribed tightening torque. If the screw connection has been loosened, check connecting rod bolts, bushings, thrust washers and air spring bracket for damage and replace if necessary.

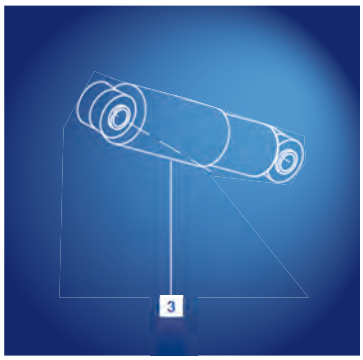
Test torque:
M24 › 680 Nm
Tightening torque:
M24 › 340 Nm + 90°



Position 2 Aggregate

Thrust washer
Check interval in accordance with page 22!

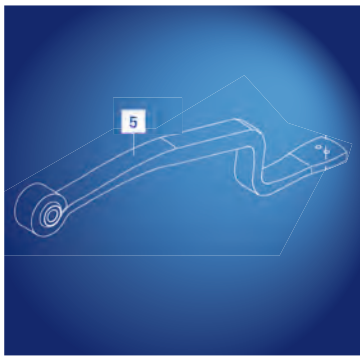
- The thrust washers must be checked for wear. A replacement is required if the washers are thinner than 2 mm at any point.



Position 3 Aggregate

Shock absorbers (check for function and for leaks)
Check interval in accordance with page 22!

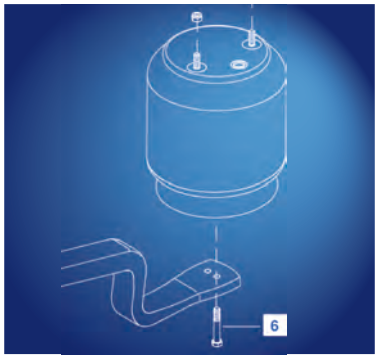
- Visual inspection for wear and damage.
  A “slight sweating” of the shock absorber is permissible. Shock absorber with noticeable wear in the rubber bushings (test: Twist) and conspicuous oil loss, it must be replaced for safety reasons.



Position 5 Aggregate

Silent bearing in the connecting rod eye

- Check interval in accordance with page 22!
  With engaged parking brake, move vehicle back and forth. If there is excessive wear, remove the connecting rod and replace the silent bearing.

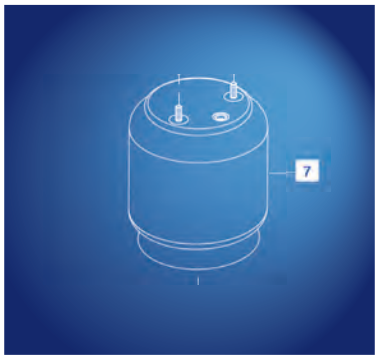


Position 6 Aggregate

Threaded union - air bellows on the connecting rod
Check interval in accordance with overview page 22!

- Check screw connection for firm seat, and if necessary check for prescribed tightening torque.

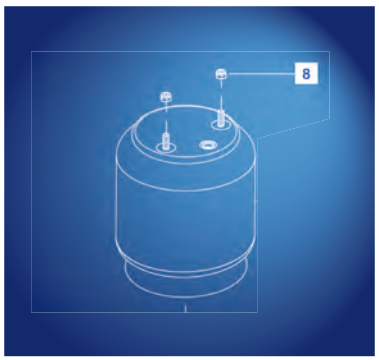
Tightening torque:
M12 › 55 Nm +/–5 Nm



Position 7 Aggregate

Air spring bellows

- Check the air spring bellows for damage (chafing marks, holes, brittleness, jammed foreign objects), and replace if necessary. Clean air spring bellows and piston.

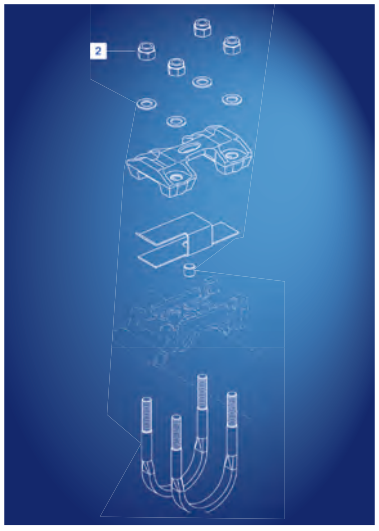


Position 8 Aggregate

Lock nuts - crimped plate
Check interval in accordance with overview page 22!

- Check screw connection for firm seat and if necessary, check for prescribed tightening torque.

Tightening torque:
M12 › 75–80 Nm



Checking integration

Lock nuts for spring shackle

- Check screw connection for firm seat, and if necessary check for prescribed tightening torque. Tighten the lock nuts crosswise in several stages, the thread length above the nuts must be that same at all positions.

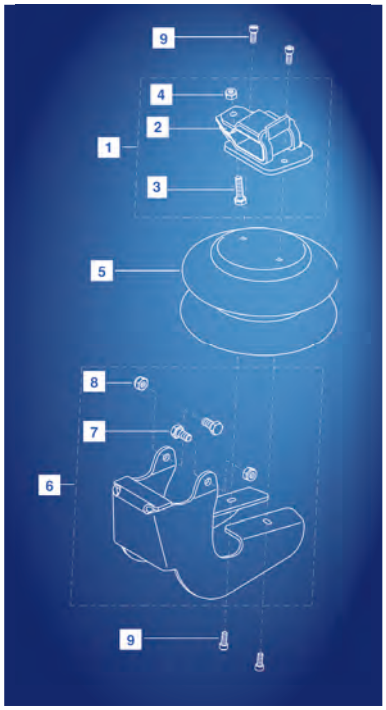
Tightening torque:
M22 x 1,5 › 700 Nm +/–25 Nm

Test torque:
M22 x 1,5 › 600 Nm

Axle lift

Symbol	Explanation
●	Visual inspection On-road

Position	Designation	Yearly	Page
3, 4, 7, 8, 9	Threaded union	●	25



Position 3, 4, 7, 8, 9 Axle lift

Threaded unions, Twinlift

Check interval in accordance with page 25!

- Check screw connection for firm seat, and if necessary check for prescribed tightening torque.

Position:	Tightening torque:	
3, 4	M10	45 Nm +/-3 Nm
7, 8	M12	75 Nm +/-5 Nm
9	M8	25 Nm +/-2 Nm

Position 5 Axle lift

Pneumatic spring bellows

- Check the air spring bellows for damage (chafing marks, holes, brittleness, jammed foreign objects), and replace if necessary. Clean air spring bellows and intermediate ring.

General information

To maintain the validity of the operating permit for KRONE axles and assemblies, only use original KRONE spare parts or spare parts from other manufactures that are approved by KRONE. The rectification of determined defects and replacement of worn components must only be executed by a specialised workshop.

Maintenance and repair must only be executed by qualified specialists who work in compliance with generally valid safety regulations. Prior to starting maintenance and repair tasks, ensure that the vehicle is properly safeguarded against rolling off.

For tasks on the brakes of the axle, the brake system must be vented, to bring the disc brake into disengage position, so that the dismounting of the brake components is possible.

Axle repair

Replacing a brake disc

Dismount wheel flange and brake disc.

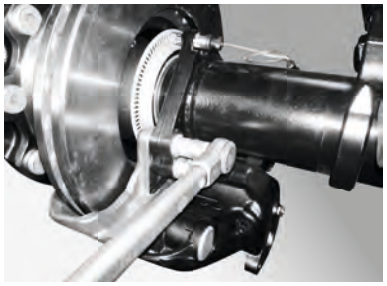
Caution

- Prior to starting the repair tasks the vehicle must be safeguarded against rolling off!
- The service brake and parking brake must be in disengaged and secured position!

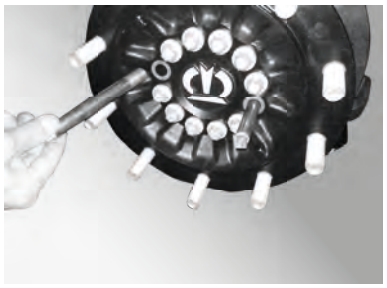
Dismount the wheel.

Reset the brake and remove the brake pad, in accordance with the guidelines specified by the manufacturer of the brake calliper.

- If the disc brake has a parking brake function, it must be ensured that the spring-load accumulator is completely released and is mechanically secured in this position.



Dismount the brake calliper, by first unscrewing the top-most screw and replacing it with a drift pin. Then unscrew the remaining screws and take off the brake calliper.



Unscrew two opposite screws from the wheel flange and replace them with mounting bolts.

Mounting bolt

Axle	**Item no.:**
DOKTX1	› 550018074

Pull the wheel flange with the brake disc over the mounting bolts of the wheel bearing unit.

Knock the wheel bolts out of the brake disc. Disconnect brake disc and wheel flange. Clean the contact surfaces of the wheel flange to he brake disc.

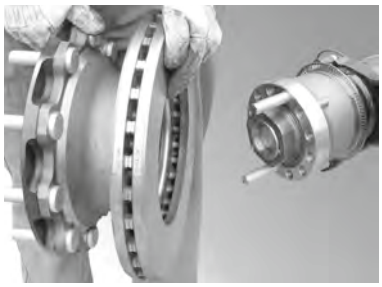
Place the new brake disc on the wheel flange and insert the wheel bolts through the brake disc as far as possible into the wheel flange.

With the hammer, carefully knock the bolts into the end position.

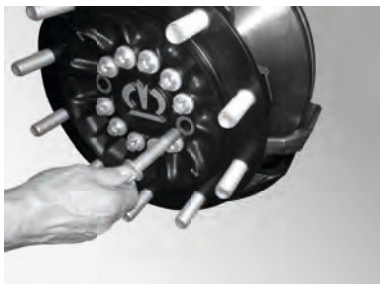
Caution

- Ensure that the wheel bolt head is correctly seated on the brake disc.
- The flattened side of the head must rest on the brake disc collar!

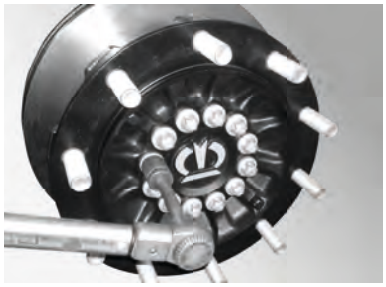
MAINTENANCE INSTRUCTIONS



Clean the contact surfaces of the wheel bearing unit and of the flange. Then slide the wheel flange with the brake disc over the mounting bolts on the wheel bearing unit.



Screw the Torx screws into the wheel bearing unit and replace the two guide bolts in this process.

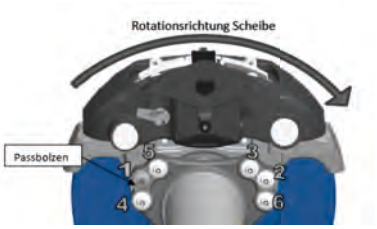


Tighten the 12 Torx screws on the wheel flange in a cross pattern with a torque spanner.

Torx screws - wheel flange

Axle	AF	Tightening torque
DOKTX1	E24	470 Nm +/-25 Nm

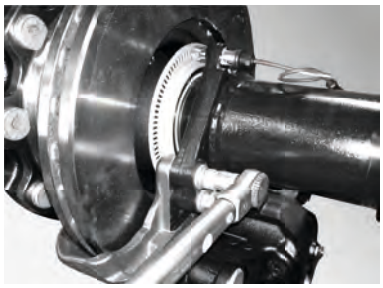
Mount the brake calliper, after you have previously cleaned the contact surfaces.
The screws are tightened in 2 steps:



- Step 1 — **Pretightening** of the screws with **30 Nm**, according to the specified sequence
- Step 2 — **Final tightening** of the screws with **190 Nm + 60°**, in accordance with the specified sequence

Caution

- Ensure for the correct installation of the brake calliper and the adjustment screw to the direction of rotation of the disc. (Rotating direction marked by the arrow on the brake calliper housing)



Brake calliper screws

Axle	AF	Tightening torque
DOKTX1	E20	› Stufe 1: 30 Nm › Stufe 2: 190 Nm +/-60°

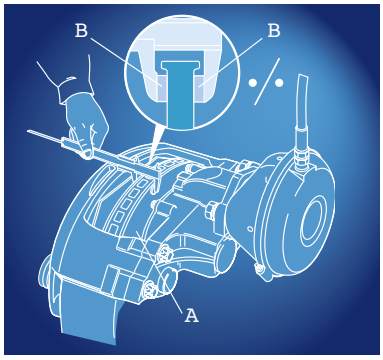
Insert the brake pads as specified by the brake manufacturer.
Adjust the brake as specified by the brake calliper manufacturer.
Mount the wheel and comply with the tightening sequence.

Montieren Sie das Rad und beachten die Anzugsreihenfolge.

Wheel nuts*

Axle	AF	Tightening torque
DOKTX1	32	› 600 Nm +/–30

Checking the brake disc

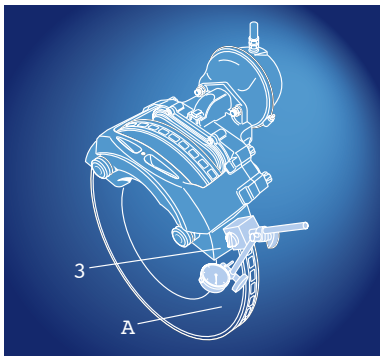


Wear of the brake disc
Check the brake disc (A) measure with the slide gauge. If the brake disc (A) has a wear edge, the measurement is executed within this wear edge using 2 spacer plates (B) (e.g. 5 mm thick faceplates.The thickness of the two face plates (B) is subtracted from the measured result. The minimum thickness of the brake disc is specified in the adjacent table.

› Vented disc: Max. 4 mm wear per side

Ø	MAX.	MIN.
ø 430 mm	45 mm	37 mm**

*Retighten wheel nuts in accordance with page 21.
**Max. 4 mm per side.



Axial run-out of the brake disc

Prior to measuring, check/adjust the wheel bearing play in accordance with the vehicle manufacturer's instructions.

Measure the Axial run-out of the brake disc (A), to do this mount a magnetic stand with dial gauge on the brake backing plate (3). Align the tip of the dial gauge against the side of the brake disc (A) and turn the brake disc > one revolution.

› Max. axial run-out: 0.5 mm

Caution

› Do not include wheel bearing clearance in the measurement!

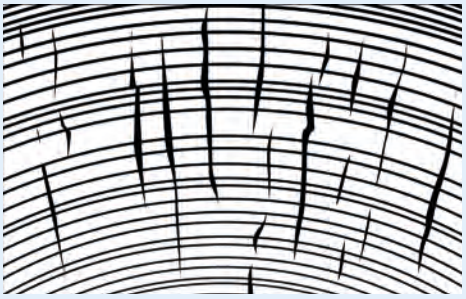
Cracks in the brake disc

Examine the brake disc (A) for cracks and sign of wear, also see the instructions provided by the axle/vehicle manufacturer.

If measures are required the instructions provided by the axle/vehicle manufacturer, relative to turning/replacing the brake disc must be complied with.

Crack length:
< 75% of the width of the brake disc

Permissible crack length



Crack length:
> 75% of the width of the brake disc

Impermissible crack length

Brake calliper (information on function and repair)

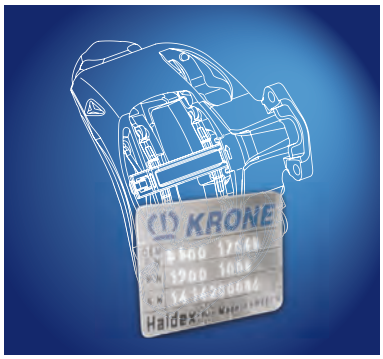
The wheels of an axle that should not be lifted, must be safeguarded against rolling off in accordance with the vehicle manufacturer's instructions.

Lift and jack up the axle, and remove the wheels in accordance with the vehicle manufacturer's instructions.

› Clean the disc brakes of contamination and dust. Use a dust remover or vacuum cleaner for cleaning, do not use compressed air under any circumstances - inhaling brake dust can be harmful!

For tasks on the brake of the axle, the brake system must be vented, to bring the disc brake into disengage position, so that dismounting of the brake components is possible.

› If the disc brake is fitted with a parking brake function, it must be ensured that the spring accumulator is completely released and is mechanically secured in its position.



Identification of the brake calliper via rating plate:

OEM P/N	KRONE item no.
P/N	Item no.
S/N	Serial no.

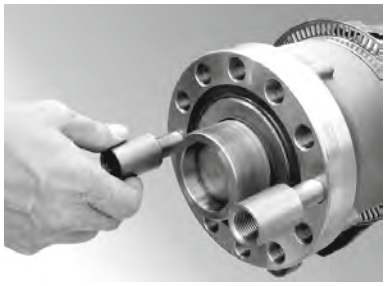
Dismounting and mounting the brake calliper, see: Replacing a brake disc Page 26. Function and repair information for the brake calliper is provided on the web site of the manufacturer of the brake saddle.

Replacing the wheel bearing unit

Beforehand, as described on page 26–27, dismount the brake calliper and the wheel flange with brake disc. Unscrew the lock screw (AF 10) on the axle nut. Unscrew the axle nut (AF 95).

Caution
- Right-hand thread/left-hand thread*
- Do not use an impact wrench

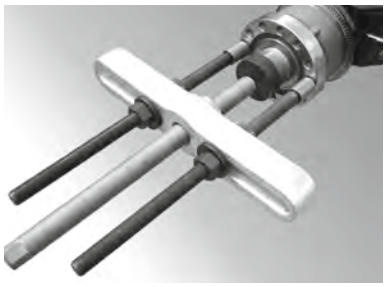
Tighten the wheel bearing unit of the axle stub.



If difficult to move, use an extractor. For this screw the adapter by hand into 2 opposite threads of the wheel bearing unit.

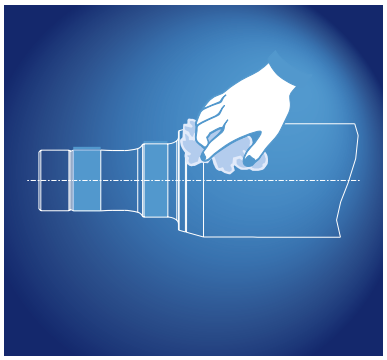
Adapter dismount - wheel bearing unit

Axle	**KRONE item no.:**
DOKTX1	50018075

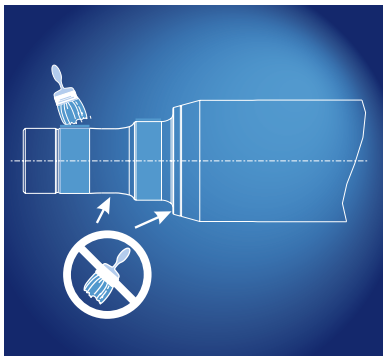


Fasten the extractor and loosen the wheel bearing unit from the axle stub. Then take the wheel bearing unit off of the axle by hand.

*Left-hand thread can be identified by the groove!.



Prior to mounting the wheel bearing unit, clean the axle stub.



Coat the axle stub with the anti-fretting paste Molykote TP42. Do not grease the bearing shoulder contact surface and between the bearings.

Molykote TP 42

Container	**KRONE item no.:**
100 g	550018075
1 kg	550012171

Place the sealing ring in the wheel bearing unit. For axles with ABS version, slide the ABS sensor forward in the bushing to the stop.

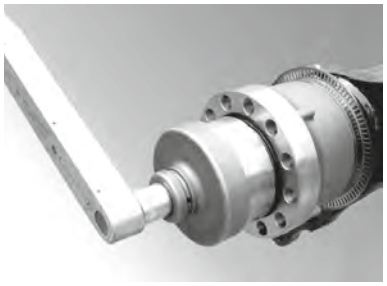
Clean the contact surfaces of the wheel bearing unit and slide it on the axle.

Caution

- When mounting the wheel bearing unit pay attention to the ABS fly wheel. Deformations of the flywheel result in ABS failure.
- Ensure that the O-ring is seated correctly before contact is made!

Lightly grease the thread of the contact surfaces and the thread of the axle nut.

Caution
- Left-hand thread/right-hand thread*
- Do not use an impact wrench



Screw the axle nut onto the axle while simultaneously turning the wheel bearing unit, and firmly tighten it with tightening torque.

Axle nut

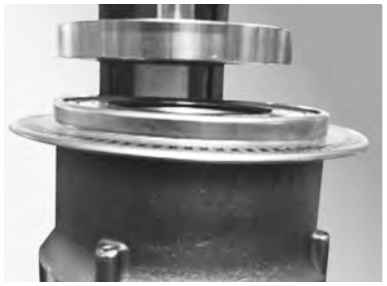
Axle	AF	Tightening torque
DOKTX1	95	700 Nm +/–25

Secure the axle nut with the lock screw.

Lock screw - axle nut

Axle	AF	Tightening torque
DOKTX1	10	15 Nm

Caution
- Ensure that the ABS sensor rests on the flywheel!



Installation - ABS flywheel

Press on ABS flywheel with a suitable aid uniformly and parallel to the stop.
- Maximum permissible parallelism is < 0.2 mm

Note:
Auxiliary tool can be a washer with a diameter of 220 mm and with a thickness of 15 mm.

Caution
- Do not deform the flywheel!

Installation - ABS sensor

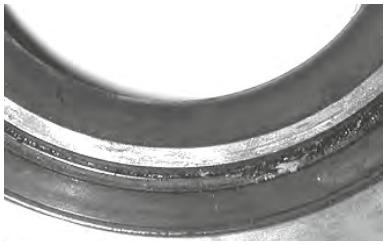
Brush the bushing and the ABS sensor with Molykote TP42 and insert the bushing.

Insert the ABS sensor in the sensor holder and slide the ABS sensor in the bushing to the stop, or if the hub is already mounted, to the stop on the flywheel. Turn the hub all the way through several times so that the ABS sensor is correctly positioned.

Caution

› The facing side of the ABS sensor must be free of lubricants!

Checking the wheel bearing unit



Increased grease leaks
If the inside of the flange, axle nut and seal are moistened with grease, there is a grease leak. In this case the wheel bearing unit must be replaced. This usually occurs in conjunction with pronounced annealing colours (blue).

Caution

› A small amount of grease can be on the edge of the seal. This is a normal occurrence and does not mean that grease is leaking.

*Left-hand thread can be identified by the groove.

Noise check

Lift the wheel. Turn the wheel in both directions.
If the bearing feels rough and the „grinding“ noise can be heard, replace the wheel bearing unit.

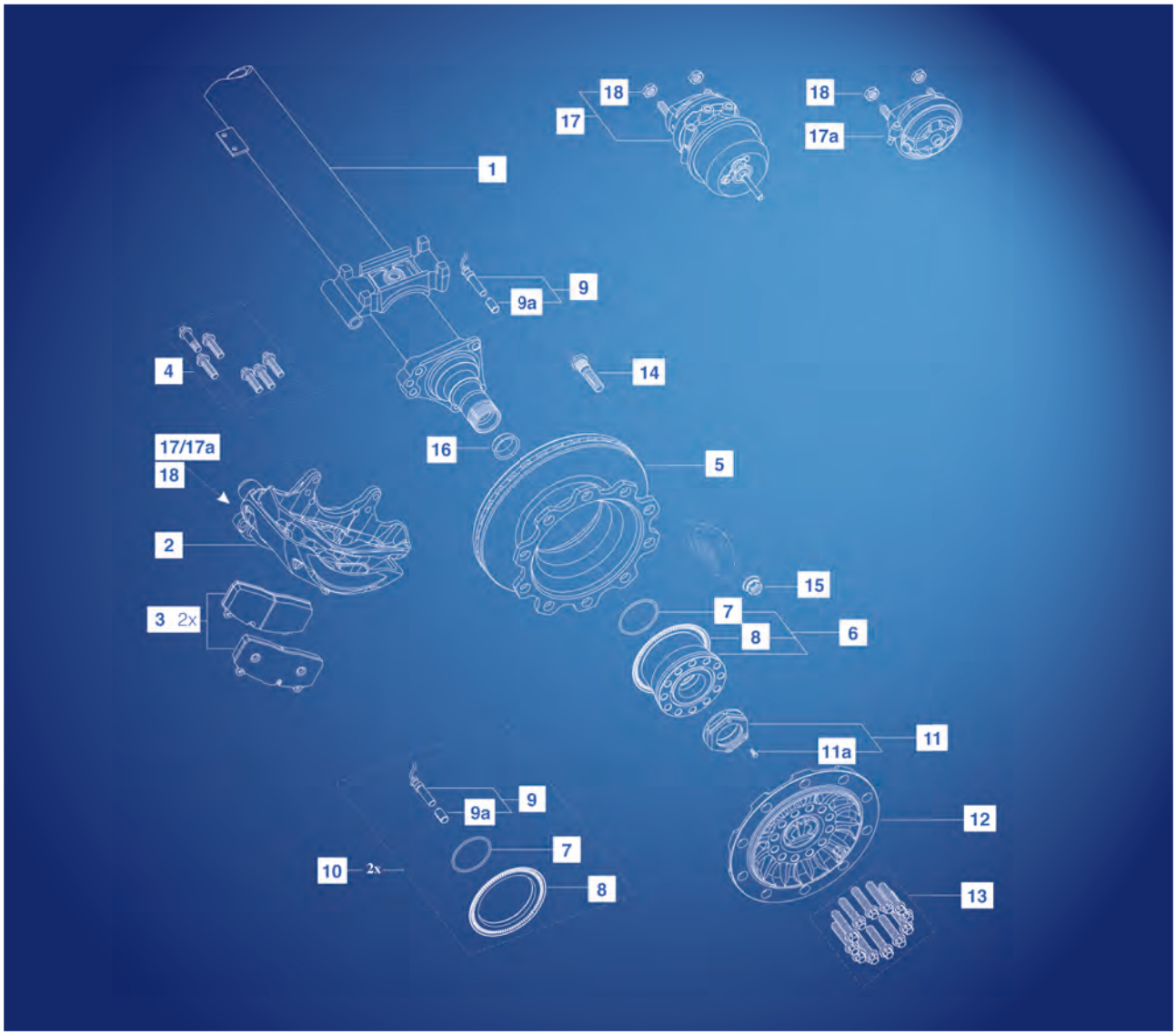
Caution

- A ticking or clicking noise is normal, because the bearing, in spite of the lifted wheel, is not under load and thus the rollers are not aligned, and consequently can move in the axial direction.

Measuring the axial run-out

- Lift the wheel.
- Fasten the magnetic base of the measurement device underneath the axle body, between brake backing plate and spring aggregate.
- With the measuring needle of the measurement device, touch the wheel bearing unit.
- Pivot (pivot angle approx. +1–45° to +1–60°) the wheel under constant pressure until the pointer in the dial gauge no longer changes.
- Set the dial gauge to zero.
- Pivot the wheel again, through constant pulling, until the pointer of the dial gauge no longer moves.
- The difference between the two measurements is the axial run-out.
- If the axial run-out is more than 0.2 mm (200 µm), the wheel bearing unit must be replaced.

Spare parts data sheets
Axle



Item	Item no.	Description	Quantity*
1	On demand	Axle body	1
2	550017647	Brake calliper 4345 DBT22LT, left	1
2	550017648	Brake calliper 4345 DBT22LT, right	1
3	550017646	Set brake pads 4345 DBT22LT	1
4	550017801	Kit screws for 1 brake	2

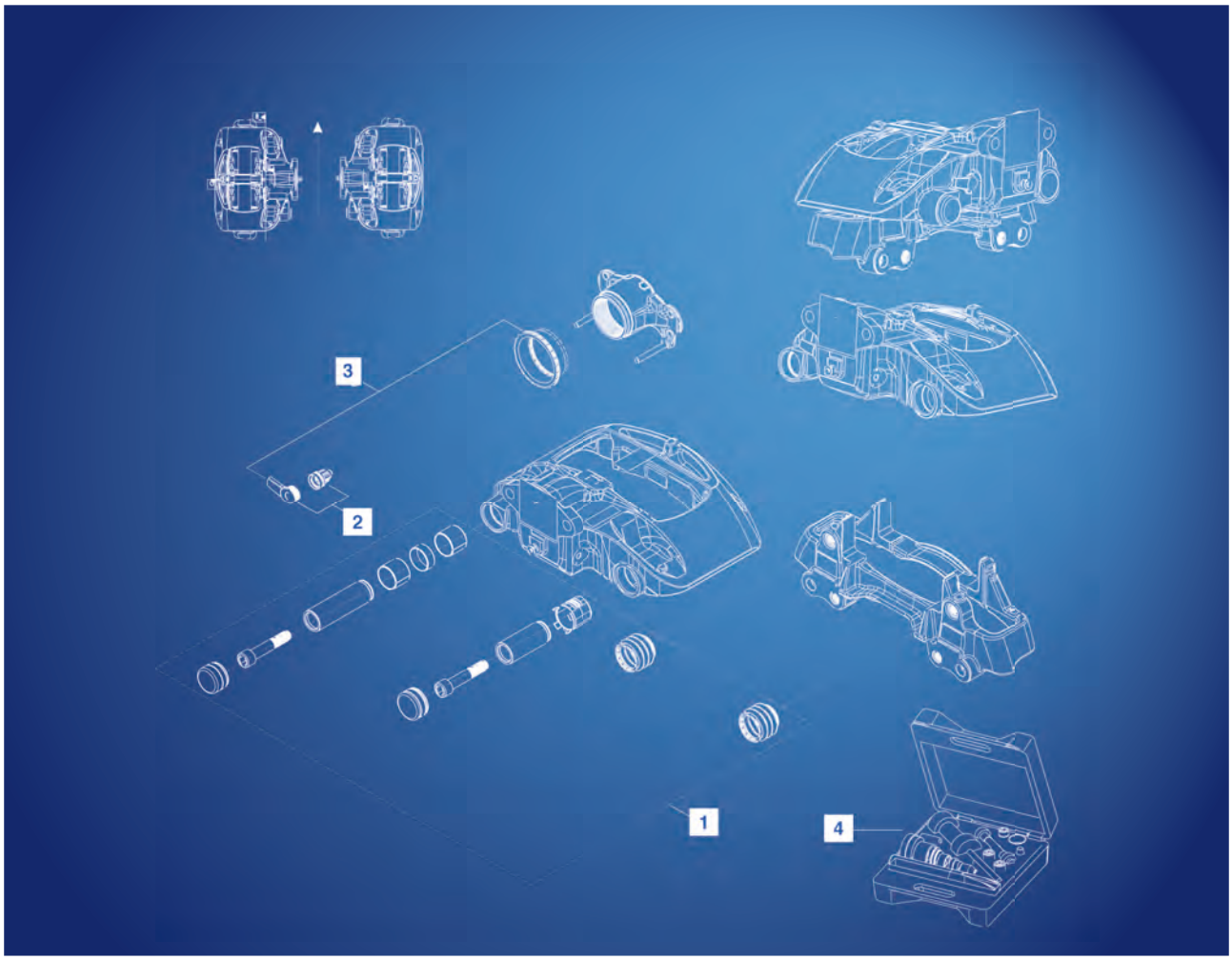
*Quantity per axle set.

Axle

Item	Item no.	Description	Quantity*
5	550012742	Brake disc	2
		> Attention: After dismounting replace the Torx screws!	
6	550017901	Kit hub unit	2
		> Attention: After dismounting replace the Torx screws!	
	550012171	Parting agent for bearing installation	1
7	550011977	O-ring	2
8	550017902	ABS flywheel	2
9	550014120	Kit ABS sensor with bushing and grease	2
9a	550012381	Bushing for sensor	2
10	550017903	Kit ABS 90 teeth with sensor LG350	1
11	550012937	Kit axle nut, right, with screw	1
11	550012938	Kit axle nut, left, with screw	1
		> Closure of the axle body with cap 19000105 is required!	
11a	550011795	Screw	2
12	550017802	Hub flange	2
		> Attention: After dismounting replace the Torx screws!	
13	550012912	Kit bolts	2
14	550013234	Wheel bolt	20
15	550012394	Pressure disc wheel nut	20
16	550017803	Cap for axle body	2
17	550017680	Brake cylinder typ 16/24"	2
17a	550017649	Brake cylinder typ 16"	2
18	550013303	Lock nut	4

*Quantity per axle set.

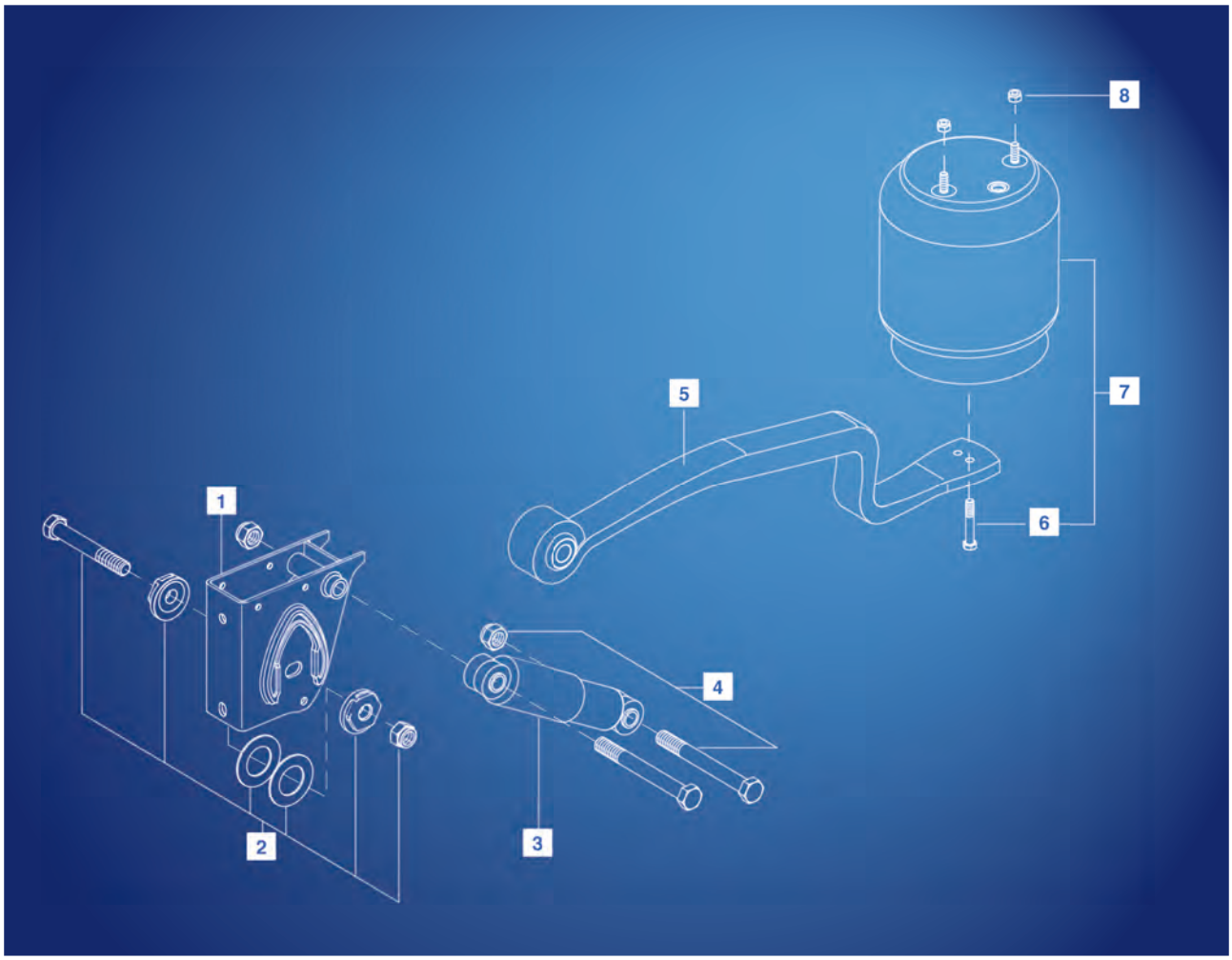
Brake calliper



Item	Item no.	Description	Quantity*
1	550017811	Kit guide bolt DBT22LT	2
2	550017812	Kit adjustment DBT22LT	2
3	550017813	Kit seal mechanism DBT22LT	2
4	550017810	Tool case DBT22LT	1

*Quantity per axle set.

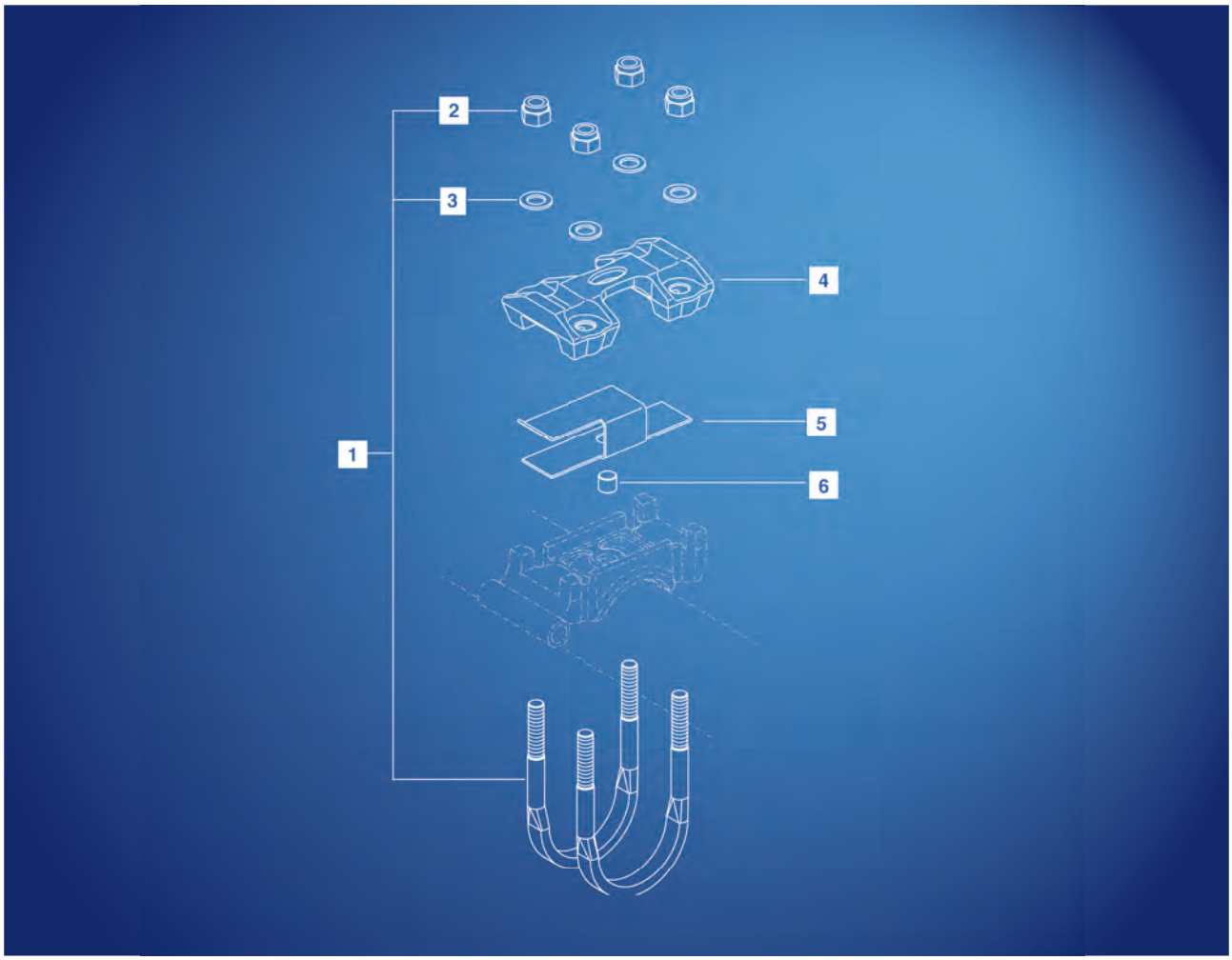
Air suspension



Item	Item no.	Description	Quantity*
1	515072440	Air spring bracket with eccentric support, T 80/30/welded part	2
2	515072442	Kit connecting rod bolt M24 with nut, eccentric bushing and washers	2
3	515069175	Shock absorber	2
4	515072441	Shock absorber fastening kit	4
5	550017804	Connecting rod, 4.5t NLR 45.1/K128-70	2
6	515072444	Screw	2
7	515069174	Air spring bellows 300 V1DK20c, complete	2
8	550013287	Retainer nut	4

* Quantity per axle set.

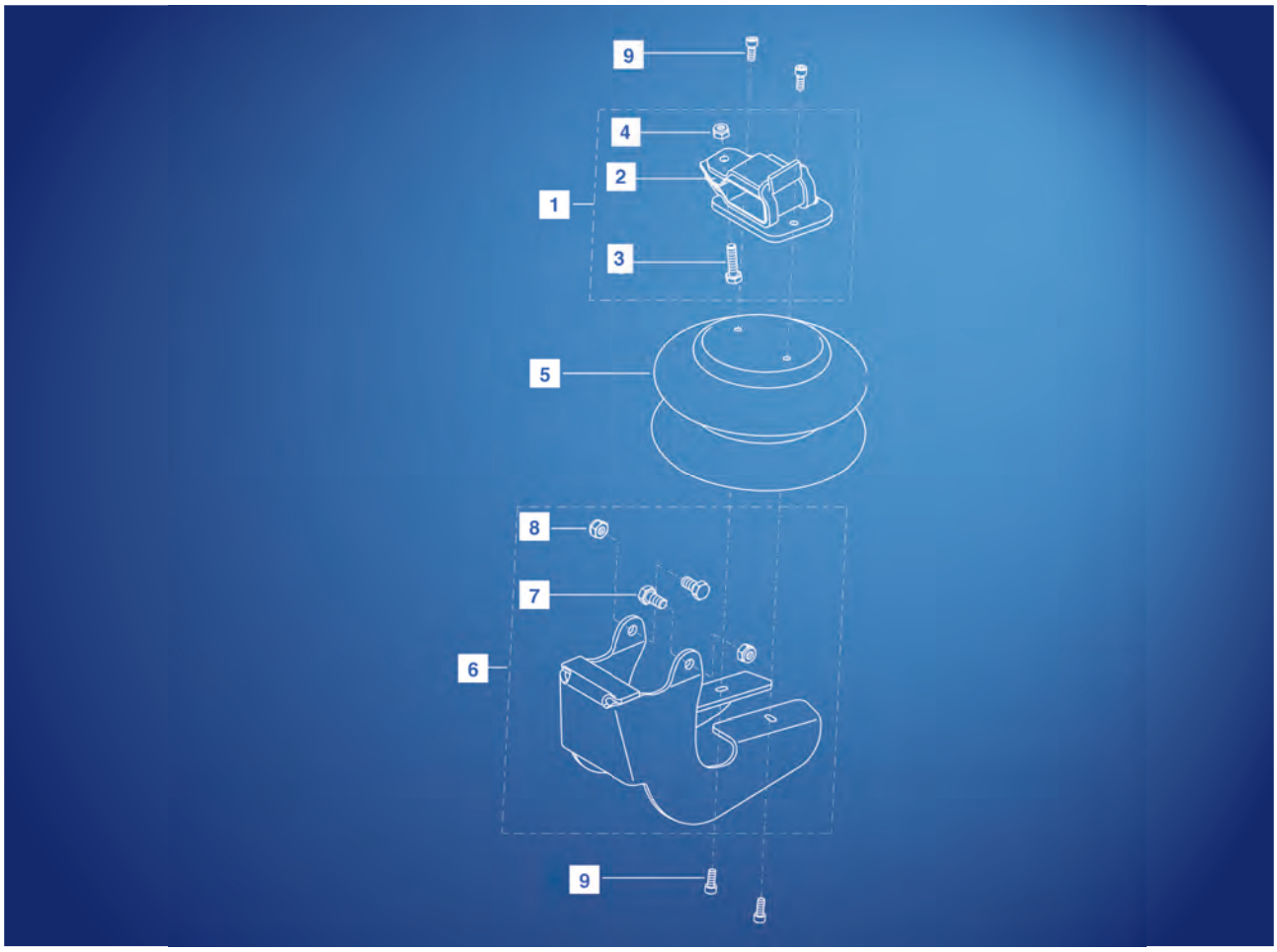
Integration



Item	Item no.	Description	Quantity*
1	550017805	Kit spring-loaded bar R64.5, flat with nuts and washers	4
2	550017806	Retainer nut	8
3	550013256	Washer	8
4	550017807	Clamp plate one-piece	2
5	550017808	Shim	2
6	550017809	Centre bolt	2

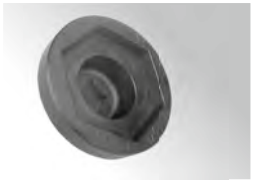
* Quantity per axle set.

Axle lift



Item	Item no.	Description	Quantity*
1	550017833	Kit clamp right	1
1	550017834	Kit clamp left	1
2	550017835	Rubber shim	2
3	550013245	Screw M10 x 40	2
4	550013302	Lock nut M10	2
5	550011095	Air spring bellows with air connection M16 x 1.5	2
6	550017836	Kit Twinlift lever with threaded union	2
7	550017837	Screw M12 x 25	4
8	550013287	Lock nut M12	4
9	550013251	Cylinder screw M8 x 20	8

Tools

Item no.	Description	Illustration
550011099	Insert box spanner Torx E24	
550018074	Mounting bolt - wheel flange	
550013353	Spanner - axle nut AF95	
550018075	Adapter for the wheel hub extractor	
550012171	Parting agent for bearing installation, 100 g	
550018052	Eccentric adjustment on the air spring bracket	
550018108	Wheel hub extractor	

Testing and warning instructions

Max. 1,000–1,500 km inspection	1 Maintenance	2 Maintenance
☐ Screw connections checked and tightened with the prescribed tightening torque in accordance with the detailed testing and maintenance instructions	☐ Screw connections checked and tightened with the prescribed tightening torque in accordance with the detailed testing and maintenance instructions	☐ Screw connections checked and tightened with the prescribed tightening torque in accordance with the detailed testing and maintenance instructions
After the first laden journey: Always check screw connections in accordance with the detailed maintenance guidelines in the maintenance booklet and retighten if necessary	☐ Chassis checked for wear, leaks and damage ☐ Air spring bellows checked ☐ Brake system checked for leaks ☐ Braking effect checked for service brake and parking brake ☐ Brake pad inspection ☐ Maintenance tasks in accordance with the detailed maintenance instructions	☐ Chassis checked for wear, leaks and damage ☐ Air spring bellows checked ☐ Brake system checked for leaks ☐ Braking effect checked for service brake and parking brake ☐ Brake pad inspection ☐ Maintenance tasks in accordance with the detailed maintenance instructions
	Residual brake pad thickness, dimension D 1. Axle, left _____ mm 1. Axle, right _____ mm 2. Axle, left _____ mm 2. Axle, right _____ mm 3. Axle, left _____ mm 3. Axle, right _____ mm	**Residual brake pad thickness, dimension D** 1. Axle, left _____ mm 1. Axle, right _____ mm 2. Axle, left _____ mm 2. Axle, right _____ mm 3. Axle, left _____ mm 3. Axle, right _____ mm
	Mileage/km reading _____ Repair order no. _____ Date, signature _____ Company stamp of specialist workshop	Mileage/km reading _____ Repair order no. _____ Date, signature _____ Company stamp of specialist workshop

Current KRONE service information at
www.krone-trailer.com

3 Maintenance	4 Maintenance	5 Maintenance
☐ Screw connections checked and tightened with the prescribed tightening torque in accordance with the detailed testing and maintenance instructions	☐ Screw connections checked and tightened with the prescribed tightening torque in accordance with the detailed testing and maintenance instructions	☐ Screw connections checked and tightened with the prescribed tightening torque in accordance with the detailed testing and maintenance instructions
☐ Chassis checked for wear, leaks and damage ☐ Air spring bellows checked ☐ Brake system checked for leaks ☐ Braking effect checked for service brake and parking brake ☐ Brake pad inspection ☐ Maintenance tasks in accordance with the detailed maintenance instructions	☐ Chassis checked for wear, leaks and damage ☐ Air spring bellows checked ☐ Brake system checked for leaks ☐ Braking effect checked for service brake and parking brake ☐ Brake pad inspection ☐ Maintenance tasks in accordance with the detailed maintenance instructions	☐ Chassis checked for wear, leaks and damage ☐ Air spring bellows checked ☐ Brake system checked for leaks ☐ Braking effect checked for service brake and parking brake ☐ Brake pad inspection ☐ Maintenance tasks in accordance with the detailed maintenance instructions
Residual brake pad thickness, dimension D 1. Axle, left _____ mm 1. Axle, right _____ mm 2. Axle, left _____ mm 2. Axle, right _____ mm 3. Axle, left _____ mm 3. Axle, right _____ mm	**Residual brake pad thickness, dimension D** 1. Axle, left _____ mm 1. Axle, right _____ mm 2. Axle, left _____ mm 2. Axle, right _____ mm 3. Axle, left _____ mm 3. Axle, right _____ mm	**Residual brake pad thickness, dimension D** 1. Axle, left _____ mm 1. Axle, right _____ mm 2. Axle, left _____ mm 2. Axle, right _____ mm 3. Axle, left _____ mm 3. Axle, right _____ mm
Mileage/km reading _____	Mileage/km reading _____	Mileage/km reading _____
Repair order no. _____	Repair order no. _____	Repair order no. _____
Date, signature _____	Date, signature _____	Date, signature _____
Company stamp of specialist workshop	Company stamp of specialist workshop	Company stamp of specialist workshop

Current KRONE service information at
www.krone-trailer.com

Testing and warning instructions

6 Maintenance	7 Maintenance	8 Maintenance
☐ Screw connections checked and tightened with the prescribed tightening torque in accordance with the detailed testing and maintenance instructions	☐ Screw connections checked and tightened with the prescribed tightening torque in accordance with the detailed testing and maintenance instructions	☐ Screw connections checked and tightened with the prescribed tightening torque in accordance with the detailed testing and maintenance instructions
☐ Chassis checked for wear, leaks and damage ☐ Air spring bellows checked ☐ Brake system checked for leaks ☐ Braking effect checked for service brake and parking brake ☐ Brake pad inspection ☐ Maintenance tasks in accordance with the detailed maintenance instructions	☐ Chassis checked for wear, leaks and damage ☐ Air spring bellows checked ☐ Brake system checked for leaks ☐ Braking effect checked for service brake and parking brake ☐ Brake pad inspection ☐ Maintenance tasks in accordance with the detailed maintenance instructions	☐ Chassis checked for wear, leaks and damage ☐ Air spring bellows checked ☐ Brake system checked for leaks ☐ Braking effect checked for service brake and parking brake ☐ Brake pad inspection ☐ Maintenance tasks in accordance with the detailed maintenance instructions
Residual brake pad thickness, dimension D 1. Axle, left _____ mm 1. Axle, right _____ mm 2. Axle, left _____ mm 2. Axle, right _____ mm 3. Axle, left _____ mm 3. Axle, right _____ mm	**Residual brake pad thickness, dimension D** 1. Axle, left _____ mm 1. Axle, right _____ mm 2. Axle, left _____ mm 2. Axle, right _____ mm 3. Axle, left _____ mm 3. Axle, right _____ mm	**Residual brake pad thickness, dimension D** 1. Axle, left _____ mm 1. Axle, right _____ mm 2. Axle, left _____ mm 2. Axle, right _____ mm 3. Axle, left _____ mm 3. Axle, right _____ mm
Mileage/km reading _____	Mileage/km reading _____	Mileage/km reading _____
Repair order no. _____	Repair order no. _____	Repair order no. _____
Date, signature _____	Date, signature _____	Date, signature _____
Company stamp of specialist workshop	Company stamp of specialist workshop	Company stamp of specialist workshop

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9 Maintenance	10 Maintenance	11 Maintenance
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If you have any questions: just give us a call!
We are available per telephone or on-site
for personal consultation.

Your KRONE contact partner

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