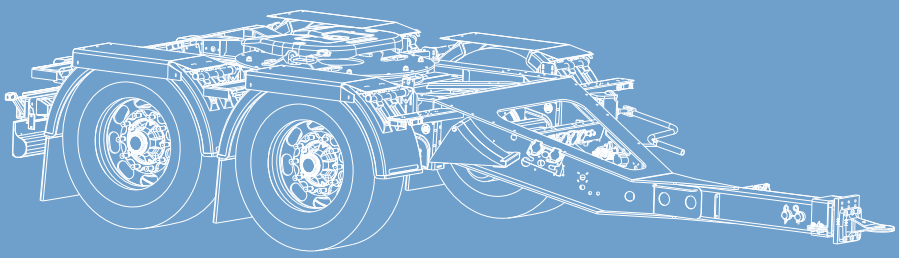
OPERATING INSTRUCTIONS
DOLLY
rigid model



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KRONE

Dear Customer,

These are the operating instructions for the KRONE vehicle you have purchased.

These operating instructions contain important information for the proper use and safe operation of the KRONE vehicle.

If these operating instructions should become completely or partially unusable for any reason, you can order replacement operating instructions for your KRONE vehicle by stating the item number.

Customer Service

Telephone: +49 (0) 59 51 / 209-320

Fax: +49 (0) 59 51 / 209-367

email: kd.nfz@krone.de

Spare Parts

Telephone: +49 (0) 59 51 / 209-302

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1 Information about this document

1.1 Introduction

INFO

The dolly-type trailers will be referred to as "trailer" in the following.

These operating instructions are intended for the operators of the trailer and their staff. The operating instructions are designed to help you to get to know the trailer and to use it within its intended usage capabilities.

It is mandatory that the operating instructions be read, understood and applied by every person who is tasked with the following work:

- Driving, parking and manoeuvring the trailer,
- Loading and unloading the trailer,
- Resolving any disruptions to the workflow,
- Servicing the trailer (maintenance and care),
- Disposing of working materials and auxiliary materials.

The operation instructions incorporate important hints for safe, appropriate, and economical operation of the trailer. They serve to

- prevent risks and damages,
- reduce repair costs and downtimes, and
- increase the reliability and durability of the trailer.

KRONE cannot be held liable for damage and operational interference caused by failure to observe these operating instructions. The warranty conditions can be found in our general terms and conditions of business.

INFO

If you have any questions, please contact KRONE customer service *(see "9.2 Customer service and support", pg. 52)*.

1.2 Other applicable documents

For safe and failure-free operation of the trailer, detailed knowledge of the individual components is required. Other documents also apply in conjunction with these operating instructions.

► Please observe the following additional documents, especially the safety instructions:

- Operating instructions for the tractor unit,
- Operating instructions of the semitrailer,
- All instructions for additional parts and components,
- All instructions for additional equipment and special equipment.

► Re-order any instructions that have gone missing or become illegible *(see "9 Spare parts and customer service", pg. 52)*.

► When handling the trailer and for all maintenance work, please also observe:

- The maintenance regulations for the used installed components,
- Load securing regulations.

1.3 Product identification and type plate

Every trailer can be clearly identified by the attached type plate. The vehicle ID number (VIN) is also embossed on the front side.

The type plate is attached to the following location for product identification:

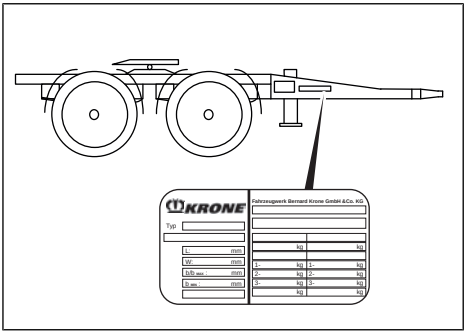

Fig. 1-1: Type plate attachment point

The following information is shown on the type plate:

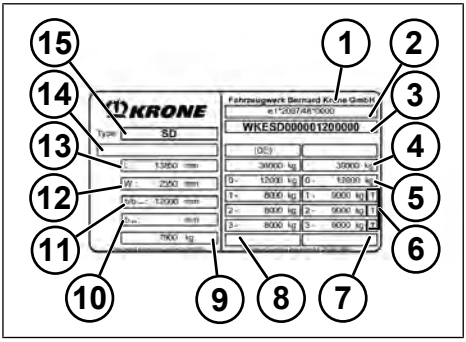

Fig. 1-2: Example type plate

1 Manufacturer
2 EC type approval number (if available)
3 Vehicle ID number
4 Approved total mass
5 Total mass on the coupling point
6 Total mass of the axles
7 Technically approved total mass
8 If applicable, the nationally approved total masses for registration/operation including the code
9 If applicable, dead weight
10 Min. distance
11 Distance/max. distance
12 Vehicle width
13 Vehicle length
14 If applicable, national type approval no.
15 Type designation

1.4 Retention of documents

► Store these instructions and all other applicable documents in a safe place.

► Pass the complete documentation on to the next driver or owner.

1.5 Part positions

The description of part positions is always viewed in forward driving direction.

1.6 Symbols used in these instructions

Various markings and symbols are used in the text in these instructions. These are explained below.

○ Bullet list
  – Sub-list

1. Numbered list

☑ Action requirement

► Action step
  ⇨ Intermediate action result

✓ Result of the action

INFO
Additional information and tips.

📖 : Also observe the enclosed supplier documentation.

1.7 Copyright

2 Safety

This manual contains instructions for your safety and for safe operation.

The basic safety instructions include instructions which apply fundamentally to the safe use or the maintenance of the safe condition of the trailer.

The action-related warnings warn you about residual hazards and are found before a dangerous action.

► Follow all the instructions to prevent personal injury, environmental or property damage.

2.1 Warnings

Design and structure

The action-related warnings are structured as follows:

⚠ WARNING
Type and source of the danger! Explanation of the type and source of the danger. ► Measures to avert the danger.

Hazard level

The warnings are classified according to the severity of the danger. The following explains the danger levels with their associated signal words and warning symbols.

⚠ DANGER
Direct danger to life or serious injuries.

⚠ WARNING
Possible danger to life or serious injuries

⚠ CAUTION
Possible slight injuries, environmental damage or property damage.

NOTE
Possible environmental damage or property damage.

2.2 Intended use

The dolly is used to couple semitrailers to a tractor unit.

Intended use includes the observance of all operating and maintenance instructions supplied with the vehicle as well as the observance of the maintenance intervals and conditions prescribed therein.

The KRONE trailer and its superstructures are intended exclusively for legal transportation purposes in compliance with applicable laws, rules and regulations.

Operational reliability of the vehicle is guaranteed only if all applicable instructions, settings, laws, rules, regulations, and limitations are fully complied with.

The trailer is produced with state-of-the-art manufacturing systems in compliance with all applicable safety-related laws, rules, and regulations. Nevertheless, operation of the trailer incorporates dangers for life and limb of the operator and other personnel, or danger of equipment damage, or operational problems.

► The trailer is to be operated only if in technically adequate state, and in accordance with safety and danger-related laws, rules, and regulations, under strict compliance with the operation instructions.

► Have any faults that could impair safety immediately repaired by an authorised specialist workshop.

Foreseeable misuse

Any use going beyond proper transport usage is considered non-intended. Avoid the following:

- Transport of persons or animals
- Transports that are subject to special regulations, e.g. dangerous goods transports
- Transport of unsecured loads
- Transport of materials, which, due to their properties, do not ensure safe handling and transport or only with additional equipment

- Exceeding the technically permitted weights, axle loads and drawbar loads
- Exceeding the maximum vehicle speed
- Exceeding the permitted length, width and height dimensions
- Use of components that are not approved by KRONE, e.g. tyres, accessories, spare parts

Fahrzeugwerk Bernard KRONE GmbH & Co. KG is not liable for damage resulting from non-intended use. Risks deriving from such infractions are exclusively borne by the operator.

2.3 Personnel qualification and requirements

KRONE trailers and KRONE superstructures as well as their operating components may only be used and maintained by persons who have the respective qualification and who have read and understood the operating instructions.

In the operating instructions, a distinction is made between

- Operator,
- Driving staff, and
- Skilled craftsmen.

2.3.1 Operator

The operator is responsible for proper operation of the vehicle. The operator must:

- Instruct the driving staff in the use of the vehicle,
- Ensure that the Trailer is regularly checked and serviced in an authorised specialist workshop.

2.3.2 Driving staff

The driving staff consists fundamentally of the vehicle driver and a co-driver if applicable. The driving staff is responsible for proper operation of the Trailer and must

- have read and understood the operating instructions,
- have reached the legal minimum age, and
- ensure that the Trailer is regularly serviced by qualified staff.

When transporting and loading/unloading, only driving staff may be used who have received instruction prior to the first deployment and who have subsequently received verbal instruction at least once a year relating to this work.

This instruction should particularly cover the following points:

- The operating instructions,
- The measures to be taken in the event of malfunctions.

Driving the Trailer is limited to persons who possess the required driving license. In addition, the drivers must receive training with respect to:

- The respective transport trailer and associated tractor unit,
- The additional suppliers' information listed *(see "1.2 Other applicable documents", pg. 6)*,
- Motor Vehicle Traffic Regulations and Motor Vehicle Construction and Use Regulation, C.U.R., and
- All relevant regulations that apply to health and safety, accident prevention and environmental protection in the country of use, as well as
- Other safety-related, occupational health and road traffic regulations.

2.3.3 Skilled craftsmen

The skilled craftsmen of a specialist workshop are authorised to perform the maintenance work (maintenance and repair). Authorised skilled craftsmen must have a recognised qualification or have the relevant knowledge of their specialised area required to meet the relevant regulations, rules and guidelines.

2.4 Limits of use

► Observe the following requirements for the operational environment and conditions of use:

○ Permissible temperature range (depending on the specifications and the additional equipment and the tyres).

○ Permissible functional range and permissible age of the tyres

○ Permissible clearance and permissible swing radius

○ Load-bearing and level road conditions

2.5 Personal protective equipment

Personal protective equipment serves to avoid injuries and is specified by national regulations depending on the cargo.

► Wear suitable personal protective equipment when loading and unloading.

○ Depending on the transported goods, eyes, ears and respiratory tract must be protected with suitable protective equipment.

○ Helmets, gloves, safety vests and safety shoes are generally worn.

► Observe the national regulations in each country (ADR) regarding personal protective equipment.

► Always keep an eyewash bottle filled with clean water at hand in the working environment.

2.6 Transported material characteristics

The Trailer is designed to transport many different goods.

► Before loading, make sure that the trailer is suitable for the goods to be carried.

2.7 Information, warning, and mandatory signs

There are information, warning and mandatory signs attached to the Trailer.

► Observe and follow the signs.

► Keep the signs clean and legible.

► Do not remove, paint over or paste over the signs.

► Immediately replace signs that have become illegible or are missing.

Depending on the equipment and use, appropriate pictograms are used in the information, warning and mandatory signs.

2.8 Danger areas

On and around the trailer there are areas with an increased danger to your safety or to the safety of other persons.

► Observe the following danger areas and instruct unauthorised persons to leave these areas:

Danger area	Danger
Between the tractor unit and trailer, especially when coupling/uncoupling and hitching/unhitching	Persons can be crushed or run over. The trailer can tip over or tilt up.
Loading and unloading area	There is a risk of injury on loose or uneven ground or on slopes.
Between the vehicle frame and the load	There is a risk of crushing.
Connection between the tractor unit and trailer	There is a risk of injury when coupling/uncoupling and hitching/unhitching the trailer from the tractor unit due to improper operation when opening and closing the connections of the compressed air hose connectors and cables.

Danger area	Danger
Area approx. 5 m around the vehicle (manoeuvring area)	There is a risk of accidents.
Under the vehicle	The vehicle can move due to a defect or when starting up and injure persons.

2.9 General safety instructions

The basic safety instructions include all safety measures sorted according to the theme, and must always be observed.

Pneumatic dangers

There is a risk of injury due to pressure in the pneumatic system.

- ► Do not open any components of the pneumatic system if there is pressure in the lines.
- ► Check the hose connections of the pneumatic system regularly.
- ► When aerating and venting the system, pay attention to unforeseeable movement of pneumatic actuators.

Dangers while driving

There is a risk of impact on bridges, in tunnels or with other structures. Persons can be injured or the Trailer, the transported goods and the structure can be severely damaged.

- ► Observe the vehicle dimensions incl. the transported goods.
- ► Observe the permissible passage dimensions (height, width).

Dangers when manoeuvring, coupling and uncoupling

When manoeuvring or coupling and uncoupling, there is a lethal risk of crushing for persons standing between the tractor unit and Trailer (dolly) as well as in the coupling area.

- ► Only drive in reverse when nobody is endangered.
- ► Only manoeuvre with a guiding assistant.
- ► Before uncoupling, secure the Trailer (dolly) additionally against rolling away with wheel chocks.
- ► Instruct all persons to leave the area between the tractor unit and the Trailer (dolly) during the coupling procedure.

Dangers when coupling and uncoupling

When coupling and uncoupling, there is a lethal risk of crushing for persons standing between the trailer (dolly) and the semitrailer as well as in the coupling area.

- ► Only drive in reverse when nobody is endangered.
- ► Only manoeuvre with a guiding assistant.
- ► Before uncoupling, secure the semitrailer additionally with wheel chocks against accidental movement.
- ► Instruct all persons to leave the area between the trailer (dolly) and the semitrailer during the coupling procedure.

Dangers when parking and unhitching

Accidental trailer movements, unstable ground and poor securing at night can cause serious accidents and injuries.

- ► Actuate the parking brake when unhitching.
- ► Also use wheel chocks on the wheels.
- ► When parking the trailer in a public traffic area during the hours of darkness, the vehicle should be particularly marked in accordance with the legal requirements.

Load distribution

Faulty load distribution as well as improperly secured loads can lead to dangerous driving behaviour and serious accidents or damages to the Trailer.

- ► Observe the prescribed axle loads.

- ► Secure the load properly according to the applicable standards for load securing.
- ► Ensure that the load securing aids are not damaged and are functional.

Load securing

Unsecured or incorrectly secured loads can result in poor handling which may result in an accident. Lost loads can cause injury to other road users.

- ► Secure the load according to the requirements of the relevant standards for load securing.
- ► Observe the instructions on the load securing certificates.

Dangers caused by improper maintenance

Improperly performed maintenance work (care and cleaning, maintenance, repairs) impairs the safety of the Trailer.

- ► Check the condition of the Trailer regularly for defects.
- ► Perform care and cleaning work properly.
- ► Only have repairs, particularly on safety devices as well as the brake system and chassis, performed by authorised specialist workshops or KRONE.

2.10 Notes about legal regulations

The trailer is built according to the regulations that were applicable at the time of delivery in the intended country of registration.

- ► Observe compliance with the nationally prescribed monitoring inspections and time intervals.
- ► Observe compliance with the nationally prescribed weights, axle loads, and drawbar loads. They can be lower than the technically possible values.
- ► Observe compliance with the nationally prescribed maximum vehicle height for the tractor-trailer combination.

Changes to the vehicle against the data provided in the registration documents result in the operating permit becoming invalid. This includes, in particular, driving on public roads without a power supply for the brake electronics via the ISO-7638 plug connection.

- ► Do not make any unauthorised changes or manipulations.
- ► Have permitted changes entered into the vehicle documentation by a certified test centre.
- ► Only use proper and approved tyres.
- ► Only used approved and suitable spare parts *(see "9.1 Spare parts", pg. 52)*.
- ► Observe the normal use position of a moving component for normal vehicle use and when the vehicle is parked.
- ► Only drive with the EBS plug connected.
- ► Moving parts are to be positioned in the normal use position while driving, when stopped and parked:

Component	Use position
Side collision protection (collision protection, pallet storage boxes, etc.)	Stow box covers at the side perpendicular and parallel to the vehicle's longitudinal axis are closed
Rear underrun protection	Lowest distance to the road
Spray suppression (spray suppression and splash guard)	folded down

2.11 Protective and safety devices

Depending on the equipment, the trailers are equipped with the following protective and safety devices.

- ► Check the function of the protective and safety devices regularly.
- ► Have defective components repaired only by authorised specialist workshops or by KRONE.

Component	Function
Automatic anti-blockage system (ABS)	Prevents blockage of the wheels when braking
Automatic load-dependent brake power regulation (ALB)	Regulates the braking effect depending on the load status
Electronic brake system (EBS)	Braking assistance system, which contains/comprises the brake components and connected driving dynamics systems of the vehicle
Roll stability support (RSS)	Prevents the trailer from tipping over
Hazard lights	Serve to indicate a traffic hazard
Wheel chocks	Prevent accidental rolling away when parking/unhitching
Side collision protection	Prevents cyclists and pedestrians from passing under the trailer in case of accident
Underrun protection	Prevents under-running in case of rear-end collisions
Indicators and control displays	Serve to monitor and make settings for the trailer; optional systems differ according to the manufacturer

2.12 Warranty and liability

The "General terms and conditions of sale and delivery" from Fahrzeugwerk Bernard KRONE GmbH & Co. KG fundamentally apply.

Warranty and liability claims for personal injury and material damage are invalid if they are due to one of more of the following causes:

- ○ Improper use *(see "2.2 Intended use", pg. 9)*,
- ○ Operating the trailer with missing or non-functional safety devices,
- ○ Failure to follow the instructions, do's and don'ts of the operating instructions,
- ○ Unauthorized structural changes or modifications of the Trailer,
- ○ Inadequate monitoring of wear parts,
- ○ Improper maintenance or repairs not being carried out in good time,
- ○ Use of non-approved and unsuitable spare parts *(see "9.1 Spare parts", pg. 52)*.

For the assessment of warranty and liability claims, you must permit unimpeded access to the data stored in the brake electronics. Deleting this data needed for an assessment can result in an exclusion of liability.

2.13 Environmental hazards

- ► Always observe environmental protection when operating.
- ► Avoid the release of operating materials into nature and the environment.
- ► Dispose of operating materials and other chemicals in accordance with the applicable national regulations.
- ► Drive with the correct tyre inflation pressure.

3 Vehicle overview

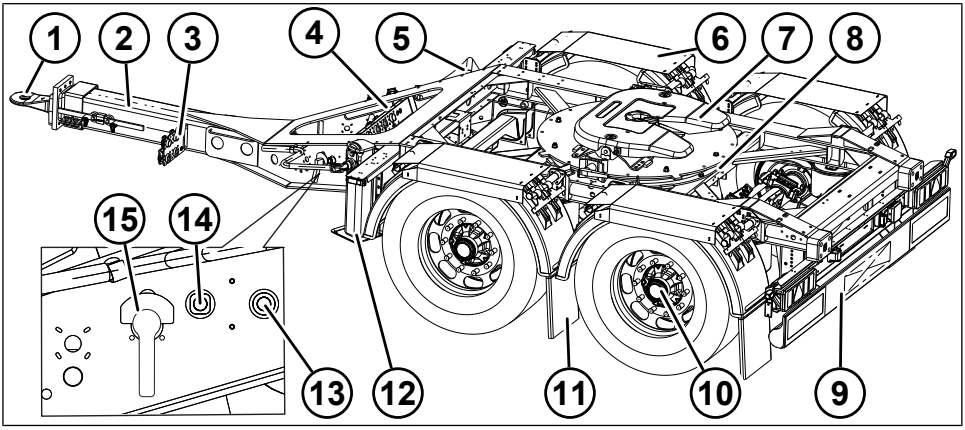

Fig. 3-1: Dolly overview

1 Coupling ring
2 Drawbar wale
3 Coupling support (for trailers with low coupling)
4 Coupling support
5 Wheel chocks
6 Mudguard tarpaulin cover
7 Semitrailer coupling
8 Turn frame
9 Underrun protection
10 Axle assembly and brake system
11 Splash guard
12 Landing leg winch
13 Service brake control knob
14 Parking brake control knob
15 Air suspension control lever

Usage designs

The dolly is a trailer and is used to couple semitrailers to a tractor unit.

4 Commissioning

4.1 Initial commissioning

Initial commissioning is performed by Fahrzeugwerk Bernard KRONE GmbH & Co. KG. The delivery is ex works in a usable condition.

► Check that the documentation provided is complete.

► Obtain instructions for the Trailer and ask questions if necessary.

INFO
The transfer is not done by staff from Fahrzeugwerk Bernard KRONE GmbH & Co. KG.

4.2 Delivery and handover

Delivery and handover of the trailer takes place at a production site of Fahrzeugwerk Bernard KRONE GmbH & Co. KG.

► Check that the Trailer is ready for operation.

► Check that the documentation provided is complete.

► Familiarise yourself with the Trailer and the documents.

► Obtain instructions for the Trailer and ask questions if necessary.

► Collect with a suitable tractor unit.

4.3 Commissioning before each trip

Commissioning before each trip ensures road safety and includes a check before driving off and after loading and unloading.

► Perform a departure check prior to starting each trip:

1. Are the documents for the tractor unit and trailer at hand?
2. Are the tractor and trailer in the combination suitable for the transport task?
3. Is there sufficient clearance between the vehicles so that the connection lines are not functionally impaired and can move freely?
4. Are the applicable regulations for driving on public roads observed with the transport tasks?
5. Have all accident prevention regulations been complied with?
6. Are all the supply and control connections properly made between the tractor and the trailer?
7. Are all the supply and control connections properly established between the trailer (dolly) and the semitrailer?
8. Has the functional test of the EBS brake system been audibly heard?
9. Is the semitrailer coupling locked and secured correctly?
10. Are all the vehicle components present (such as wheel chocks, storage boxes, landing leg winches) properly fastened, closed and secured, if applicable?
11. Are all movable collision protections locked and secured?
12. Is the load properly distributed and correctly secured?
13. Has the permitted maximum total weight been adhered to?
14. Is there sufficient clearance between the vehicle floor and the tyres?
15. Is the permitted vehicle height complied with?
16. Are lighting and signalling systems fully operational?
17. Are the tyres inflated to the correct pressure?
18. Has the trailer's parking brake been disengaged?
19. Is the compressed air supply for the trailer's brakes sufficient?
20. Are the landing leg winches retracted and secured?
21. Are the compressed air tanks drained?
22. Does the warning lamp/warning display in the tractor indicate that the trailer's braking system is error free?

► Fix any observed defects.

► Only drive the tractor unit and trailer when road safety is ensured.

5 Running gear operation

5.1 Parking the trailer safely

⚠ WARNING

Risk of accident due to instability and rolling away!

Unintentional trailer movements can cause serious injury and material damage.

- ► Secure the trailer against rolling away by applying the parking brake.
- ► Use the wheel chocks to prevent the trailer from rolling away.
- ► Park the trailer on a solid surface to avoid sinking in or tipping.
- ► Load and unload the trailer such that traffic hazards are ruled out.
- ► Be mindful of the trailer's stability when loading and unloading while unhitched. If necessary, use additional supports.

► Drive the trailer onto firm and level ground.

► Apply the parking brake *(see "5.9.2 Parking brake", pg. 31)*.

► Use wheel chocks to prevent the trailer from rolling away *(see "5.2 Using wheel chocks", pg. 18)*.

► Extend the landing leg winches *(see "5.3 Landing leg winch", pg. 19)*.

► Disconnect the supply and control connections *(see "5.6 Supply and control connections", pg. 24)*.

► Unhitch the trailer from the tractor unit.

► For longer parking periods and when loading the ramp while parked, lower the air suspension *(see "5.10 Air suspension", pg. 34)*.

✓ The trailer is safety unhitched.

5.2 Using wheel chocks

⚠ WARNING

Risk of accident due to improperly used wheel chocks!

Unintentional trailer movements and improper use of wheel chocks can result in serious injury and property damage.

- ► Secure the tractor unit additionally with wheel chocks when unhitching.
- ► Secure the unhitched trailer with wheel chocks.
- ► Place wheel chocks only on wheels mounted on rigid axles, never on wheels mounted on lift axles or steering axles.
- ► Always secure wheel chocks on the trailer with the appropriate securing devices before travel.

5.2.1 Wheel chocks without anti-theft device

Removing the wheel chocks

► Remove safety split pin.

► Pull the wheel chocks off the retaining rod.

✓ The wheel chocks have been removed.

Stowing the wheel chocks

► Slide the wheel chocks onto the retaining bar.

► Secure the wheel chocks with the safety split pins.

✓ The wheel chocks are stowed and secured.

5.2.2 Wheel chocks with anti-theft device

Removing the wheel chocks

► Remove safety split pin.

► Pull out the wheel chocks with the theft protection chains.

✓ The wheel chocks have been removed.

Stowing the wheel chocks

► Insert the wheel chocks into the bracket.

► Secure the wheel chocks with the safety split pins.

► Thread the theft protection chain in the bracket.

✓ The wheel chocks are stowed and secured.

5.2.3 Putting on the wheel chocks

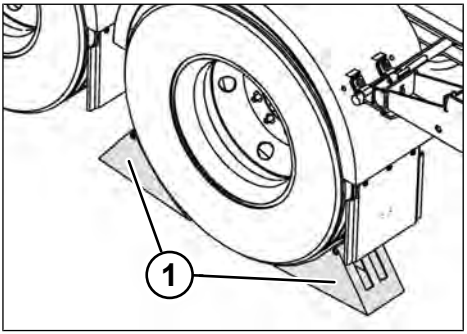

Fig. 5-1: Putting on the wheel chocks

1 Wheel chocks

► Place the wheel chocks in front of and behind a wheel of the rigid axle.

✓ The wheel chocks have been placed.

5.3 Landing leg winch

⚠ WARNING

Risk of accident due to tipping over!

A lack of supports when loading and unloading as well as when hitching and unhitching can result in serious injuries.

► Park the trailer on solid and level ground to avoid sinking in or tipping.

► Secure the trailer against rolling away by activating the parking brake.

► Use wheel chocks to prevent the trailer from rolling away.

⚠ WARNING

Risk of accident when driving with the landing leg winches not retracted and protruding components!

An insufficiently retracted landing leg winch can hit the ground while driving and cause serious accidents.

► Move the landing leg winches into driving position before driving off.

► Secure the crank in its holder before starting to drive.

⚠ CAUTION

Risk of injury due to crushing!

When extending the landing leg winches, limbs can be crushed between the landing leg winch and the ground.

► Avoid the danger areas.

► Wear personal protective equipment (safety shoes, gloves).

NOTE

Material damage due to longitudinal movement!

The landing leg winches can be damaged when loading and unloading as well as when the loaded and Uncoupled trailer is parked for extended periods of time.

- ► Prevent longitudinal movement when the trailer is unhitched.
- ► Align the loading platform horizontally.
- ► When the unhitched trailer is parked for extended periods of time, lower the air suspension.

NOTE

Material damage due to overloading

When the trailer is raised in high gear, the crank drive of the landing leg winches can be overloaded and damaged.

- ► Only use the high gear with fully unloaded and raised landing leg feet.
- ► Only use the load speed after the landing leg feet make ground contact.

Landing leg winches help to support the trailer when unhitching or to adjust the coupling height.

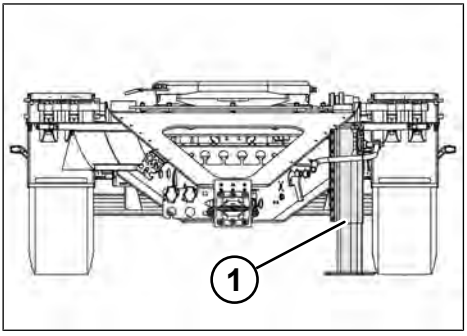

Fig. 5-2: Extended landing legs

1 Landing leg

The crank drive for the landing leg winches has two speeds:

- ○ High gear (extending/retracting the landing leg winches)
- ○ Load speed (raising/lowering the trailer)

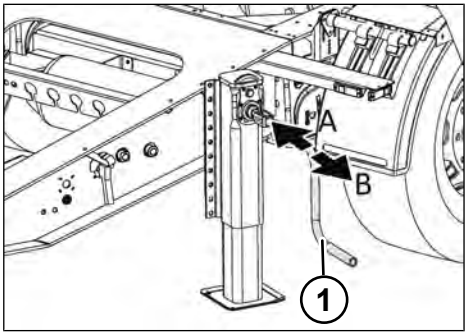

Fig. 5-3: Load speed and rapid speed of the landing leg winch

1 Hand crank
A Load speed
B High speed

INFO

Cranking clockwise moves the landing leg downwards. Cranking counter-clockwise moves the landing leg upwards.

Also observe the enclosed supplier documentation.

Extending the landing legs

⚠ CAUTION

Risk of injury due to crank recoil!

A hand crank recoil can cause injuries when releasing the hand crank.

- ► Slowly ease the load off the hand crank at the end of the rotation.

- ► Apply the parking brake *(see "5.9.2 Parking brake", pg. 31)*.
- ► Ensure that the ground is load-bearing and level.
- ► Use wheel chocks to prevent the trailer from rolling away *(see "5.2 Using wheel chocks", pg. 18)*.

- ► Lift the hand crank from the bracket.
- ► Engage the hand crank on the crank drive shaft until it locks into place.
- ► Switch on rapid speed by pulling out the hand crank *(see "Fig. 5-3: Load speed and rapid speed of the landing leg winch", pg. 20)*.
- ► Wind down the landing leg until it touches the ground.
- ► Switch on load speed by pushing in the hand crank *(see "Fig. 5-3: Load speed and rapid speed of the landing leg winch", pg. 20)*.
- ► Use the hand crank to wind to the desired support height. Do not fully unload the wheels while doing so.
- ► Secure the hand crank in the bracket.
- ✓ The landing leg is extended and the trailer is supported.

Retracting the landing leg

⚠ CAUTION

Risk of injury due to crank recoil!

A hand crank recoil can cause injuries when releasing the hand crank.

- ► Slowly ease the load off the hand crank at the end of the rotation.

- ► Check the parking brake and apply if necessary *(see "5.9.2 Parking brake", pg. 31)*.
- ► Hitch the trailer *(see "5.5 Hitching and unhitching the trailer", pg. 23)*.
- ► Take the hand crank from the bracket.
- ► Engage the hand crank on the crank drive shaft until it locks into place.
- ► Set to load speed by pushing in the hand crank *(see "Fig. 5-3: Load speed and rapid speed of the landing leg winch", pg. 20)*.
- ► Crank up the landing leg until it is unloaded.
- ► Set to high speed by pulling out the hand crank *(see "Fig. 5-3: Load speed and rapid speed of the landing leg winch", pg. 20)*.
- ► Crank up the landing leg to the stop.
- ► Secure the hand crank in the bracket.
- ✓ The landing leg is retracted and is in the driving position.

5.4 Drawbar wale

Adjusting the height of the drawbar wale

NOTE

An improperly set drawbar wale can cause material damage!

A drawbar wale set to the wrong height can cause damage to the trailer or tractor unit during hitching.

- ► Before hitching and unhitching, set the drawbar wale to the corresponding height of the tractor unit's trailer coupling using the landing leg winch.

The height on the drawbar wale is set using the landing leg winch *(see "5.3 Landing leg winch", pg. 19)*.

Adjusting the length of the drawbar wale

⚠ WARNING

Risk of accident due to an unsecured length adjustment at the drawbar wale!

An unsecured length adjustment of the drawbar wale can cause accidents.

- ► Ensure that the plug-in bolts are properly secured with the securing devices after adjusting the length or changing the tractor unit.

Length adjustment, or a change of tractor unit, can cause the overall length of the train to be exceeded. Check the following points every time you adjust the length or during every vehicle change:

- Ensure that the plug-in bolts are properly secured with the securing devices,
- Check the legally permitted overall length of the train and
- the distance between trailer and tractor unit.

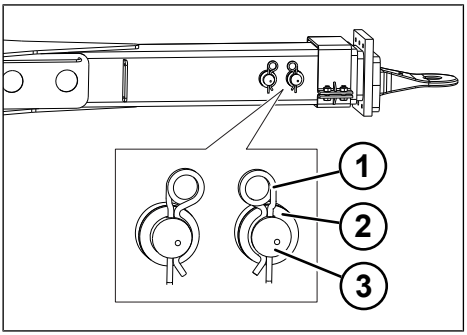

Fig. 5-4: Plug-in bolts on drawbar wale

1 Safety split pin
2 Flat washer
3 Plug-in bolt

► Unhitch the trailer *(see "5.5 Hitching and unhitching the trailer", pg. 23)*.
► Remove the safety split pin from the plug-in bolts.
► Remove the flat washers.

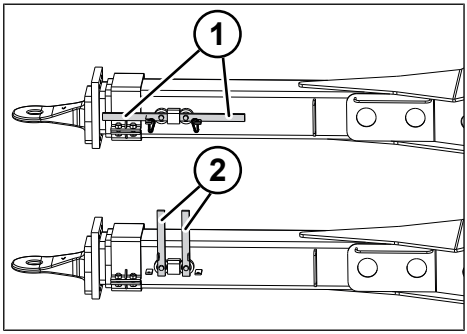

Fig. 5-5: Hand lever on the drawbar wale

1 Hand lever secured with spring snaps
2 Hand lever swivelled upwards

► Unhook the spring snap from the securing eyelets of the hand lever.
► Swivel the hand lever upwards.
► Pull out the plug-in bolts.
► Place the drawbar wale in the desired position by shifting it in or out.
► Slide in the plug-in bolts.
► Swivel the hand lever downwards.
► Hook the spring snap into the securing eyelets of the hand lever.
► Place the flat washer on the plug-in bolt.
► Secure the plug-in bolts with safety split pins.
✓ The length of the drawbar wale is set.
✓ The plug-in bolts are properly secured.

5.5 Hitching and unhitching the trailer

⚠ DANGER

Danger to life due to crushing!

People can be crushed between the tractor unit and trailer when hitching and unhitching.

- ► Instruct persons to leave the danger area between tractor unit and trailer.
- ► Ensure that any guide person present stays far enough away to the side from the vehicles.

NOTE

Material damage due to improper hitching and unhitching

Improper hitching and unhitching can cause damage to the trailer.

- ► Before hitching and unhitching, set the trailer's draw gear to the corresponding height of the tractor unit's trailer coupling.
- ► When hitching and unhitching, also observe the instructions from the tractor unit's operating instructions.

INFO

More information is available from the enclosed supplier documentation and BG information "Safe coupling of trailers".

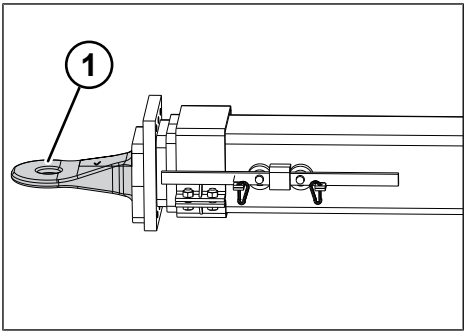

Fig. 5-6: Coupling ring

1 Coupling ring

Hitching the trailer

- ► Before coupling, check:
  - ○ Is the tractor unit's permissible towing capacity adequate for the trailer?
  - ○ Has the permissible drawbar load been observed?
  - ○ Has the permitted maximum length been observed?
  - ○ Do the tractor unit's trailer coupling design and the trailer's coupling eye design match?
  - ○ Do the position of the draw gear and the coupling height match?
- ► Apply the parking brake on the trailer *(see "5.9.2 Parking brake", pg. 31)*.
- ► Use wheel chocks to prevent the trailer from rolling away *(see "5.2 Using wheel chocks", pg. 18)*.
- ► Move the tractor unit towards the coupling ring, leave approx. 1 m distance.
- ► Set the height of the coupling ring to the centre of the coupling funnel or to the height of the lowest lip on the coupling funnel.
- ► Use the coupling's hand lever to move the coupling bolts to the “opened” position.
- ► Lock the coupling funnel in open position.
- ► Vacate the danger area between the tractor unit and trailer!
- ► Begin coupling by backing up the tractor unit. The coupling automatically takes place.
- ► Apply the parking brake on the tractor unit *(see "5.9.2 Parking brake", pg. 31)*.
- ► Check if the coupling bolt is properly locked into place.
- ► Connect the supply and control lines *(see "5.6 Supply and control connections", pg. 24)*.
- ► Retract the landing leg winches *(see "5.3 Landing leg winch", pg. 19)*.

- ► Remove the wheel chocks and properly secure them *(see "5.2 Using wheel chocks", pg. 18)*.
- ► Disengage the parking brake on the trailer *(see "5.9.2 Parking brake", pg. 31)*.
- ► Set the air suspension to the driving position *(see "5.10 Air suspension", pg. 34)*.
- ► Carry out a departure check *(see "4.3 Commissioning before each trip", pg. 16)*.
- ✓ The trailer is hitched and ready for travel.

Unhitching the trailer

- ► Position the train as straight as possible.
- ► Apply the parking brake on the tractor unit.
- ► Apply the parking brake on the trailer *(see "5.9.2 Parking brake", pg. 31)*.
- ► Use wheel chocks to prevent the trailer from rolling away *(see "5.2 Using wheel chocks", pg. 18)*.
- ► Wind down the landing leg winch until the coupling ring is slightly lifted off the coupling funnel *(see "5.3 Landing leg winch", pg. 19)*.
- ► Disconnect the supply and control lines *(see "5.6 Supply and control connections", pg. 24)*.
- ► Use the coupling's hand lever to move the coupling bolts to the “opened” position.
- ► Slowly drive the tractor unit away in a straight line.
- ► Use the coupling's hand lever to move the coupling bolts to the “closed” position.
- ✓ The trailer is unhitched.

5.6 Supply and control connections

⚠ DANGER

Risk of accidents due to faulty driving and brake behaviour!

Driving without the supply and control connections being connected between the tractor unit and the trailer affects the driving and brake behaviour and is prohibited by law. There is a risk of accidents due to the malfunction.

- ► Ensure that the supply and control connections are correctly connected.
- ► Only drive with an energised EBS connection.

⚠ DANGER

Risk of accidents due to non-functional EBS!

If the EBS plug connection function is not established, the EBS of the vehicle and the automatic load-dependent brake power regulation cannot work. The vehicle is overbraked and the wheels may lock. Serious traffic accidents could occur. Driving without the EBS plug connection is prohibited by law.

- ► Only drive with an approved, connected and functioning EBS plug connection.
- ► Always connect the EBS plug connections between the tractor unit and the trailer.
- ► Only use plug connections that comply with the regulations.
- ► Have the fault immediately repaired by the nearest contract workshop.

⚠ WARNING

Risk of accident due to damaged connections!

Damaged compressed air couplings or compressed air lines between the tractor unit and trailer (dolly) or between the trailer (dolly) and semitrailer affect the driving and brake behaviour and can lead to accidents.

- ► Ensure that all compressed air connections are properly connected and not leaking.
- ► Ensure proper functioning of the couplings.
- ► Replace damaged rubber seals or damaged coupling heads on the trailer (dolly) and on the semitrailer.

⚠ WARNING

Risk of accident due to improper connection!

Improperly connected compressed air lines affect the driving and brake behaviour and can lead to accidents.

- ► Observe the connection sequence.
- ► Always close the coupling heads with the protective caps after unhitching the brake lines.

INFO

More information is available from the enclosed BG information "Safe coupling of trailers".

For axle and brake control as well as air and power supply, the trailer (dolly) is equipped with various connections on its front side.

On vehicles with low coupling (coupling height < 570 mm), the supply and control connections are designed as a socket on an additional coupling support.

On vehicles with high coupling (coupling height > 570 mm), the supply and control connections are fastened as a strand with plugs under the drawbar wale.

More information about the plug and socket assignment can be found in the technical data *(see "10.2 Plugs and socket pin assignments", pg. 53)*.

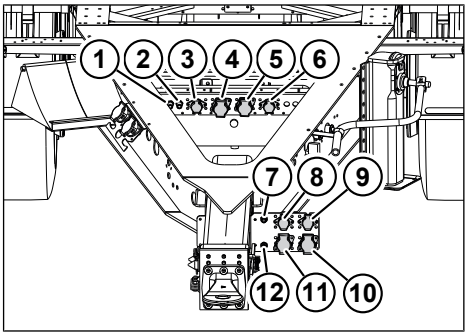

Fig. 5-7: Possible arrangement of the supply and control connections on a dolly with low coupling

Coupling support for connection to the semitrailer

1 Compressed air supply coupling
2 Brake coupling
3 Socket S (white) ISO 3731, 7-pin
4 EBS socket ISO 7638
5 Socket ISO 12098, 15-pin
6 Socket N (black) ISO 1185, 7-pin

Coupling support for connection to the tractor unit

7 Compressed air supply coupling
8 Socket N (black) ISO 1185, 7-pin
9 Socket S (white) ISO 3731, 7-pin
10 EBS socket ISO 7638
11 Socket ISO 12098, 15-pin
12 Brake coupling

Depending on the design, the following couplings may be installed:

- ○ Standard coupling heads (standard) and
- ○ Duo-Matic coupling.

Connecting the standard coupling

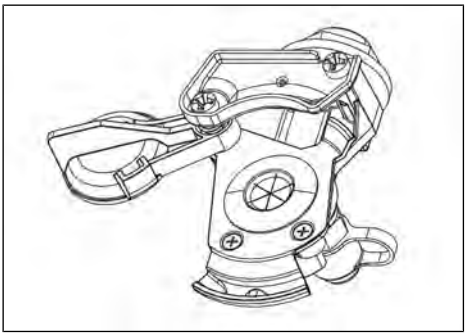

Fig. 5-8: Example of standard coupling head

Establish the connections between the tractor unit and the trailer (dolly):

☑ The parking brake on the tractor unit is applied.

☑ The parking brake on the trailer (dolly) is applied *(see "5.9.2 Parking brake", pg. 31)*.

► Check the cleanliness and integrity of the sealing surfaces on the coupling heads. Clean if necessary.

► Always connect the brake coupling (yellow coupling head) first.

► Connect the compressed air coupling (red coupling head).

► Connect the power supply and the EBS plug.

✓ The supply and control connections are now connected.

Establish the connections between the trailer (dolly) and semitrailer:

☑ The parking brake on the trailer (dolly) is applied *(see "5.9.2 Parking brake", pg. 31)*.

☑ The parking brake on the semitrailer is applied.

► Check that the sealing surfaces of the coupling heads are clean and have a functional seal. Clean if necessary.

► Always connect the brake coupling (yellow coupling head) first.

► Connect the compressed air coupling (red coupling head).

► Connect the power supply and the EBS plug.

✓ The supply and control connections are now connected.

Disconnecting the standard coupling

Disconnect the connections between the tractor unit and the trailer (dolly):

☑ The parking brake on the tractor unit is applied.

☑ The parking brake on the trailer (dolly) is applied *(see "5.9.2 Parking brake", pg. 31)*.

► Always disconnect the compressed air coupling (red coupling head) first.

► Disconnect the brake coupling (yellow coupling head).

► Disconnect the power supply and the EBS plug.

► Close the disconnected coupling heads and plugs with the protective caps.

✓ The supply and control connections are disconnected.

Disconnect the connections between the trailer (dolly) and semitrailer:

☑ The parking brake on the trailer (dolly) is applied *(see "5.9.2 Parking brake", pg. 31)*.

☑ The parking brake on the semitrailer is applied.

► Always disconnect the compressed air supply line (red coupling head) first.

► Disconnect the brake line (yellow coupling head).

► Disconnect the power supply and the EBS plug.

► Close the disconnected coupling heads and plugs with the protective caps.

✓ The supply and control connections are disconnected.

Connecting the Duo-Matic coupling

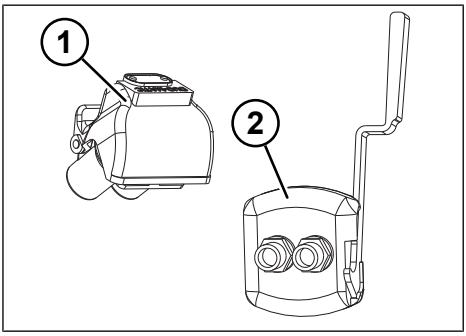

Fig. 5-9: Duo-Matic coupling

1 Connector plug
2 Coupling head

Establish the connections between the tractor unit and the trailer (dolly):

☑ The parking brake on the tractor unit is applied.

☑ The parking brake on the trailer (dolly) is applied *(see "5.9.2 Parking brake", pg. 31)*.

► Check the cleanliness and integrity of the sealing surfaces on the coupling heads. Clean if necessary.

► Pull down the lever of the coupling head on the tractor unit and insert the connector plug.

► Connect the power supply and the EBS plug.

✓ The supply and control connections are now connected.

Establish the connections between the trailer (dolly) and semitrailer:

► The parking brake on the trailer (dolly) is applied *(see "5.9.2 Parking brake", pg. 31)*.

► The parking brake on the semitrailer is applied.

☑ Check the cleanliness and integrity of the sealing surfaces on the coupling heads. Clean if necessary.

☑ Pull down the lever of the coupling head on the semitrailer and insert the connector plug.

► Connect the power supply and the EBS plug.

✓ The supply and control connections are now connected.

Disconnecting the Duo-Matic coupling

Disconnect the connections between the tractor unit and the trailer (dolly):

☑ The parking brake on the tractor unit is applied.

☑ The parking brake on the trailer (dolly) is applied *(see "5.9.2 Parking brake", pg. 31)*.

► Pull down the lever of the coupling head on the tractor unit and disconnect the connector plug.

► Disconnect the power supply and the EBS plug.

✓ The supply and control connections are disconnected.

Disconnect the connections between the trailer (dolly) and semitrailer:

► The parking brake on the trailer (dolly) is applied *(see "5.9.2 Parking brake", pg. 31)*.

► The parking brake on the semitrailer is applied.

► Pull down the lever of the coupling head on the semitrailer and disconnect the connector plug.

► Disconnect the power supply and the EBS plug.

✓ The supply and control connections are disconnected.

5.7 Blind couplings

NOTE

Sagging supply and control connections can cause material damage!

Sagging supply and control connections can become contaminated on unhitched trailers,thereby causing material damage.

► On unhitched trailers, always plug the lines and plugs of all supply and control connections into their designated blind couplings.

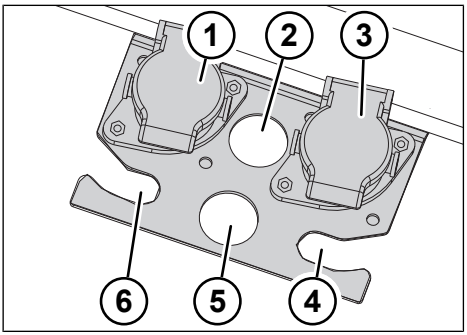

Fig. 5-10: Possible arrangement of the supply and control connections on a blind coupling

1 EBS plug
2 Plug (white), 7-pin
3 Plug, 15-pin
4 Brake coupling
5 Plug (black), 7-pin
6 Compressed air supply coupling

► Close the coupling heads.
► Place the supply and control connections on the brackets.
► Insert the cable plugs into their designated blind plugs.
✓ The supply and control connections are secured.

5.8 Draining the compressed air tanks

⚠ WARNING

Risk of accident due to pressure loss and non-functional chassis!

Condensation water in the compressed air tank can impede the functioning of the brake system and the air suspension and lead to serious accidents.

► Check for the presence of condensation water.
► Drain any existing condensation water.
► Drain existing condensation water more frequently in case of low or strongly fluctuating outside temperatures.

⚠ WARNING

Risk of accident due to frozen condensation water!

Frozen condensation water can lead to a total failure of the brake system and to serious accidents.

► Check the compressed air tank for the presence of condensation water.
► Drain any existing condensation water.

The tractor vehicles are fitted with air dryers. This means that condensate in the compressed air is largely prevented. During cold periods of the year, or when air humidity is high, condensation water can still form and collect in the compressed air tank. The compressed air supply for the brake system and the air suspension is stored in the compressed air tanks. Existing condensation water can be drained using the water drain valve.

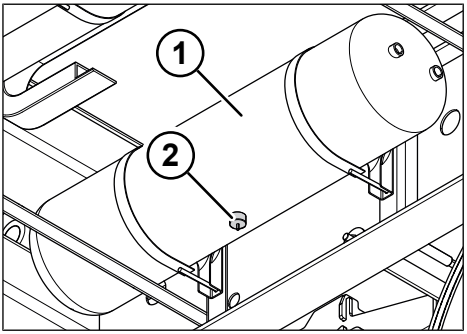

Fig. 5-11: Compressed air tank

1 Compressed air tank
2 Water drain valve

- ► Pull on the ring of the water drain valve until the condensation water is fully drained out.
- ► Before the beginning of the frost period, always fill about 30 cm³ of suitable antifreeze in the brake line of the trailer.
- ✓ The condensation water is drained.

5.9 Brake system

⚠ DANGER

Risk of accidents due to non-functional EBS!

If the EBS plug connection function is not established, the EBS of the vehicle and the automatic load-dependent brake power regulation cannot work. The vehicle is overbraked and the wheels may lock. Serious traffic accidents could occur. Driving without the EBS plug connection is prohibited by law.

- ► Only drive with an approved, connected and functioning EBS plug connection.
- ► Always connect the EBS plug connections between the tractor unit and the trailer.
- ► Only use plug connections that comply with the regulations.
- ► Have the fault immediately repaired by the nearest contract workshop.

⚠ WARNING

Risk of accidents due to incorrect brake tuning!

Incorrect brake tuning between tractor unit and trailer can result in serious accidents.

- ► If necessary, carry out a brake power/train tuning to obtain optimum brake balance.
- ► Observe the reference brake values.
- ► Pay attention to the sticker on the trailer.

INFO

The brake system equipment on the trailer is state of the art. The equipment level of the brake equipment on the tractor unit depends on the manufacturer and type. Likewise, the coupling force controllers of the tractor units in relation to the trailer braking and the control system limits also differ. It is therefore sensible to observe the braking behaviour of the tractor combination and to adjust it if necessary.

INFO

The EBS system also includes the ABS function (Anti-lock braking system ABS) and the ALB function (automatic load-dependent brake pressure control). Full EBS control is provided only when used in conjunction with tractors equipped with EBS equipment (plug receptacle ISO 7638, 7-poles).
So that the ABS minimum function still works, the towing vehicle must at least be fitted with a socket according to ISO 7638, 5-pole. It must be connected to the towed vehicle and functional.

KRONE trailers are equipped with a compressed air brake system. The brake system has two independent brake circuits:

- Service brake
- Parking brake

As an option, the trailer brake system can be equipped with a brake lining wear indicator.

Also observe the enclosed supplier documentation.

5.9.1 Service brake

⚠ WARNING

Risk of accident due to pressure loss inside the brake system!

Pressure loss within the brake system leads to reduction of brake power of the service brake. The trailer is then not braked when parked up. Unintended vehicle movement can cause an accident.

► For extended stops, additionally secure the trailer from rolling away by using the parking brake and wheel chocks.

INFO

Repeated operation of the service brake when the supply lines are uncoupled uses up compressed air from the air reservoir. The trailer is then only partially braked (depending on the air supply).

When unhitching the supply conduit, the trailer is automatically braked using the service brake on some systems. The trailer's service brake is operated with the black control knob on the control unit.

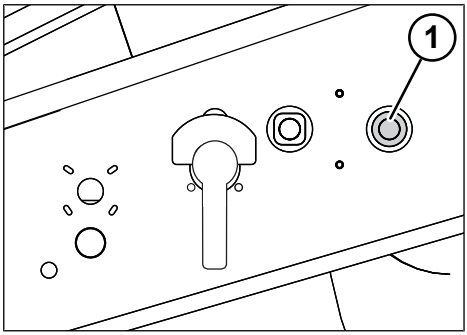

Fig. 5-12: Service brake

1 Control knob for the service brake

Disengaging the service brake

► Press in the control knob for the service brake.

✓ The service brake is disengaged.

✓ If the parking brake is also released, the trailer is not braked.

Applying the service brake

► Pull out the control knob for the service brake.

✓ The service brake is applied.

5.9.2 Parking brake

NOTE

Property damage by driving with the parking brake applied!

Driving with the parking brake applied will damage the trailer's brakes and axles after a short time.

► Disengage the parking brake before starting the trip.

The parking brake has its own brake circuit and is operated via the spring storage membrane-type brake cylinder. The parking brake does not automatically function in the event of pressure drop in the supply circuit. It must be manually operated (mechanically). To tow or manoeuvre without compressed air, the parking brake can be disengaged with the emergency release system *(see "5.9.3 Emergency release devices for the parking brake", pg. 32)*. The parking brake is operated with the red control knob on the control unit.

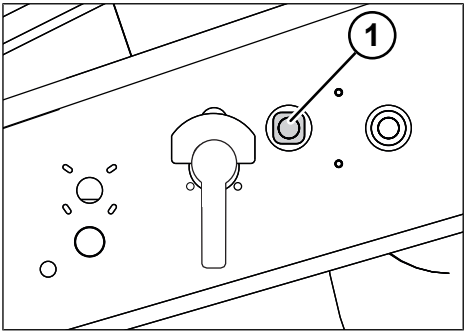

Fig. 5-13: Parking brake

1 Control knob for the parking brake

Disengaging the parking brake

⚠ WARNING

Possible risk of accidents when releasing the parking brake with the service brake released at the same time!

The trailer is not braked if the parking brake and the service brake are released at the same time. The trailer is not braked, it can roll away and cause an accident.

► Only release the service and parking brake at the same time when a towing or manoeuvring vehicle is connected to the trailer.

► Additionally secure the trailer with wheel chocks when parking or standing on slopes.

► Press in the control knob for the parking brake on the control unit.

✓ The parking brake is released.

Applying the parking brake

► Pull out the control knob for the parking brake on the control unit.

✓ The parking brake is operated and the trailer is braked.

INFO

The parking brake does not disengage automatically. Prior to starting off it must be disengaged manually.

5.9.3 Emergency release devices for the parking brake

⚠ WARNING

Risk of injury or material damage due to the vehicle rolling away!

When the emergency release device is activated, the parking brake does not function. When it is not braked, the trailer can roll away and cause serious injuries and material damage.

- ► Only release the service and parking brake when a towing or manoeuvring vehicle is connected to the trailer.
- ► Use wheel chocks to prevent the trailer from rolling away.
- ► Insert the emergency release screw in its holder before starting to drive.

⚠ WARNING

Risk of accidents when driving with the emergency release screw!

Driving with the emergency release screw fitted can make the brake system inoperative and result in accidents.

- ► Ensure that the emergency release screw has been returned to the parking position before driving off again.

The spring storage of the brake system can be operated without compressed air using the emergency release device. When the emergency release device is activated, the spring storage is clamped on each wheel and the parking brake is opened. By doing so, the trailer can be towed or manoeuvred.

INFO

The shape of the spring storage can vary according to the model and differ from the figure shown.

Activating the emergency release device for the parking brake

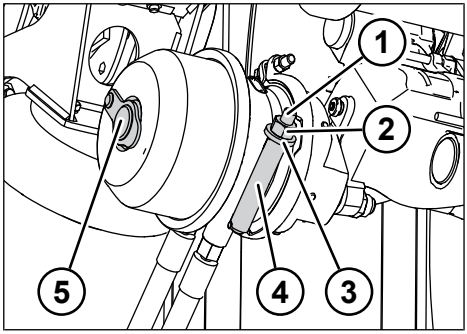

Fig. 5-14: Spring storage with emergency release device

1 Emergency release screw
2 Retainer nut
3 Flat washer
4 Bracket
5 Protective cap

- ► Use wheel chocks to prevent the trailer from rolling away *(see "5.2 Using wheel chocks", pg. 18)*.
- ► Loosen the retainer nut and flat washer.
- ► Remove the emergency release screw from the holder.
- ► Open the cap.

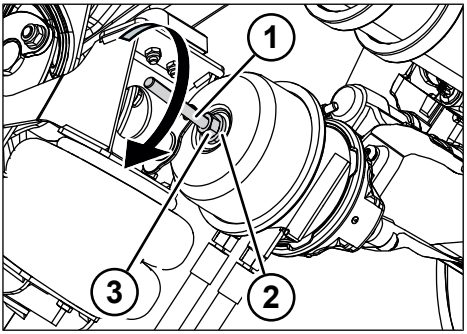

Fig. 5-15: Activating the emergency release screw

1 Emergency release screw
2 Flat washer
3 Retainer nut

► Insert the emergency release screw.
► Turn the emergency release screw clockwise (90°) until it engages.
► Screw on the nut and flat washer onto the emergency release screw.
► Screw the retainer nut and flat washer onto the emergency release screw.
► Tighten the retainer nut with the suitable spanner until the stop.
✓ The spring storage is mechanically tensioned and the brake cylinder has no more braking effect.
► Activate the emergency release device on all the spring storage devices.
✓ The emergency release device is activated and the service and parking brakes are without function.
✓ The trailer is not braked.

Deactivating the emergency release device for the parking brake

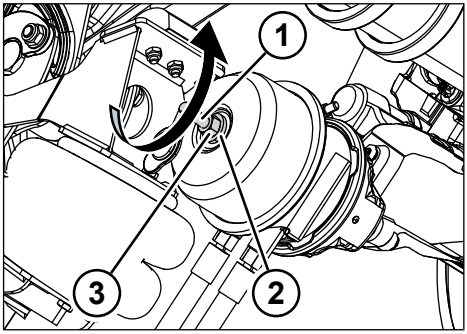

Fig. 5-16: Deactivating the emergency release screw

1 Emergency release screw
2 Flat washer
3 Retainer nut

► Unscrew the nut and flat washer using a suitable spanner from the emergency release screw.
► Turn the emergency release screw key counter-clockwise (90°) and disengage it.
► Remove the emergency release screw.
► Insert the emergency release screw in its holder.
► Screw the retainer nut and flat washer onto the emergency release screw and tighten up to the stop with a suitable spanner.
► Close the cap.
✓ The spring storage is mechanically released and the brake is functional.
► Deactivate the emergency release device on all the spring storage devices.
✓ The emergency release device is deactivated and the service and parking brakes are functional.

5.10 Air suspension

⚠ WARNING

Risk of accidents due to improperly adjusted air suspension!

Incorrectly adjusted air suspension degrades the driving characteristics and can result in accidents or getting stuck under bridges or other openings.

► Always move the air suspension into driving position before driving off. The only exception is during manoeuvring operation at low speeds of approx. 25 km/h.

⚠ CAUTION

Risk of injury due to crushing!

When lowering the trailer, the clearance under the trailer is reduced. Persons between the road and vehicle parts can be crushed and seriously injured.

► Avoid the danger areas.

► When operating the air suspension, avoid having persons underneath the trailer.

NOTE

Material damage due to grounding!

On vehicles with a large lifting height, the ground distance is reduced when reaching maximum lifting height. The spring elements on the axle could ground when manoeuvring and be damaged.

KRONE trailers are equipped with an air suspension system. The control can be done in two ways:

- ○ Manually with two different versions
- ○ Electronically controlled

Also observe the enclosed supplier documentation.

5.10.1 Manual air suspension

Two different control devices are described below. Depending on the equipment, other versions are possible.

In driving position, the air suspension system permanently maintains the vehicle at the same level, independent of load. Using the control lever of the lift and lowering valve, you can raise and lower the level of the stationary vehicle, e.g. to adapt it to a ramp. The operating instructions for the air suspension are additionally displayed as a pictogram on the control unit.

Type 1

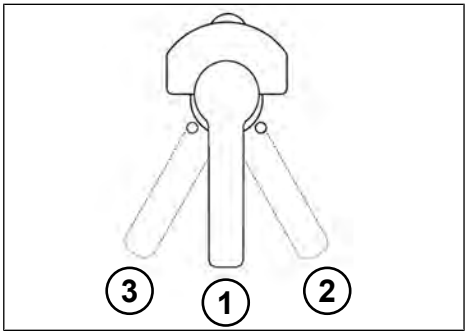

Fig. 5-17: Control lever of the air suspension, Type 1

1 Driving position
2 Lifting the trailer
3 Lowering the trailer

Setting the driving position

► Put the control lever in the vertical position.

► Pull out the control lever.

✓ The air suspension is adjusted for driving.

Lowering the trailer

► Push in the control lever out of the driving position setting.

► Move the pushed-in control lever to the left.

► When the desired vehicle height has been reached, move the control lever to a vertical position.

✓ The trailer is lowered.

Lifting the trailer

- ► Push in the control lever out of the driving position setting.
- ► Move the pushed-in control lever to the right.
- ► When the desired vehicle height has been reached, move the control lever to a vertical position.
- ✓ The trailer is lifted.

Type 2

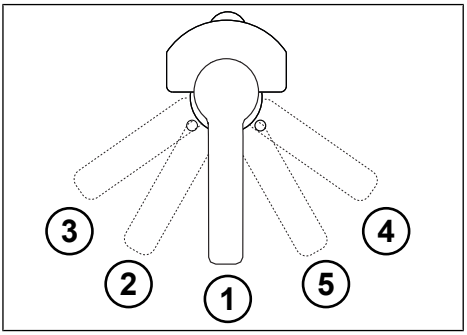

Fig. 5-18: Control lever of the air suspension, Type 2

1 Driving position
2 Lower stop position
3 Lowering the trailer
4 Lifting the trailer
5 Raise stop position

Setting the driving position

- ► Set the control lever to the vertical "driving position"; the control lever slightly springs back.
- ✓ The air suspension is adjusted for driving.

Lowering the trailer

- ► Push in the control lever out of the driving position setting.
- ► Set the pressed-in control lever to the "Lower the trailer" position.
- ► When the desired vehicle height has been reached, move the control lever to the "Lower stop position".
- ✓ The trailer is lowered.

Lifting the trailer

- ► Push in the control lever out of the driving position setting.
- ► Set the pressed-in control lever to the "Lift the trailer" position.
- ► When the desired vehicle height has been reached, move the control lever to the "Lift stop position".
- ✓ The trailer is lifted.

5.10.2 Electronically controlled air suspension

⚠ CAUTION

Risk of accidents due to tipping movements!

If there is an improper power interruption, this may, among other things, result in the valve switching position being unclear. Unclear valve switching positions can result in tipping movements of the trailer.

- ► Properly shut down the entire electronic system before hitching and unhitching the trailer.
- ► Before disconnecting the supply lines (compressed air, vehicle electronics and ISO-7638 EBS power supply), switch the ignition in the tractor to "off" (terminal 15 = de-energised).

Optionally, KRONE trailers can also be fitted with a system for electronically controlled air suspension, e.g. via Wabco's ECAS system. It electronically controls the vehicle's ride height and any other controlled height of the vehicle if there is a power supply and an adequate compressed air supply.

Also observe the enclosed supplier documentation.

5.11 Tarpaulin cover on the mudguard

⚠ WARNING

Risk of accident due to swirled up stones, dirt and water!

When driving with the tarpaulin cover rolled up and without a semitrailer, stones, dirt and water that are whirled up can injure other road users and restrict their vision. This is also legally prohibited.

► When driving without the semitrailer, always roll up the tarpaulin cover over the tyres and fasten it properly.

Rolling up the tarpaulin

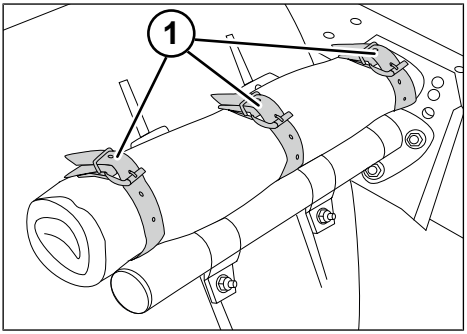

Fig. 5-19: Rolled-up tarpaulin cover

1 Buckle strap

► Release the tension strap.
► Roll up the tarpaulin.
► Fasten the tarpaulin with buckle straps.
✓ The tarpaulin is rolled up and fastened.

Unrolling the tarpaulins

► Release the fastener of the buckle strap.
► Unroll the tarpaulin
► Fasten the tarpaulin on the mudguard with tension straps.
✓ The tarpaulin is unrolled and fastened.

5.12 Coupling and uncoupling the semitrailer

⚠ DANGER

Danger to life due to crushing!

People can be crushed between the tractor and trailer when coupling and uncoupling.

► Instruct persons to leave the danger area between tractor unit and trailer.
► Ensure that any guide person present stays far enough away to the side from the vehicles.

NOTE

Material damage due to improper coupling and uncoupling

Improper coupling and uncoupling can cause damage to the vehicle.

► Prior to coupling and uncoupling, use the landing leg winches to adjust the trailer to the required coupling or uncoupling height of the tractor unit.
► When coupling or uncoupling, also observe the instructions from the tractor's operating instructions.
► Ensure sufficient clearance of all components.

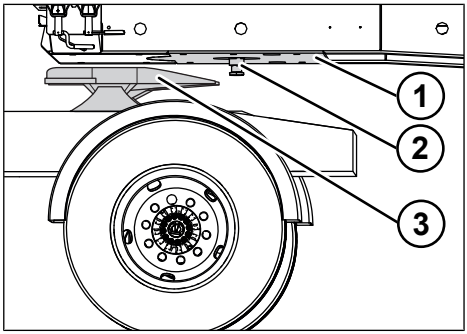

Fig. 5-20: Coupling

1 Semitrailer plate
2 Kingpin
3 Semitrailer coupling

Coupling the semitrailer

- ► Apply the parking brake on the semitrailer.
- ► Use the wheel chocks to prevent the semitrailer from rolling away.
- ► Check the attachment and wear of the kingpin.
- ► Before coupling, check:
  - ○ Is the trailer's (dolly's) fifth-wheel load suitable for the semitrailer?
  - ○ Do the semitrailer coupling and the kingpin match?
  - ○ Do the fifth wheel height of the trailer (dolly) and semitrailer match?
  - ○ Is the semitrailer properly loaded?
  - ○ Is the coupling plate sufficiently lubricated?
- ► Fix the turn frame on the trailer (dolly) *(see "5.13 Turn frame", pg. 38)*.
- ► Adjust the height of the semi-trailer plate using the landing leg winches. The coupling plate must be approx. 50 mm lower than the saddle coupling plate.

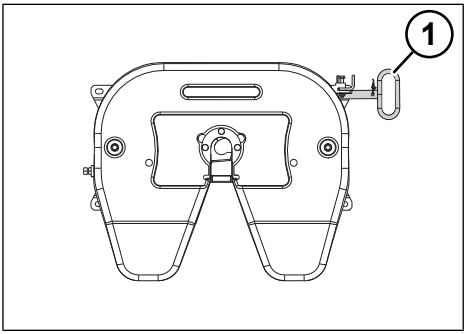

Fig. 5-21: Semitrailer coupling

1 Pull-handle

- ► Pull out the pull-handle of the semitrailer coupling up to the end position and hook it onto the edge of the plate.
  - ⇨ The safety catch is automatically opened.

INFO

More information is available from the enclosed supplier documentation and BG information "Safe coupling of trailers".

- ► Drive the trailer (dolly) in centrally until the kingpin engages and the lock of the semitrailer coupling engages and locks automatically.
- ► Perform the start-up test in low gear.
- ► Perform a visual inspection:
  - ○ The semitrailer plate must lie against the semitrailer coupling without an air gap.
  - ○ The semitrailer coupling must have locked properly.
- ► Secure the semitrailer coupling with its securing device.
- ► Connect the supply and control lines *(see "5.6 Supply and control connections", pg. 24)*.
- ► Retract the landing leg winches on the semitrailer.
- ► Set the air suspension on the semitrailer to the driving position.
- ► Remove the wheel chocks and store them properly on the semitrailer.
- ► Check for clearance:

Clearance	Requirement
Bending angle to the left and the right	Max. 90°
Tilt angle	Max. 6° to the front, max. 7° to the rear
Swing radius	There must be sufficient distance between the trailer (dolly) and the trailer. The two vehicles should not come into contact when turning a corner.
Supply lines	The supply lines must hang freely. They may not hang too low and rub, nor be pulled too tight when cornering.

- ► Carry out a departure check *(see "4.3 Commissioning before each trip", pg. 16)*.
- ✓ The semitrailer is coupled and ready to drive.

Uncoupling the semitrailer

- ► Park the semitrailer on a load-bearing and level surface.
- ► Apply the parking brake on the semitrailer.
- ► Use the wheel chocks to prevent the semitrailer from rolling away.
- ► Support the semitrailer with the landing leg winches.
- ► Disconnect the supply and control lines *(see "5.6 Supply and control connections", pg. 24)*.
- ► Lower the air suspension on the trailer (dolly) when uncoupling in a loaded condition *(see "5.10 Air suspension", pg. 34)*.
- ► To compensate for the length of the overall combination, briefly release the parking brake on the semitrailer.
- ► Use the wheel chocks to prevent the semitrailer from rolling away.
- ► Pull out the pull-handle of the semitrailer coupling up to the end position and hook it onto the edge of the plate.

INFO

More information is available from the enclosed supplier documentation and BG information "Safe coupling of trailers".

- ► Slowly drive away the trailer (dolly).
- ✓ The semitrailer is uncoupled.
- ► Prior to departure, set the air suspension of the trailer (dolly) to driving position *(see "5.10 Air suspension", pg. 34)*.
- ► Prior to departure, release the turn frame *(see "5.13 Turn frame", pg. 38)*.

5.13 Turn frame

⚠ CAUTION

Risk of accident when driving with a fixed turn frame!

Driving with a fixed turn frame degrades the driving behaviour of the trailer.

- ► Release the turn frame before starting to drive.

NOTE

Property damage when coupling when the turn frame is not fixed!

When the turn frame is not fixed, there can be material damage to the kingpin when coupling.

- ► Fix the turn frame before coupling.
- ► Be sure to release the turn frame before starting to drive.

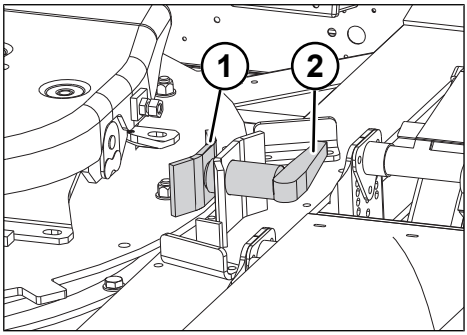

Fig. 5-22: Spring latch

1 Stop
3 Spring latch

Fixing the turn frame

- ► Open the spring latch.
- ► Turn the turn frame so that the stop on the turn frame and the bolt of the spring latch are lined up.
- ► Close the spring latch.
- ✓ The turn frame is fixed.

Releasing the turn frame

- ► Opening the spring latch

- ► Turn the turn frame to the required position.
- ► Close the spring latch.
- ✓ The turn frame is released.

6 Troubleshooting in the event of faults

⚠ WARNING

Risk of accident due to instability and rolling away!

Unintentional trailer movements can cause serious injury and material damage.

- ► Secure the trailer against rolling away by applying the parking brake.
- ► Use the wheel chocks to prevent the trailer from rolling away.
- ► Park the trailer on a solid surface to avoid sinking in or tipping.
- ► Ensure stability when the trailer is Uncoupled. If necessary, use additional supports.

⚠ WARNING

Risk of accident and material damage caused by improperly performed troubleshooting and repair work!

Improperly performed troubleshooting and repair work affect safety of the Trailer and may lead to serious injuries and material damage.

- ► Only have necessary repair work performed by an authorised specialist workshop.
- ► Use original spare parts and spare parts authorised by KRONE.
- ► Also observe the enclosed supplier documentation.

The following overview will help to determine possible faults and their causes and to perform measures to eliminate them. In case of faults that cannot be fixed:

- ► Visit an authorised specialist workshop.
- ► Contact the customer service department of Fahrzeugwerk Bernard KRONE GmbH & Co. KG *(see "9.2 Customer service and support", pg. 52)*.

Fault	Cause	Solution
Electrical components are not working	Supply and control connections are interrupted	► Check that the supply and control connections between the tractor unit and trailers are properly connected. ► Check that the supply and control connections between the trailer (dolly) and semitrailer are properly connected.
Pneumatic components are not working	Leaks on components	► Check the components for damage and leaks. ► Have repairs/replacements performed by a specialist workshop.
Rear lights, direction indicators, position lamps or similar do not work	Defective bulbs	► Replace the defective bulbs. ► Check that the supply and control connections between the tractor and trailer are properly connected.
Brake system fault	Leaks on the brake cylinder, leaks on the brake calliper	► Check the brake cylinders for function and leaks. ► Have repairs/replacements performed by a specialist workshop.

Fault	Cause	Solution
Braking abnormalities (trailer and tractor brake abnormally in the vehicle combination)	Failure to perform the brake power/ train tuning	► Perform a brake power/train tuning with the allocated tractor unit *(see "6.1 Fixing braking abnormalities", pg. 41)*.
ABS/EBS error display	Fault in the controller	► Contact an authorised specialist workshop or customer service.

6.1 Fixing braking abnormalities

⚠ WARNING

Risk of accident and material damage caused by improperly performed troubleshooting and repair work!

Improperly performed troubleshooting and repair work affect safety of the Trailer and may lead to serious injuries and material damage.

- ► Only have necessary repair work performed by an authorised specialist workshop.
- ► Use original spare parts and spare parts authorised by KRONE.
- ► Also observe the enclosed supplier documentation.

⚠ WARNING

Risk of accidents due to incorrect brake tuning!

Incorrect brake tuning between tractor unit and trailer can result in serious accidents.

- ► If necessary, carry out a brake power/ train tuning to obtain optimum brake balance.
- ► Observe the reference brake values.
- ► Pay attention to the sticker on the trailer.

Technically optimised function of the brake system is only possible when trailer is combined with the corresponding allocated tractor unit. All components and the controls must function without faults and be properly set. If braking abnormalities occur, the following apply:

- ► Fill in the following questionnaire for basic information regarding braking abnormalities and send it to KRONE.
- ► More information and instructions can be found on the KRONE website or requested from customer service *(see "9.2 Customer service and support", pg. 52)*.
- ► Observe the operating and maintenance instructions of the installed supplied components.

Questionnaire: Basic information about braking abnormalities

- ► Copy the questionnaire below.
- ► Fill in the questionnaire completely.
- ► Include the following attachments:
  - ○ Logs from the rolling brake test stand
  - ○ Data from the memory of the brake electronics

- ○ Error memory
- ○ Operating data
- ○ If necessary, the data from the internal CPU memory (e.g. EEPROM memory for WABCO systems)

Customer	
Name/company	
Telephone	
Fax	
Email	

Trailer	
Item number	
Vehicle ID number *(see "1.3 Product identification and type plate", pg. 6)*	
New registration	
Trailer mileage	km
Brake pads mileage	km

Tractor unit	
Manufacturer	
Type	
New registration	km
Tractor unit mileage	km
Brake pads mileage	km

► Send the filled form and annexes to:

Fahrzeugwerk Bernard KRONE
GmbH & Co. KG

Customer Service

D-49757 Werlte

email: kd.nfz@krone.de

7 Maintenance and repair

Maintenance and repair serve to maintain the operational readiness and to prevent premature wear. Maintenance is divided into:

- Care and cleaning
- Maintenance
- Repair

7.1 Care and cleaning

NOTE

Material damage caused by incompatible cleaning agent

Consequences: Incompatible cleaning agents can damage the paintwork, metal surfaces or plastic surfaces as well as destroy lines, hoses and seals.

- ► Do not use aggressive cleaning agents.
- ► Use acid-free and pH-neutral cleaning agents.
- ► Do not clean brake hoses and air lines with petrol, benzene, petroleum or mineral oils.
- ► Only use water to remove stubborn dirt.

NOTE

Material damage caused by high-pressure cleaners!

When using a high-pressure cleaner, surfaces and components can be damaged.

- ► Keep a minimum distance of approx. 0.3 m between the nozzle of the high-pressure cleaner and the surface being cleaned.
- ► Do not aim the water jet directly at electrical components, plug connections, seals or hoses.

NOTE

Material damage caused by road salt!

The use of road salt on public roads can damage the trailer if it is not cared for properly.

- ► After driving on roads treated with road salt, clean the trailer immediately with lots of cold water.
- ► Avoid warm water because it heightens the effect of the salt.

NOTE

Environmental damage caused by chemicals!

Along with dirt, lubricants and cleaning agents can also end up in the waste water and endanger the environment when you wash your vehicle.

- ► Do not allow lubricants or other chemicals to escape into drains, sewers or to seep into the ground.
- ► Clean the Trailer only in suitable washing areas with an oil separator.
- ► Observe the national environmental protection regulations.

Cleaning the trailer

- ► Park the trailer on a level and firm surface.
- ► Apply the parking brake *(see "5.9.2 Parking brake", pg. 31)*.
- ► Secure the trailer with wheel chocks *(see "5.2 Using wheel chocks", pg. 18)*.
- ► Clean the trailer with lots of water and an acid-free and pH-neutral cleaning agent.
- ► Allow the trailer to dry.
- ✓ The trailer is cleaned.
- ► Carry out a departure check *(see "4.3 Commissioning before each trip", pg. 16)*.

7.2 Maintenance

7.2.1 Regular checks and functional testing

To ensure that the trailer is in proper operating condition, the safety-related equipment must be checked regularly for proper function, its effectiveness must be ensured and the recurring inspections must be performed.

- ► Prior to starting each trip, perform a departure check *(see "4.3 Commissioning before each trip", pg. 16)*.
- ► Perform legally prescribed general inspections punctually.
- ► Observe the intervals and instructions for testing and maintenance of the supplied components (e.g. axles) contained within the respective supplied operating instructions.
- ► Report any detected safety defects:
  - ○ Take the trailer out of operation if operational safety is not ensured.
  - ○ When there is a change of shift, inform the colleague starting the next shift about observed defects and implemented measures.
- ► Perform the following checks and functional testing at the intervals prescribed:

Component	Inspection
Daily, or before every journey	
Kingpin/coupling plate	Visual check for wear, damage and proper attachment.
Compressed air tank	Actuate the water drain valve *(see "5.8 Draining the compressed air tanks", pg. 28)*.
Weekly	
Compressed air tank	○ Perform a visual inspection for wear and damage.
Tyres	○ Check the tread depth and tyre pressure (9 bar)

7.2.2 Maintenance intervals for the authorised specialist workshop

Assembly group	Maintenance work	Monthly	Every six months	Yearly
Wheels and tyres *(see "7.2.4 Wheels and tyres", pg. 46)*	► Check the tightening torques of the wheel nuts. Additionally: For the first time after 50 and 100 km or after every wheel change ► Check the tyres and the tyre inflation pressure.		X	X
Axle and suspension *(see "7.2.5 Axle and suspension", pg. 46)*	► Check the tightening torque of the fixing bolts. ► Observe the maintenance instructions from the axle manufacturer.	X	X	X
Brake system *(see "7.2.6 Brake system", pg. 46)*	► Check the bolted connections. ► In addition: After the first trip			X

Assembly group	Maintenance work	Monthly	Every six months	Yearly
Compressed air system *(see "5.8 Draining the compressed air tanks", pg. 28)*	► Check the compressed air tank. ► Check the compressed air connections. ► Check the compressed air lines.			X
Lubrication points *(see "7.2.7 Lubricating the trailer", pg. 47)*	► Top up the grease on all the lubrication points. ► Pay attention to the lubrication points shown in the applicable operating instructions.			X
Electrical equipment *(see "7.2.8 Electrical equipment", pg. 48)*	► Check all electrical components for proper function.			X
Contour marking *(see "7.2.9 Contour marking", pg. 48)*	► Check the contour markings for completeness and legibility.	X		
Bolted connections *(see "7.2.10 Bolted connections", pg. 48)*	► Perform a visual inspection for wear and damage.			X
Load securing	► Perform a visual inspection for wear and damage.			X

7.2.3 Maintenance intervals for the driver

Assembly group	Maintenance work	Monthly	Every six months	Yearly
Wheels and tyres *(see "7.2.4 Wheels and tyres", pg. 46)*	► Check the tightening torques of the wheel nuts. ► Check the tyres and the tyre inflation pressure.		X	X
Axle and suspension *(see "7.2.5 Axle and suspension", pg. 46)*	► Observe the maintenance instructions from the axle manufacturer.	X	X	X
Compressed air system *(see "5.8 Draining the compressed air tanks", pg. 28)*	► Check the compressed air tank. ► Check the compressed air connections.			X
Contour marking *(see "7.2.9 Contour marking", pg. 48)*	► Check the contour markings for completeness and legibility.	X		

Assembly group	Maintenance work	Monthly	Every six months	Yearly
Load securing *(see "7.2.11 Load securing", pg. 48)*	► Perform a visual inspection for wear and damage.			X
Lubrication points *(see "7.2.7 Lubricating the trailer", pg. 47)*	► Top up the grease on all the lubrication points. ► Pay attention to the lubrication points shown in the applicable operating instructions.			X

7.2.4 Wheels and tyres

- ► Check the tightening torques of the wheel nuts. The tightening torque depends on the rim design.
- ► Observe the supplier documentation.
- ► Perform a visual inspection for wear and damage:
  - ○ Check the tread depth of the tyres regularly.
  - ○ Check the tyres for damage.
- ► Check the tyre inflation pressure regularly according to the manufacturer specifications and correct if necessary. The tyre inflation pressure depends on the technical characteristics of the tyre.
- ► Observe the supplier documentation.
- ► Drive only with approved rim and tyre combinations.
- ► Observe the seasonal tyres (summer or winter tyres) for the trailer.

7.2.5 Axle and suspension

- ► Perform a visual inspection for wear and damage.
- ► Have defective or damaged components replaced.
- ► Check the tightening torque of the fixing bolts.
- ► Observe the maintenance instructions from the axle manufacturer.

7.2.6 Brake system

⚠ WARNING

Risk of accident caused by defective brakes!

A failure or defect of the brake system can lead to serious accidents.

- ► Drive only with properly functioning brake system.
- ► In case of defect or wear, park the trailer immediately.
- ► Abnormalities or malfunctions of the brake system must be immediately repaired by an authorised specialist workshop.
- ► Have the trailer towed if necessary.

Checking the axles/brake system

- ► Check all bolted connections on new trailers after repairs, after the first trip or at the latest after 1,000 km.
- ► Retighten bolted connections with the tightening torques specified by the manufacturer.
- ► Observe the maintenance instructions of the installed supplied components.
- ► Immediately consult an authorised specialist workshop if there are defects with the brake or ABS/EBS system.
- ► If malfunctions occur, contact an authorised specialist workshop for inspection *(see "6.1 Fixing braking abnormalities", pg. 41)*.

Servicing the diagnostics connection for the EBS brake system

The EBS diagnostics connection is established using the EBS plug connector (ISO 7638, 7-pin) at the front of the vehicle. The diagnosis may only be performed by an authorised specialist workshop.

► Keep the protective caps closed to prevent soiling.

Brake pad conditioning

⚠ WARNING

Risk of accident due to rear-end collision!

When performing braking for conditioning, other road users can collide with the rear of your trailer and seriously injure themselves.

► When performing the braking for conditioning, make sure that other road users are not endangered by this action.

In order to obtain maximum performance and a long service life for the brake pads, the brake pads must be in an optimum condition. It may be necessary to condition the brake pad for this optimum condition due to underloading, weather conditions and when the trailer has been stood idle for a long period of time.

► As a preventative measure, perform the conditioning by braking accordingly.

► Procedure:

○ Strong braking and/or dragging brakes

○ Then allow the brake pads to cool down

○ Repeat in a cyclical loading mode

► Observe other technical information from the axle manufacturer regarding the topic of "Conditioning".

Obtaining the reference braking values

The reference braking values are used as the default for the legal brake tests. The reference braking values for every current trailer can be obtained on the KRONE website *(see "9.2 Customer service and support", pg. 52)*.

7.2.7 Lubricating the trailer

NOTE

Material damage caused by dry lubrication points!

Too little or a lack of grease can result in damage to moving parts.

► Lubricate the trailer regularly.

► Only lubricate the marked points.

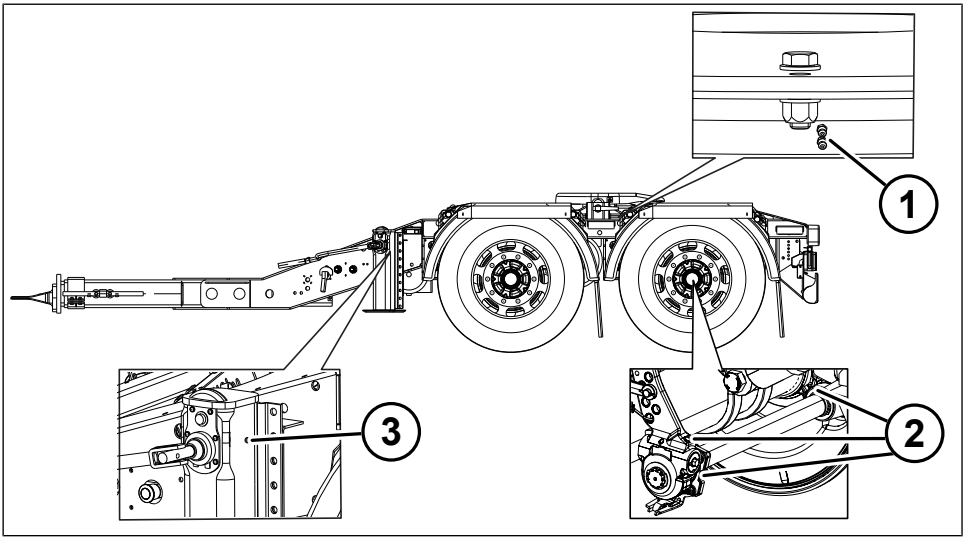

Fig. 7-1: Dolly lubrication points

1 Grease nipple on the turn frame (up to six grease nipples, depending on the manufacturer)
2 Axle assembly and brake system
3 Lubrication hole with plug on the landing leg winch

- ► Top up the grease on all the lubrication points.
- ► Lubricate the grease nipple on the turnframe every 8,000 – 10,000 km.
- ► Also observe the enclosed supplier documentation.

7.2.8 Electrical equipment

- ► Perform a visual check of the electrical connections for the lighting and ABS/ EBS for wear and damage.
- ► Perform a visual check of the lighting and signalling systems.
- ► Have defective electrical components replaced by an authorised specialist workshop.
- ► Only have work on the electrical equipment performed by trained electricians, or by personnel trained especially for the purpose, in accordance with all applicable safety rules and regulations.

7.2.9 Contour marking

- ► Perform a regular visual check of the contour markings.
- ► Pay attention to damage, soiling and visibility.
- ► Have defective or damaged contour markings replaced.

7.2.10 Bolted connections

- ► Check bolted connections regularly for settling signs.
- ► Replace defective bolted connections.
- ► Observe the instructions about bolted connections in the supplier documentation.

7.2.11 Load securing

- ► Perform a visual inspection for wear and damage.
- ► Have defective or damaged components replaced.

7.3 Repair

⚠ WARNING

Risk of accident and material damage caused by improperly performed troubleshooting and repair work!

Improperly performed troubleshooting and repair work affect safety of the Trailer and may lead to serious injuries and material damage.

- ► Only have necessary repair work performed by an authorised specialist workshop.
- ► Use original spare parts and spare parts authorised by KRONE.
- ► Also observe the enclosed supplier documentation.

Repair work includes the replacement and the repair of components and is only required when components are damaged by wear or other external circumstances.

The following applies to the specialist workshop:

- ○ The necessary repair work must be performed professionally, according to the rules of engineering and in accordance with the applicable regulations.
- ○ Do not repair worn or damaged components using a makeshift repair.
- ○ Only use original or approved spare parts for repairs *(see "9.1 Spare parts", pg. 52)*.
- ○ Always replace any removed seals with new seals.
- ○ No welding work may be carried out on frames, the chassis or bearing parts.

Replacing defective bulbs

⚠ WARNING

Risk of accident due to defective bulbs!

Defective bulbs cause poor visibility and insufficient perception by third parties. There is a risk of traffic accidents.

- ► Replace defective bulbs immediately.

Defective bulbs can be replaced by the driver.

- ○ Use similarly rated bulbs as replacements.
- ○ Switch off the lighting system when changing bulbs to prevent a short circuit.
- ○ Check the fuses of the lighting system if necessary.
- ○ Observe the supplier documentation when replacing bulbs.
- ○ If there are frequently occurring defects, have the electrical system checked out by an authorised specialist workshop.

8 Decommissioning

8.1 Temporary decommissioning

NOTE

Material damage caused by long downtimes!

If the decommissioning lasts for several months, the tyres can be damaged by storage deterioration.

► Move the trailer once a month to prevent the tyres from deteriorating during storage.

To temporarily decommission the trailer, the following actions must be performed:

► Clean the trailer.

► Drive the trailer onto firm and level ground.

► Apply the parking brake *(see "5.9.2 Parking brake", pg. 31)*.

► Secure the trailer against rolling away *(see "5.2 Using wheel chocks", pg. 18)*.

► Drain the brake system *(see "5.8 Draining the compressed air tanks", pg. 28)*.

► Before the start of the frosty period, fill up the brake lines with antifreeze *(see "5.8 Draining the compressed air tanks", pg. 28)*.

► Close off the coupling heads for the supply and control connections separately with protective caps.

► Observe the instructions for decommissioning the installed supplied components.

✓ The trailer is temporarily decommissioned.

8.2 Recommissioning

⚠ WARNING

Risk of accident and material damage due to lack of checks!

After longer downtimes, the wear condition of the KRONE trailer's axle can change. Operating the axle when not in perfect technical condition can lead to serious accidents or material damage.

► Perform a component check before driving for the first time.

► Fix any detected faults before driving off.

► Serious faults must be repaired by an authorised specialist workshop.

To recommission the trailer after temporary decommissioning , the following actions must be performed:

► Perform a general visual inspection.

► Check the entire lighting system.

► Check the tyre inflation pressure, age and condition of the tyres.

► Check the function of the brake system.

► Check the function of the air suspension.

► Grease the lubrication points.

► Carry out a departure check *(see "4.3 Commissioning before each trip", pg. 16)*.

► Check the coupling heads for the supply and control connections for cleanliness and functioning seals.

► Observe the other applicable operating instructions for recommissioning the installed supplied components.

✓ The trailer has been put back into operation again.

8.3 Final decommissioning and disposal

NOTE

Environmental damage due to improper disposal!

The Trailer contains operating materials, electrical, pneumatic, and hydraulic components that must be disposed of separately. Improper disposal can cause damage to the environment.

- ► Have the Trailer disposed of properly by a specialist company.
- ► Observe the national and local regulations for the disposal.

After the final decommissioning, the trailer must be disposed of properly. In doing so, the electrical, pneumatic and hydraulic components must be disposed of separately.

To fully decommission the trailer and to dispose of it properly, the following actions must be performed:

- ► Ensure that the disposal is done properly and in an environmentally sound way.
- ► Have the trailer disposed of properly by a specialist company.
- ► Observe the national and local regulations for the disposal.
- ► Observe the instructions for decommissioning issued by the suppliers of the installed components.
- ✓ The trailer is permanently taken out of operation and disposed of.

9 Spare parts and customer service

9.1 Spare parts

NOTE
Property damage caused by incorrect spare parts! The use of non-approved or incorrect spare parts affects safety and can result in voiding of the operating permit. ► Only use original spare parts.

The original spare parts are regularly checked for safety and functionality. The use of original spare parts guarantees road and operating safety and the operating permit is retained.

► When ordering spare parts, indicate the vehicle ID number.

You can order spare parts by phone under +49 (0) 59 51 / 209-302 or from the KRONE website. An electronic spare parts catalogue is available on the website: www.krone-trailer.com

9.2 Customer service and support

The customer service department at Fahrzeugwerk Bernard KRONE GmbH & Co. KG can be reached using the following contact data:

Customer Service

Telephone: +49 (0) 59 51 / 209-320

email: kd.nfz@krone.de

Internet: www.krone-trailer.com/service/kundendienst

Spare parts

Telephone: +49 (0) 59 51 / 209-302

email: Ersatzteile.nfz@krone.de

Internet: www.krone-trailer.com

Fahrzeugwerk Bernard KRONE
GmbH & Co. KG
Bernard-Krone-Straße 1
D-49757 Werlte

10 Technical data

10.1 Dimensions and weights

The technical data can vary depending on the vehicle equipment. A list of the technical data for all variants is not possible here. The vehicle-specific technical data is noted in the vehicle documents. The measurements and weights in the following table refer to the basic vehicle model.

Dimensions and weights	
Permitted total weight	18,000 kg
Dolly fifth-wheel load	16,000 kg
Dead weight	2,700 kg
Unloaded fifth wheel height	1,150 mm
Unloaded coupling height	approx. 800 mm
Axle spacing	1,310 mm
Total length in basic setting	5,125 mm

Further information can be found on our website www.krone-trailer.com.

10.2 Plugs and socket pin assignments

10.2.1 Socket S (white) ISO 3731, 7-pin

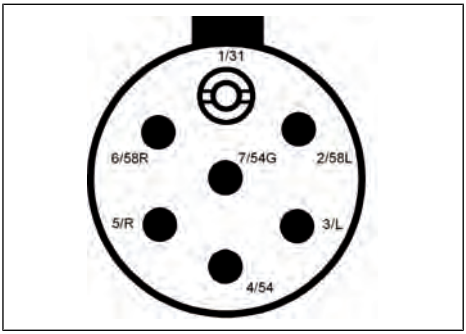

Fig. 10-1: Socket ISO S 3731, 7-pin

Contact no.	Colour	Function
1/31	White	Ground
2/58L	Black	Unassigned
3/L	Yellow	Reversing light
4/54	Red	Permanent power (+24 V)
5/R	Green	Steering axle lock (optional)
6/58R	Brown	Lift axles (optional)
7/54G	Blue	Rear fog light

10.2.2 Socket N (black) ISO 1185, 7-pin

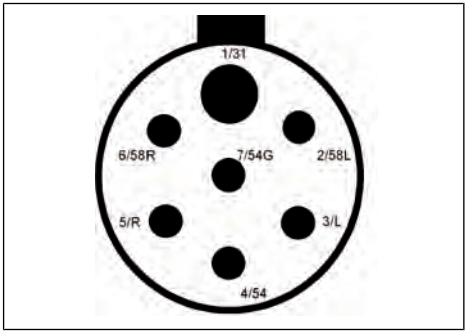

Fig. 10-2: Socket ISO N 1185, 7-pin

Contact no.	Colour	Function
1/31	White	Ground
2/58L	Black	Rear, boundary and licence plate lights, left-hand side
3/L	Yellow	Direction indicator, left
4/54	Red	Brake light
5/R	Green	Direction indicator right
6/58R	Brown	Rear, boundary and licence plate lights, right-hand side
7/54G	Blue	Unassigned

10.2.3 Socket ISO 12098, 15-pin

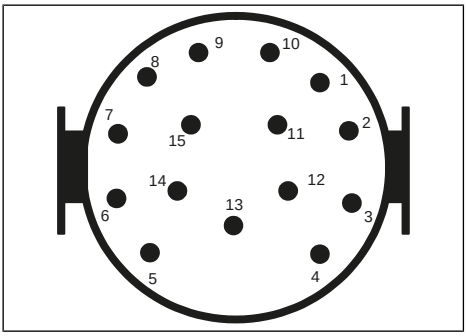

Fig. 10-3: Socket ISO12098, 15-pin

Contact no.	Colour	Function
1	Yellow	Direction indicator, left
2	Green	Direction indicator right
3	Blue	Rear fog light
4	White	Ground
5	Black	Rear, boundary and licence plate lights, left-hand side
6	Brown	Rear, boundary and licence plate lights, right-hand side
7	Red	Brake light
8	Pink	Reversing light
9	Orange	Permanent power (+24 V)
10		Steering axle lock (optional)
11		Unassigned
12	Grey	Lift axles (optional)
13		Unassigned
14		Unassigned
15		Unassigned

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