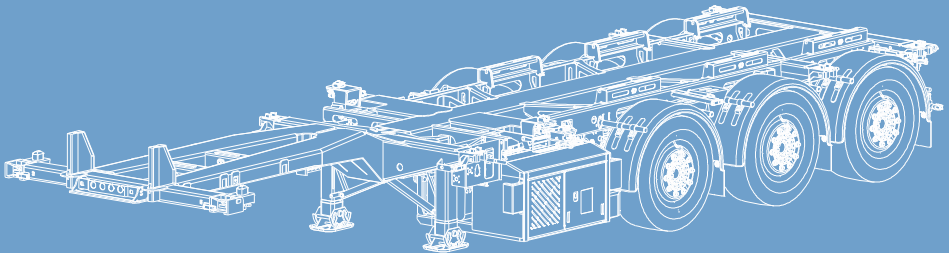




OPERATING INSTRUCTIONS

BOX LINER

TU 70



515108039-02 EN

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

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.

Immediately replace operating instructions that have become illegible or are missing. 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 "11.2 Customer service and support", pg. 80).

1.2 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:

The following information is shown on the type plate:

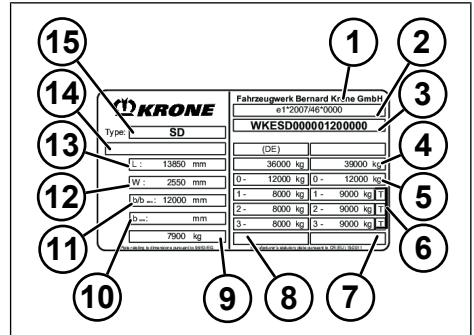


Fig. 1-1: Example type plate

- 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

1.3 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,
 - 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 "11 Spare parts and customer service", pg. 80).
- ▶ When handling the trailer and for all maintenance work, please also observe:
 - The maintenance regulations for the used installed components,
 - Load securing regulations.

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 Optional components

KRONE trailers are fitted with a number of optional components. The operating instructions describe all of the components in the following sections.


All the components are not necessarily on your trailer.

1.7 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
- ☑ Prerequisite for action
- ▶ Action step
 - ⇒ Intermediate action result
- ✓ Result of the action

INFO
Additional information and tips.

 **i** : Also observe the enclosed supplier documentation.

1.8 Copyright

These instructions represent an official document within the meaning of laws against unfair competition. They incorporate texts and drawings which, in their entirety or partly, without written consent of the manufacturer, are not to be

- copied (except attached copy originals),
- published, or
- made public by other means.

The copyright to these instructions remains with

Fahrzeugwerk Bernard KRONE
GmbH & Co. KG, D-49757 Werlte

Violations oblige compensation for damages.

2 Safety

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

The basic safety instructions include instructions that apply fundamentally to safe use or 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

WARNING

Possible serious injury caused by crushing

CAUTION

Possible slight injury caused by crushing

NOTE

Possible environmental damage or property damage

2.2 Intended use

The Krone trailer is designed and intended for transporting containers.

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.

The transport of tank containers is only approved for the following vehicle types: SDC 27 EL 40, SDC 27 EL 20, SZC 18 EL 20, SDC 27 FS 10.

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.

The pneumatic rear extension is used to extend and retract the rear extension. It is designed for the default load operating

mode with manual operation and is intended for use in industry and in business. Trained personnel (with the appropriate anthropometric data only) operate it manually, and maintenance may only be carried out by specialist personnel. Other persons may not be present in the working area of the pneumatic rear extension. The trailer may only be driven with locking bolts inserted on the rear extension.

An optionally installed power generator may only be operated while observing safety regulations.

 Also observe the enclosed supplier documentation.

Foreseeable misuse

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

- Transport of persons or animals
- Transports for which special regulations apply, 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
- Driving in a telescoped state without a load
- Use of components that are not approved by KRONE, e.g. tyres, accessories, spare parts

The pneumatic rear extension may not be used to exert force on people, on the vehicle itself, or on other objects. The vehicle must remain unladen and standing still during actuation. For stability reasons,

the vehicle may only be driven with the machine fully retracted and locked when empty.

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 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

2.4 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.

2.4.1 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 technical workshop.

2.4.2 Driving staff

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

- Have read and understood the operating instructions,
- Have reached the legal minimum age.
- 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 is limited to persons who have 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 "1.3 Other applicable documents", pg. 8*),
- 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.

2.4.3 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.

2.5 Personal protective equipment

Personal protective equipment serves to avoid injuries and is prescribed 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.
- Gloves and safety shoes are generally worn.
- ▶ Observe the national regulations 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. Ensure adequate lighting when performing any work in hazard areas.

- 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.
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.

Danger area	Danger
Between the central and rear module	Crushing hazard when retracting and extending the rear module
Area around the generator set	Generator exhaust and cooler become hot. The generator contains rotating and moving parts.

2.9 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

Component	Function
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

2.10 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.
- ▶ Fully depressurise the pneumatic system before beginning maintenance work.

Dangers while driving

There is a risk of impact on bridges, in tunnels or with other structures. Persons can be injured or the vehicle, 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 the trailer 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 additionally with wheel chocks against accidental movement.
- ▶ Instruct all persons to leave the area between the tractor unit and the trailer 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

Incorrect load distribution as well as improperly secured loads can lead to dangerous road handling and serious accidents or damage to the vehicle.

INFO

Observe the load distribution plan for optimum loading. The load distribution plan is individually calculated for every trailer. Using the load distribution curve, you can read the distance that must be maintained between the front wall and the load.

- ▶ Observe the specified axle loads and drawbar loads.

- ▶ Secure the load in accordance with the applicable regulations.
- ▶ Ensure that the load securing aids are not damaged and are functional.

Load securing

Unsecured or incorrectly secured loads can result in poor road handling or even accidents. Lost loads can cause injury to other road users.

- ▶ Secure the load according to the requirements of the relevant regulations 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.

- ▶ Perform regular inspections for defects.
- ▶ Perform care and cleaning work properly.
- ▶ Only have repair work carried out by authorised specialist workshops or by KRONE.

Operating materials

Operating materials (e.g. lubricants, coolants, fuels) are hazardous to health. Immediately seek medical attention upon ingesting operating materials. If possible, avoid breathing vapours. Do not allow operating materials to come into contact with the skin, eyes, or clothing. Clean affected skin areas with water and soap. If it enters the eyes, immediately and thoroughly clean them with abundant clear water. Change soiled clothing as soon as possible. Keep operating materials away from children.

2.11 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 use approved and suitable spare parts (*see "11.1 Spare Parts", pg. 80*).
- ▶ 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
Rear stacker (retractable or folding)	Extended and folded out, locked and secured
Lighting equipment (spotlights, lights, lamps, signal devices and conspicuous markings) on curtains, board walls and rear doors	Corresponding to the delivery condition of the vehicle If curtains, board walls and/or rear doors with attached lighting equipment have been removed, the lighting equipment must be mounted to the vehicle again.

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 and property damage are excluded if they are due to one of more of the following causes:

- Improper use ,
- Operating the trailer with missing or non-functional safety devices,
- Failure to observe the instructions, requirements and prohibitions of these operating instructions and the operating instructions for the accessories,

- Failure to follow the instructions, requirements and prohibitions of the maintenance instructions,
- Unauthorised structural changes to the KRONE product,
- 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 "11.1 Spare Parts", pg. 80).

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.

You can find the warranty conditions at www.krone-trailer.com.

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

INFO

The description of component positions in these operating instructions is always viewed in the direction of travel. In this case, the left is the driver side and the right is the co-driver side.

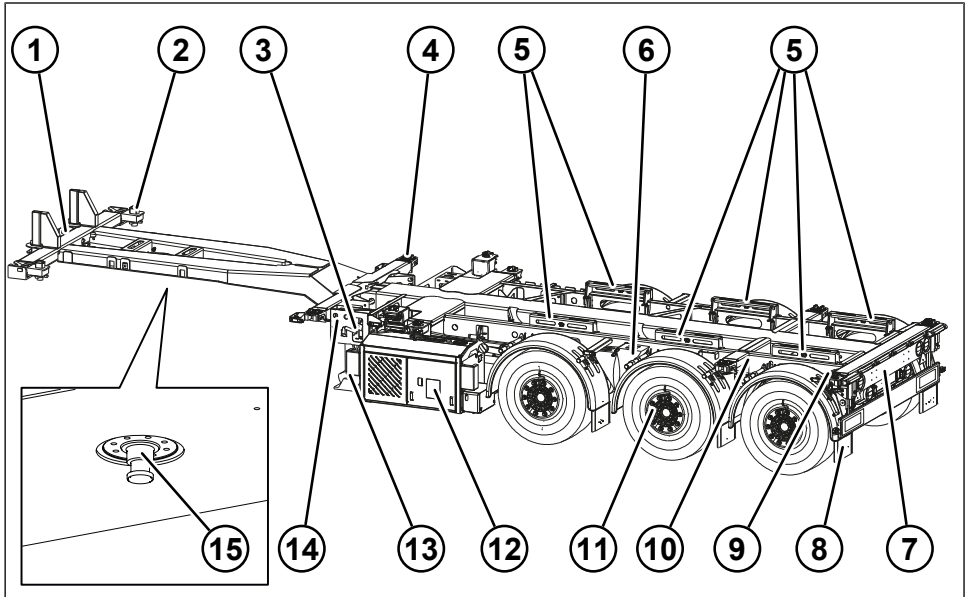


Fig. 3-1: Box Liner TU70 overview

- 1 Supply and control connections
- 2 Container lock (folding)
- 3 Locking bolt for middle extension
- 4 Container lock (lowerable)
- 5 Shim
- 6 Wheel chocks
- 7 Underrun protection
- 8 Spray suppression
- 9 Container lock (lowerable)
- 10 Control unit for rear extension
- 11 Axle assembly and brake system
- 12 Control unit for service and parking brake
- 13 Generator set
- 14 Landing leg winch
- 15 Kingpin

Usage designs

The trailer serves to transport containers of various sizes. The trailer can be adapted to different container sizes for this purpose.

For some container transport solutions, special equipment is needed on the vehicle (e.g. 2 x 20-ft. containers, shim).

The following containers can be loaded onto the trailer:

- 1x20 ft flush rear (rear extension retracted)
- 1 x 20 ft, centred
- 2 x 20 ft
- 1 x 30 ft, flush with the rear
- 1 x 40 ft, with and without tunnel
- 1 x 45 ft, with and without tunnel

3.1 Sticker overview

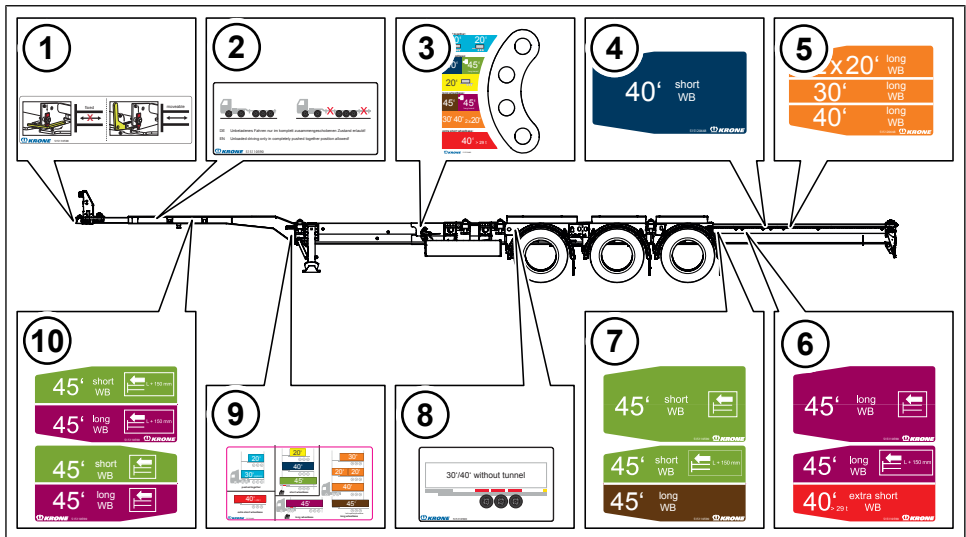


Fig. 3-2: TU 70 sticker

- 1 Controller for front extension (front side)
 - 2 Unladen trips (on the left in the direction of travel)
 - 3 Setting for the middle extension (in front of the first axle)
 - 4 Rear extension setting*
 - 5 Rear extension setting*
 - 6 Rear extension setting*
 - 7 Rear extension setting*
 - 8 Use of shims (containers without tunnel)
 - 9 Container positions overview
 - 10 Front extension setting
- * The stickers 4 - 7 for setting the rear extension are not visible in a pushed-in state.

4 Commissioning

4.1 Initial commissioning

Initial commissioning is performed by Fahrzeugwerk Bernard KRONE GmbH & Co. KG. The delivery from the factory or production site is ready for operation.

- ▶ Check that the documentation provided is complete.
- ▶ Obtain instruction on operation 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 documentation provided is complete.
- ▶ Familiarise yourself with the product and the documents.
- ▶ Obtain instruction on operation 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. Is the semitrailer or trailer coupling locked and secured correctly?
 8. Has the functional test of the EBS brake system been audibly heard?
 9. Are all the vehicle components (such as wheel chocks, stow box, landing leg winches) present, properly fastened or closed and secured?
 10. Are all movable collision protections locked and secured?
 11. Is the load properly distributed and correctly secured?
 12. Has the permitted maximum total weight been adhered to?
 13. Is there sufficient clearance between the vehicle floor and the tyres?
 14. Is the air suspension in the driving position?
 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 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 uncoupled 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.

5.1.1 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.

5.1.2 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.

5.1.3 Wheel chocks with spring-clip mount

Removing the wheel chocks

- ▶ Depending on the design, push down or pull up the spring clip.
- ▶ Remove the wheel chock.
- ✓ The wheel chocks have been removed.

Stowing the wheel chocks

- ▶ Depending on the design, push down or pull up the spring clip.
- ▶ Insert the wheel chock in the bracket.
- ▶ Secure the wheel chock with the spring clip.
- ✓ The wheel chocks are stowed and secured.

5.1.4 Putting on the wheel chocks

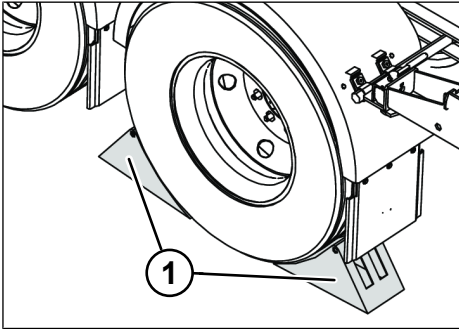


Fig. 5-1: Putting on the wheel chocks

1 Wheel chocks

- ▶ Place the wheel chocks in front of and behind a wheel of the rigid axle.
- ✓ The wheel chocks have been placed.

5.2 Landing leg winches

⚠ 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 unhitched/uncoupled loaded trailer is parked for extended periods of time.

- ▶ Prevent longitudinal movement when the trailer is uncoupled.
- ▶ Only uncouple the trailer in the neutral, centred landing leg foot position.
- ▶ Align the loading platform horizontally.
- ▶ When the uncoupled 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 brace 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.

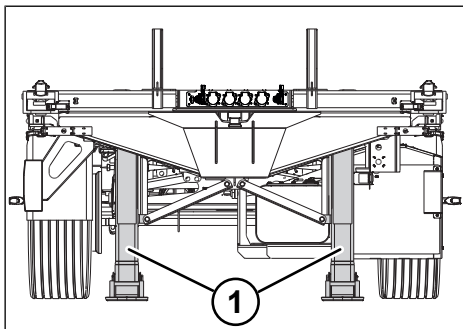


Fig. 5-2: Landing leg winches extended

1 Landing leg winches

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)

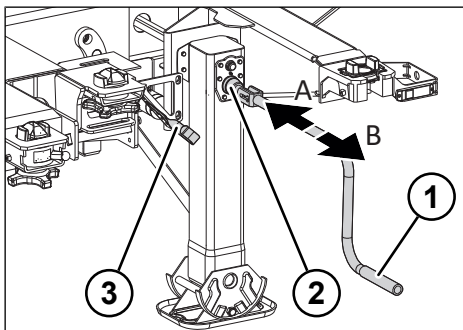


Fig. 5-3: Load speed and rapid speed of the landing leg winch

- 1 Crank
- 2 Crank drive shaft
- 3 Bracket
- A Load speed
- B High gear

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 leg winch

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 "5.6.2 Parking brake", pg. 31).
- ▶ Ensure that the ground is load-bearing and level.
- ▶ Use wheel chocks to prevent the trailer from rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Lift the hand crank from the bracket.
- ▶ Engage the hand crank on the hand crank drive shaft until it locks in 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. 22).
- ▶ Wind down the landing leg winch until it touches the ground. Ensure a neutral foot position, landing leg foot in centre position.

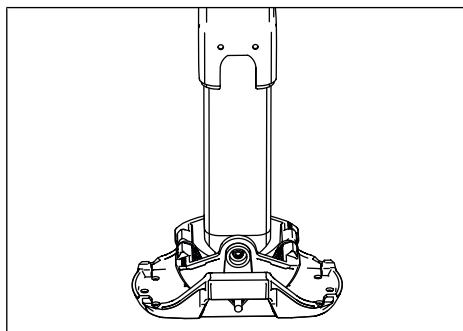


Fig. 5-4: Neutral landing leg foot position

- ▶ Wind down the landing leg winch 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. 22).
- ▶ Use the hand crank to wind to the desired support height. Do not fully unload the wheels while doing so.
- ▶ Use the rear braces, if available .
- ▶ Secure the hand crank in the bracket.
- ✓ The landing leg winch is extended and the trailer is supported.

Retracting the landing leg winch

⚠ 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 "5.6.2 Parking brake", pg. 31).
- ▶ Couple the trailer (see "5.3 Coupling and uncoupling the trailer", pg. 23).
- ▶ Retract the rear braces, if available .
- ▶ Take the hand crank from the bracket.
- ▶ Engage the hand crank on the hand crank drive shaft until it locks in 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. 22).
- ▶ Crank up the landing leg winch until it is unloaded.
- ▶ Set to rapid speed by pulling out the hand crank (see "Fig. 5-3: Load speed and rapid speed of the landing leg winch ", pg. 22).
- ▶ Crank up the landing leg winch to the stop.
- ▶ Secure the hand crank in the bracket.
- ✓ The landing leg winch is retracted and is in the driving position.

5.3 Coupling and uncoupling the trailer

⚠ 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.

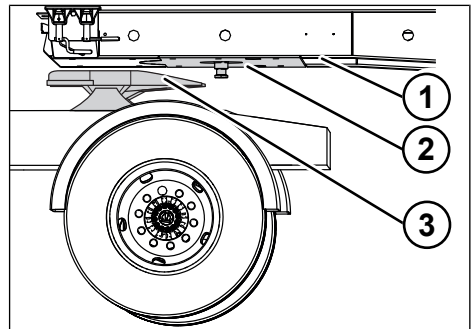


Fig. 5-5: Coupling

- 1 Semitrailer plate
- 2 Kingpin
- 3 Semitrailer coupling

Coupling

- ▶ Before coupling, check:
 - Is the tractor unit's coupling load suitable for the trailer?
 - Do the semitrailer coupling and the kingpin match?
 - Does the coupling height of the tractor and trailer correspond?
 - Is the trailer correctly loaded?
 - Is the coupling plate sufficiently lubricated?
- ▶ Apply the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ▶ Use the wheel chocks to prevent the trailer from rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Check the attachment and wear of the kingpin.
- ▶ Set the height of the semitrailer coupling using the tractor unit's air suspension. The coupling plate must be approx. 50 mm higher than the coupling plate.
- ▶ Prepare and unlock the semitrailer coupling on the tractor unit.
- ▶ Drive the tractor unit toward the centre until it is approx. 30 cm away from the kingpin.
- ▶ Raise the tractor unit's air suspension until the coupling plate and the semitrailer plate touch. Do **not** raise the semitrailer in doing so!
- ▶ Continue to drive the tractor centrally until the lock engages with the semitrailer coupling.
- ▶ Put the tractor unit's air suspension in the driving position.
- ▶ Perform the start-up test in low gear.
- ▶ Apply the parking brake on the tractor unit.

- ▶ 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 "5.4 Supply and control connections", pg. 25).
- ▶ Retract the landing leg winches (see "5.2 Landing leg winches", pg. 21).
- ▶ Put the trailer's air suspension in the driving position (see "5.7 Air suspension", pg. 34).
- ▶ Remove the wheel chocks and properly secure them (see "5.1 Using wheel chocks", pg. 20).
- ▶ Disengage the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ▶ 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 rear wall of the driver's cab on the tractor 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. 18).
- ✓ The trailer is coupled and ready to drive.

Uncoupling

- ▶ Lower the trailer's air suspension down to the mechanical limit (see "5.7 Air suspension", pg. 34).
- ▶ Park the trailer on a load-bearing and level surface.
- ▶ Position the semitrailer as stretched as possible.
- ▶ Apply the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ▶ Use the wheel chocks to prevent the trailer from rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Lift the trailer with the tractor unit's air suspension.
- ▶ Support the trailer with the landing leg winches (see "5.2 Landing leg winches", pg. 21).
- ▶ Disconnect the supply and control lines (see "5.4 Supply and control connections", pg. 25).
- ▶ To compensate for the length of the overall combination, briefly release the parking brake on the trailer.
- ▶ Prepare and unlock the semitrailer coupling on the tractor unit.
- ▶ Observe the operating instructions for the tractor unit and the semitrailer coupling.
- ▶ Slowly drive the tractor unit out by approx. 30 cm.
- ▶ Lower the tractor unit's air suspension by 5 - 10 cm.
- ▶ Fully drive the tractor unit out.
- ▶ If necessary, lower the lift axle.
- ✓ The trailer is uncoupled.
- ▶ After uncoupling, set the air suspension of the tractor unit to the driving position.

5.4 Supply and control connections

⚠ DANGER

Disconnected supply and control connections pose a risk of accident!

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.

Before each trip:

- ▶ Connect the compressed air supply.
- ▶ Connect the electrical power supplies for the vehicle lighting.
- ▶ Connect the electrical power supplies for the brake system.

⚠ WARNING

Damaged or inadequate supply and control connections pose a risk of accident!

Damaged or inadequate supply and control connections between the tractor unit and trailer affect driving and braking 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 tractor unit and trailer.
- ▶ Ensure that the EBS plug is properly locked.

⚠ WARNING

Improperly connecting and disconnecting the supply and control connections poses a risk of accident!

Improperly connected compressed air and electrical lines affect driving and braking behaviour and can lead to accidents.

- ▶ Observe the connection sequence of the lines when hitching and unhitching.
- ▶ Always close the coupling heads with the protective caps after unhitching the brake lines.

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

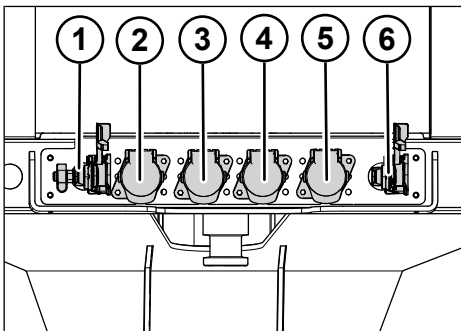


Fig. 5-6: Supply and control connections

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

More information about the plug and socket assignment can be found in the technical data (see "12.2 Plugs and socket pin assignments", pg. 83).

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

- Standard coupling heads (standard),
- Duo-Matic coupling and
- C-coupling heads.

Connecting the standard coupling

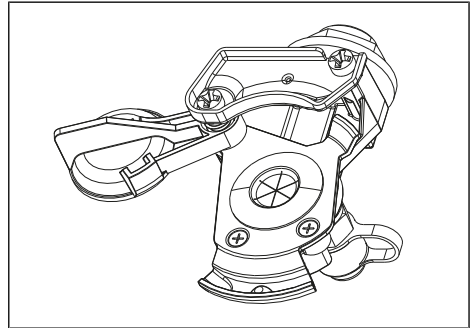


Fig. 5-7: Example of standard coupling head

- ☑ The parking brake on the tractor unit is applied.
- ☑ The parking brake on the trailer is applied (see "5.6.2 Parking brake", pg. 31).
- ▶ Check the cleanliness and integrity of the sealing surfaces on the coupling heads. Clean if necessary.
- ▶ Always connect the brake compressed air coupling (yellow) first.
- ▶ Connect the supply compressed air coupling (red).
- ▶ Connect the power supply (vehicle lighting) and the brake power supply (EBS).
- ✓ The supply and control connections are now connected.

Disconnecting the standard coupling

- ☑ The parking brake on the tractor unit is applied.
- ☑ The parking brake on the trailer is applied (see "5.6.2 Parking brake", pg. 31).
- ▶ Always disconnect the supply compressed air coupling (red) first.
- ▶ Disconnect the brake compressed air coupling (yellow).
- ▶ Disconnect the power supply (vehicle lighting) and the brake power supply (EBS).

- ▶ Close the disconnected coupling heads and plugs with the protective caps.
- ✓ The supply and control connections are disconnected.

Connecting the Duo-Matic coupling

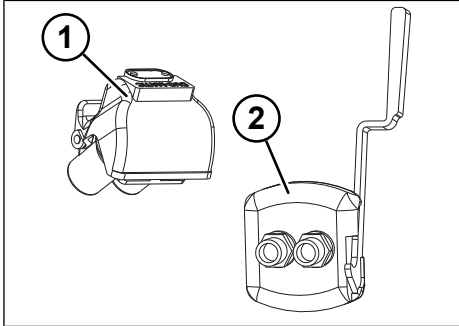


Fig. 5-8: Duo-Matic coupling

- 1 Compressed air coupling (tractor unit part)
- 2 Compressed air coupling (trailer part)

- ☑ The parking brake on the tractor unit is applied.
- ☑ The parking brake on the trailer is applied (see "5.6.2 Parking brake", pg. 31).
- ▶ Check the cleanliness and integrity of the sealing surfaces on the coupling heads. Clean if necessary.
- ▶ Pull down the compressed air coupling (trailer part) lever and insert the coupling head (tractor unit part).
- ▶ Connect the power supply (vehicle lighting) and the brake power supply (EBS).
- ✓ The supply and control connections are now connected.

Disconnecting the Duo-Matic coupling

- ☑ The parking brake on the tractor unit is applied.
- ☑ The parking brake on the trailer is applied (see "5.6.2 Parking brake", pg. 31).

- ▶ Pull down the coupling head (trailer part) lever and remove the coupling head (tractor unit part).
- ▶ Disconnect the power supply (vehicle lighting) and the brake power supply (EBS).
- ✓ The supply and control connections are disconnected.

Connecting C-coupling heads

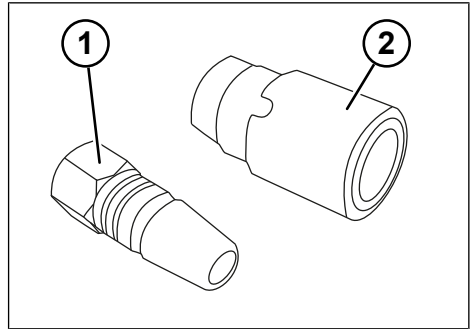


Fig. 5-9: C-coupling heads (trailer)

- 1 Supply compressed air coupling
- 2 Brake compressed air coupling

- ☑ The parking brake on the tractor unit is applied.
- ☑ The parking brake on the trailer is applied (see "5.6.2 Parking brake", pg. 31).
- ▶ Check the cleanliness and integrity of the sealing surfaces on the coupling heads. Clean if necessary.
- ▶ Always connect the brake compressed air coupling first.
- ▶ Connect the supply compressed air coupling.
- ▶ Connect the power supply (vehicle lighting) and the brake power supply (EBS).
- ✓ The supply and control connections are now connected.

Disconnecting C-coupling heads

- ✓ The parking brake on the tractor unit is applied.
- ✓ The parking brake on the trailer is applied (see "5.6.2 Parking brake", pg. 31).
- ▶ Always disconnect the supply compressed air coupling first.
- ▶ Disconnect the brake compressed air coupling.
- ▶ Disconnect the power supply (vehicle lighting) and the brake power supply (EBS).
- ✓ The supply and control connections are disconnected.

5.5 Draining the compressed air tanks

⚠ WARNING

Risk of accident due to condensation water!

Condensation water in the compressed air tank can cause corrosion and affect the functionality of the brake system and the air suspension. Frozen condensation water can lead to 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.
- ▶ Drain existing condensation water more frequently in case of low or strongly fluctuating outside temperatures.

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.

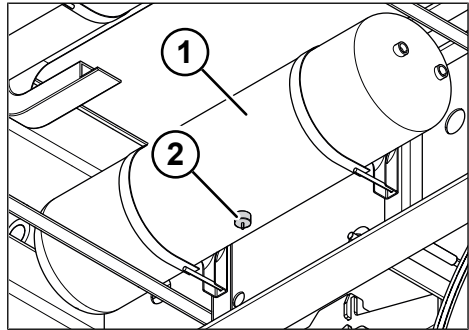


Fig. 5-10: Compressed air tank

- 1 Compressed air tank
- 2 Water drain valve

- ▶ Push the valve pins of the water drain valves on all compressed air tanks to the side until the condensation water is fully drained.
- ✓ The condensation water is drained.

5.6 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.
- ▶ Verify the EBS plug connection via a system check (the magnetic valves in the EBS modulator are audibly and briefly activated and deactivated for 2 seconds after "ignition on")
- ▶ 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 unharmonised brake power tuning!

Unharmonised brake power between the tractor unit and trailer may lead to insufficient or excessive trailer braking values. This can cause wear and accidents.

- ▶ Monitor the automatic coupling force control to harmonize the brake power.
- ▶ Pay attention to the sticker on the trailer.

WARNING

Risk of accident due to insufficient air supply pressure!

If the air supply pressure is < 4.5 bar, the trailer can no longer be stopped using the service brake. If the pressure is < 2.5 bar on the red coupling head, the trailer will automatically be stopped via the spring storage.

- ▶ As soon as the warning display/warning lamp lights up (red and yellow), stop the trailer and park at a suitable location.
- ▶ Check the pressure supply and call a repair service if necessary.

WARNING

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

Pressure loss in the brake system due to a leak causes a deterioration in the service brake's effectiveness until the parking brake is automatically activated. 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.
- ▶ Have an authorized specialist workshop eliminate the leaks.

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 trailer may only be towed by tractor units that ensure the effectiveness of the EBS system. The EBS system includes the ABS function (automatic anti-lock system ABS), the ALB function (automatic load-dependent braking), and the RSS function (vehicle stabilization for air-suspended vehicles). Full EBS functionality is only ensured when used in conjunction with tractor units equipped with EBS equipment (ISO 7638 socket, 7-pin).

 Also observe the enclosed supplier documentation.

KRONE trailers are equipped with a brake system according to the current version of UN-ECE Regulation 13.

A system check of the electronic brake system (EBS) is performed upon turning on the ignition in the tractor unit and during the trip. Errors in the EBS brake system are displayed via a warning lamp/warning display on the tractor unit's dashboard. The warning lamp/warning display lights up after turning on the ignition. If no error is detected, the warning lamp/warning display turns off after approx. two seconds.

If an error was detected during the last trip (e.g. sensor error), the warning lamp/warning display lights up and turns off if the speed is > 7 km/h.

- ▶ If the warning lamp/warning display does not turn off at the start of the trip either, have the fault repaired by a specialist workshop.

The brake system has two independent brake circuits:

- Service brake
- Parking brake

5.6.1 Service brake

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 the supply conduit is unhitched, the trailer is automatically braked. The black control knob on the control unit can be used to release the service brake to manoeuvre the trailer without a connected compressed air supply (see "7.1 Manoeuvring the trailer without a connected compressed air supply", pg. 60).

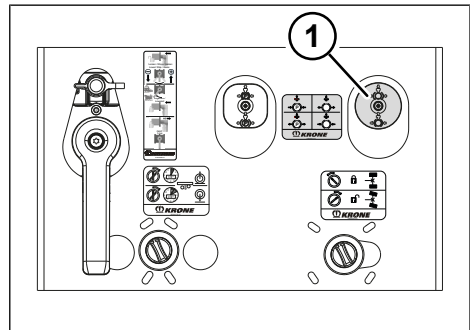


Fig. 5-11: Service brake

- 1 Black control knob (manoeuvring)

Disengaging the service brake

- ▶ Press the black control knob.
- ✓ The service brake is disengaged.
- ✓ If the parking brake is also released, the trailer is not braked.

Applying the service brake

- ▶ Pull out the black control knob.
- ✓ The service brake is applied.
- ✓ The trailer is partially braked (depending on the air supply).

Connecting the supply conduit will automatically push out the black control knob to the driving position again.

5.6.2 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 is its own brake circuit. It is applied via the brake cylinder's spring storage parts.

The parking brake must be actuated manually. Before unhitching and for parking, the trailer must be braked using the red control knob.

To tow or manoeuvre without compressed air, the parking brake can be disengaged with the emergency release system (see "5.6.3 Emergency release devices for the parking brake", pg. 31).

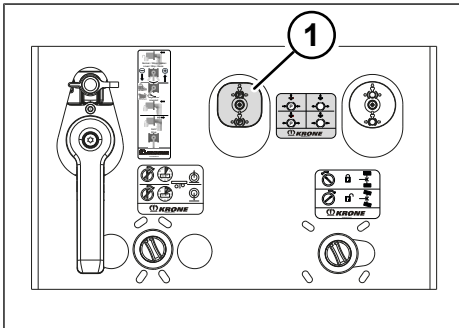


Fig. 5-12: Parking brake

- 1 Red control knob (park)

Applying the parking brake

- ▶ Pull out the red control knob.
- ✓ The parking brake is applied
- ✓ The trailer is braked and can be parked.

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.

INFO

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

- ☑ The trailer is hitched.
- ☑ The supply and control lines are connected.
- ▶ Press the red control knob.
- ✓ The parking brake is released and the trailer is not braked.

5.6.3 Emergency release devices for the parking brake

⚠ WARNING

Risk of accident due to 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.

If the compressed air for the parking brake's spring storage fails due to a defect, the braking effect can be cancelled via an emergency release device on the brake cylinders.

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

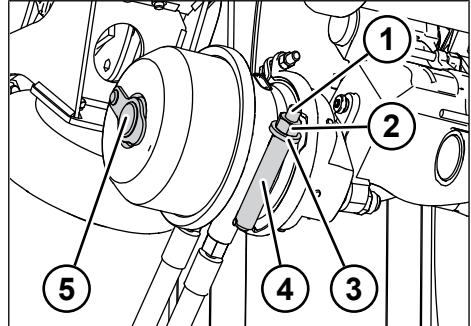


Fig. 5-13: Spring storage with emergency release device

- 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 "5.1 Using wheel chocks", pg. 20).
- ▶ Loosen the retainer nut and flat washer.
- ▶ Remove the emergency release screw from the holder.
- ▶ Open the cap.

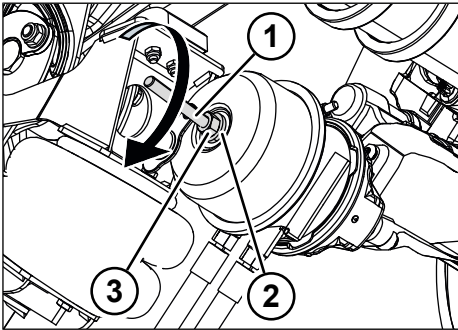


Fig. 5-14: Activating the emergency release screw

- 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 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

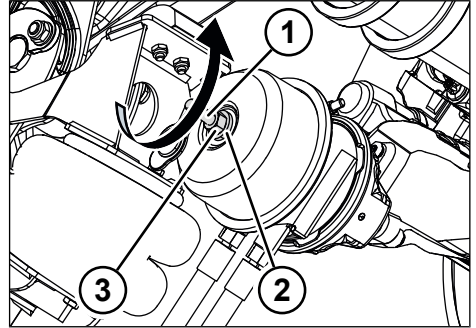



Fig. 5-15: Deactivating the emergency release screw

- 1 Emergency release screw
- 2 Flat washer
- 3 Retainer nut

- ▶ Unscrew the retainer nut and flat washer from the emergency release screw using a suitable spanner.
- ▶ 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.


5.7 Air suspension

 **WARNING**

Risk of accident due to fully lowered or raised vehicle!

Failure to set the air suspension to the "Drive" position before starting off can result in a risk of accidents due to impaired driving characteristics or vehicle collisions in passageways.

- ▶ Always move the air suspension into driving position before driving off. The only exception is manoeuvring at walking speed.

 **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.

- ▶ For vehicles with large lifting heights, always put the air suspension in driving position.

KRONE trailers are equipped with an air suspension system. The vehicle height (e.g. to adjust it for a ramp) can be adjusted in two ways:

- Manually
- Electronically controlled

 Also observe the enclosed supplier documentation.

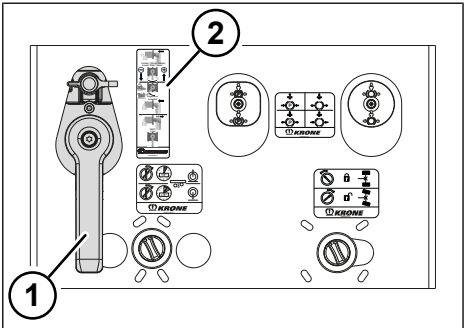


Fig. 5-16: Control lever of the air suspension

- 1 Control lever
- 2 Pictogram

Depending on the make and design of the lifting and lowering valves, the following functions can be carried out using the air suspension's control lever:

Control lever position	Function
Drive*	The trailer is always kept at the same height, regardless of the load.
Raised	The trailer is raised, e.g. to adjust it for a ramp.
Raised and engaged	The trailer is raised to the maximum possible lifting height.
Lowered	The trailer is lowered, e.g. to adjust it for a ramp.
Lowered and engaged	The trailer is lowered down to its mechanical limit (air suspension bellow without over-pressure)
Stop	The trailer height achieved via lifting or lowering is maintained.

* The driving position cannot be set manually on electronically controlled air suspension. Instead, the ride height is automatically set at a driving speed of > 15 km/h.

The operating instructions for the air suspension's control lever are shown as a pictogram on the control unit.

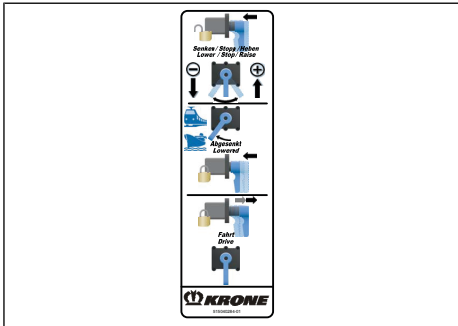


Fig. 5-17: Example pictogram of mechanically controlled air suspension

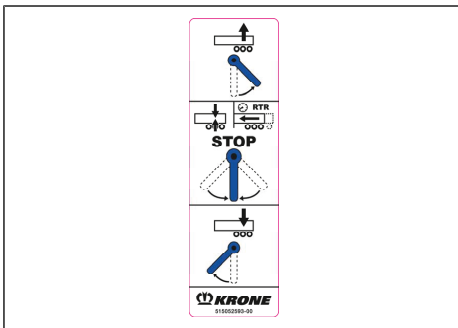


Fig. 5-18: Example pictogram of electronically controlled air suspension

To prevent chassis damage, the version with the lifting-lowering valve with automatic ride height resetting automatically sets the trailer back to the driving position when the vehicle speed exceeds 15 km/h.

NOTE

Driving with the wrong lifting height causes material damage!

Driving at the minimum or maximum lifting height on an electronically controlled air suspension can cause material damage to the trailer.

- Do not drive at the minimum or maximum lifting height.

⚠ 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 states being unclear on electronically controlled air suspension systems. Unclear valve switching positions can result in tipping movements in the longitudinal direction of the loading surface on lift axle controls. These are especially dangerous when using a forklift to load or unload from the rear.

- 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 if there is a power supply and an adequate compressed air supply.

KRONE trailers with electronically controlled air suspension can be optionally equipped with various electronic control devices (control box, SmartBoard, electronic buttons, etc.).

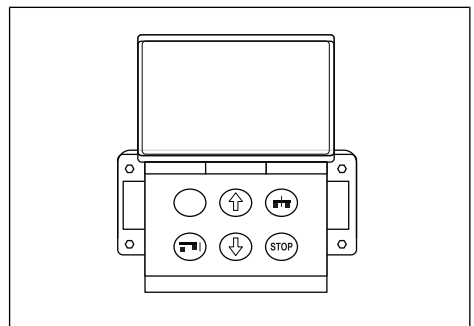



Fig. 5-19: Example of a control box (Wabco)

If there is sufficient air and power supply, the system can automatically regulate the ramp height. If there is no power supply, the ramp can also be adjusted via the electronically controlled air suspension with the control lever on the control unit.

 Also observe the enclosed supplier documentation.

5.8 Lift axles

WARNING

Risk of accidents due to the raising and lowering of the lift axle!

The lift axles are automatically raised depending on the load state. If the tractor unit's ignition is turned off, the raised lift axles are lowered. There is an increased risk of injury in the danger area of the wheels.

- Instruct persons to leave the hazard area of the wheels during loading and unloading.

KRONE trailers can be equipped with an electronic lift axle control with fully automatic operation.

Fully automatic lifting of lift axles depending on the vehicle's axle weight (air bellows pressure) only takes place if the EBS plug connection (ISO 7638) is active and the vehicle speed is greater than 15 km/h for the first time. When the ignition is interrupted while the vehicle is at standstill, the lift axle is lowered independent of the vehicle's axle weight.

Manually overriding the fully-automatic electronic lift axle control

Automatic control is cancelled if the lift axle control is manually operated on the control switch. The dependencies on the vehicle axle weight and the vehicle speed are not taken into account in this event. An EBS plug connection is a precondition for this. The control switch for manual lift axle control is on the control unit. Controlling a further lift axle is done on the same control switch on the fully-automatic and electronic

lift axle control systems. The design and arrangement of the control switch depends on the vehicle equipment.

Using the lift axle's control switch, the driver can interrupt the automation of the lift axle control to activate the following functions:

- **Starting aid:** Manually raise the lift axle

A lift axle can be raised by force at a maximum vehicle speed of 30 km/h and up to 30% overload for the axle remaining on the ground.

- **Manoeuvring aid:** Manually raise the lift axle

A lift axle can be raised by force at a maximum vehicle speed of 30 km/h and up to 0 % overload for the axle remaining on the ground.

- **Deactivating the lift axle automatic system:** Manually lower the lift axles

The starting aid function refers to a lift axle in the first position of the axle group. The manoeuvring aid function refers to a lift axle in the last position of the axle group. Only the starting aid function is available if more than one lift axle is installed on the trailer. The automatic lift axle control is re-activated by turning the ignition off and on in the tractor unit.

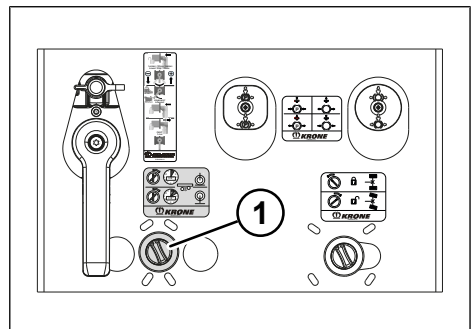


Fig. 5-20: Control unit

1 Lift axle control switch

- ▶ Operate the control switch time-dependently (rotary push-button switch with reset).
- ✓ The lift axle is raised in compliance with legal regulations when the button is actuated for less than 5 seconds (starting aid).
- ✓ When operated for longer than 5 seconds, the lift axle automatic system is deactivated and the lift axle remains down regardless of the load state (force lowered). This position is kept as long as the ignition of the tractor is not interrupted.

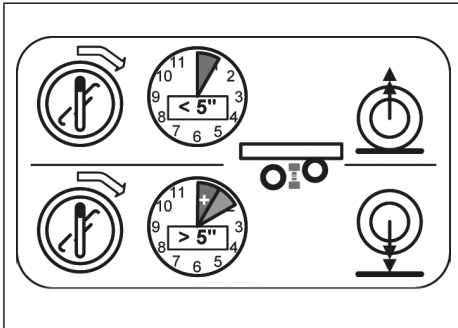


Fig. 5-21: Control switch functions of the lift axle control system

5.9 Rigid axle

KRONE trailers are equipped with rigid axles.

Also observe the enclosed supplier documentation.

5.10 Self-steering axle

KRONE trailers can be fitted with a self-steering axle with a back-up interlock. The self-steering axle is the rearmost axle of the vehicle. When driving in reverse, the steering axle is locked:

- Automatically if the back-up spotlight is activated on the tractor unit or
- Manually (e.g. during manoeuvring without supply and control connections).

Also observe the enclosed supplier documentation.

5.10.1 Automatically locking the self-steering axle via the back-up interlock

WARNING

Risk of accident when reversing with an unlocked self-steering axle!

When reversing with an unlocked self-steering axle, the vehicle can run out of track. It is no longer possible to reset to a straight position, this can result in an accident.

- ▶ Always lock the self-steering axle with the back-up interlock when reversing.

Locking the self-steering axle

- ▶ Properly connect the supply and control connections between the tractor unit and the trailer vehicle (see "5.4 Supply and control connections", pg. 25).
- ▶ Straighten the combination.
- ▶ Engage reverse gear on the tractor.
- ✓ The self-steering axle is locked.

INFO

When the vehicle is unhitched, the back-up interlock can be controlled via the manual control unit. If the manual control unit is used, the back-up interlock must always be unlocked manually.

5.10.2 Manually locking the self-steering axle

⚠ WARNING

Risk of accident when reversing with an unlocked self-steering axle!

When reversing with an unlocked self-steering axle, the vehicle can run out of track. It is no longer possible to reset to a straight position, this can result in an accident.

- ▶ Always lock the self-steering axle with the back-up interlock when reversing.

INFO

When manoeuvring without supply and control connections between the tractor unit and trailer, the self-steering axle must always be manually locked and unlocked. This does not take place automatically.

The control switch for the back-up interlock can be found on the control unit.

INFO

The operation is also indicated by pictograms. The shape and colour of the control units may vary depending on the type of device and differ from the type shown in the figure.

Locking the self-steering axle

- ▶ Straighten the combination.
- ▶ Turn the control switch to the left.
- ✓ The self-steering axle is locked.

Unlocking the self-steering axle

- ▶ Turn the control switch to the right.
- ✓ The self-steering axle is unlocked.

5.11 Spare wheel bracket

⚠ WARNING

Risk of accident from an unsecured spare wheel!

An unsecured spare wheel can fall off when driving and cause serious accidents.

- ▶ Properly secure the spare wheel.
- ▶ Only transport wheels that are designed for the spare wheel bracket.
- ▶ Check the spare wheel bracket for damage.
- ▶ Immediately repair the spare wheel bracket if defective.

⚠ CAUTION

Risk of injury due to a falling spare wheel!

The weight of a falling spare wheel can cause injuries.

- ▶ Work carefully when changing a spare wheel.

KRONE trailers have a spare wheel bracket. Depending on the equipment, the following versions are possible:

5.11.1 Spare wheel with basket storage

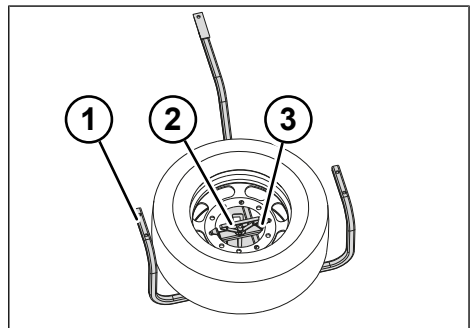


Fig. 5-22: Spare wheel with basket storage version 1

- 1 Storage basket
- 2 Rim holder
- 3 Securing device

Spare wheel removal

- ▶ Fold up the side collision protection, if necessary (see "5.12 Side collision protection", pg. 40).
- ▶ Remove the securing device.
- ▶ Unscrew the rim holder.
- ▶ Remove the spare wheel from the storage basket.
- ✓ The spare wheel has been removed.

Spare wheel insertion

- ▶ Insert the spare wheel in the storage basket.
- ▶ Firmly screw the rim holder.
- ▶ Install the securing device.
- ▶ Fold down the side collision protection, if necessary (see "5.12 Side collision protection", pg. 40).
- ▶ The spare wheel is inserted.

5.11.2 Changing the spare wheel

WARNING

Risk of accident caused by loose wheel nuts!

Wheel nuts that are not tightened correctly will come loose during travel, possibly leading to serious accidents.

- ▶ Tighten the wheel nuts with the appropriate tightening torque.
- ▶ Check the tightness of the wheel nuts after each wheel change, and again shortly after the first laden journey.

WARNING

Risk of accident due to instability and rolling away!

Unintended trailer movements can cause serious injury and property damage.

- ▶ Secure the trailer against rolling away by activating 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.
- ▶ When the trailer is hitched/unhitched, ensure stability. If necessary, use additional supports.

CAUTION

Risk of injury due to a falling spare wheel!

The weight of a falling spare wheel can cause injuries.

- ▶ Work carefully when changing a spare wheel.

INFO

The tightening torques for the wheel nuts are noted in the axle manufacturer's supplier documentation.

Removing the wheel

- ▶ Lock the tractor unit to prevent unintended movement while changing the wheel.
- ▶ Secure the tractor unit and trailer according to the regulations for moving traffic (warning sign, etc.).
- ▶ Use wheel chocks to prevent the tractor unit and trailer from rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Apply the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ▶ Loosen the wheel nuts by one turn.
- ▶ Place the jack under the axle as close as possible to the defective wheel.

- ▶ Lift the axle with the jack until the defective wheel no longer touches the ground.
- ▶ Unscrew the wheel nuts and remove them.
- ▶ Remove the defective wheel from the axle.
- ✓ The wheel is removed.

Mounting the spare wheel

- ▶ Remove the spare wheel from the spare wheel bracket (see "5.11 Spare wheel bracket", pg. 38).
- ▶ Slide the spare wheel onto the wheel hub.
- ▶ Screw on the wheel nuts and slightly tighten.
- ▶ Lower the axle with the jack.
- ▶ Properly tighten the wheel nuts in a criss-cross pattern. Please consult the axle manufacturer's supplier documentation for the specified tightening torque.
- ▶ Insert the defective wheel in the spare wheel bracket and secure it (see "5.11 Spare wheel bracket", pg. 38).
- ✓ The spare wheel has been mounted.
- ▶ Check the tyre inflation pressure of the spare wheel used.

5.12 Side collision protection

WARNING

Risk of accident when driving with the side collision protection folded up!

Driving with the side collision protection folded up is not permitted by law. In a collision, other motorists can get below the trailer and be fatally injured.

- ▶ Only drive with the side collision protection folded down and locked in place on both sides.

NOTE

Material damage when loading the trailer!

A folded-down side collision protection can cause material damage to the trailer when loading the trailer (e.g. during rail transport).

- ▶ Fold up and lock the side collision protection on both sides when loading the trailer.

KRONE trailers have a side collision protection. In addition to the fixed version, the folding version provides the possibility of folding up the side collision protection for maintenance work, to remove tools, to change the spare wheel or similar.

5.12.1 Folding side collision protection with gas pressure springs

CAUTION

Risk of injury from the side collision protection folding down unintentionally!

Malfunctioning gas pressure springs cannot secure the side collision protection. The side collision protection can suddenly fold down and injure people or swing outwards while driving, thereby causing accidents.

- ▶ Check the functionality of the gas pressure springs before beginning a trip.
- ▶ Immediately replace defective components.

Folding up the side collision protection

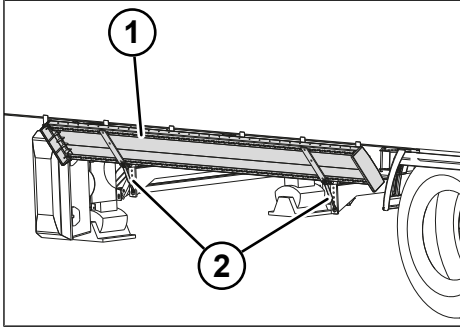


Fig. 5-23: Side collision protection folded up

- 1 Side collision protection
- 2 Gas pressure springs

- ▶ Carefully fold up the side collision protection until it is held in this position by the gas pressure springs.
- ✓ The side collision protection is folded up.

Folding down the side collision protection

- ▶ Carefully fold down the side collision protection until it is held in this position by the gas pressure springs.
- ✓ The side collision protection is folded down.

5.12.2 Folding side collision protection with lock

CAUTION

Risk of injury from the side collision protection folding down unintentionally!

An unlocked side collision protection can suddenly fold down and injure people or swing outwards while driving, thereby causing accidents.

- ▶ Lock the side collision protection in every position.

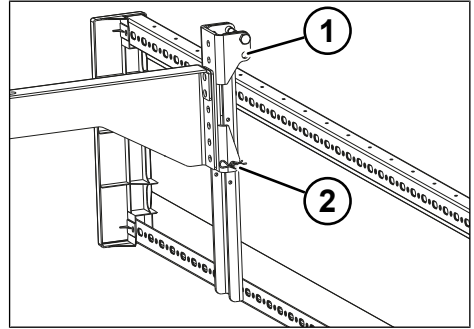


Fig. 5-24: Folded down side collision protection

- 1 Drilled hole for the plug-in bolt while folded up
- 2 Plug-in bolts with spring pin

Folding up the side collision protection

- ▶ Pull out the spring pin on both plug-in bolts.
- ▶ Pull out the plug-in bolts.
- ▶ Fold up the side collision protection.
- ▶ Insert the plug-in bolts into the drilled holes.
- ▶ Secure the plug-in bolts with the spring pins.
- ✓ The side collision protection is folded up and secured.

Folding down the side collision protection

- ▶ Pull out the spring pin on both plug-in bolts.
- ▶ Pull out the plug-in bolts.
- ▶ Fold down the side collision protection.
- ▶ Insert the plug-in bolts into the drilled holes.
- ▶ Secure the plug-in bolts with the spring pins.
- ✓ The side collision protection is folded down and secured.

6 Superstructure operation

6.1 Adjusting the front extension

The trailer can be extended to accommodate different load combinations and containers. The front extension is equipped with a mechanical locking device and can be locked in two positions.

It needs to be operated without containers loaded.

6.1.1 Pulling out the front extension

- ▶ Park the trailer on level ground.
- ▶ Apply the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ▶ Secure the trailer against rolling away (see "5.1 Using wheel chocks", pg. 20).

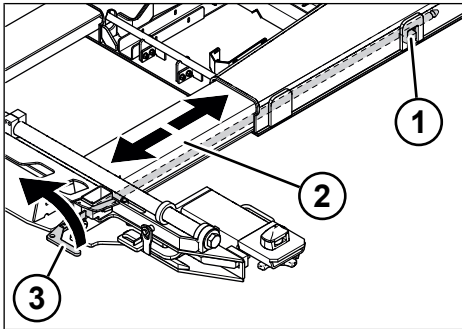


Fig. 6-1: Operating the front extension

- 1 Locking bolt for front extension
- 2 Front extension
- 3 Control lever for front extension

- ▶ Unlock and fold out the control lever for the front extension.
- ▶ Push up the control lever for the front extension.
 - ⇒ The lock is opened.
- ▶ Pull the front extension out to the stop.
- ▶ Push down the control lever for the front extension.
 - ⇒ The lock is closed.

- ▶ Fold in and lock the control lever for the front extension.
- ▶ Remove the securing device that prevents rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Disengage the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ✓ The front extension has been pulled out.

6.1.2 Pushing in the front extension

- ▶ Park the trailer on level ground.
- ▶ Apply the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ▶ Secure the trailer against rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Unlock and fold out the control lever for the front extension.
- ▶ Push up the control lever for the front extension.
 - ⇒ The lock is opened.
- ▶ Push the front extension in all the way.
- ▶ Push down the control lever for the front extension.
 - ⇒ The lock is closed.
- ▶ Fold in and lock the control lever for the front extension.
- ▶ Remove the securing device that prevents rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Disengage the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ✓ The front extension has been pushed in.

6.2 Adjusting the middle extension

The trailer can be extended to accommodate different load combinations and containers. The middle extension is equipped with a mechanical locking device and can be locked in various positions.

It needs to be operated without containers loaded.

6.2.1 Pulling out the middle extension

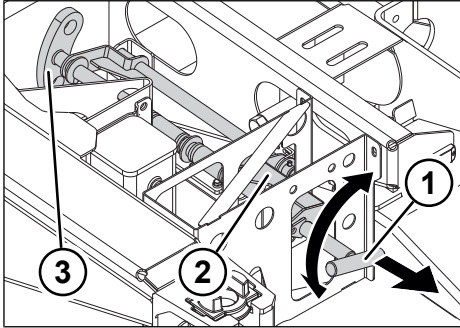


Fig. 6-2: Operating the middle extension

- 1 Locking bolt for middle extension
- 2 Bracket for the locking bolt
- 3 Locking plate

- ▶ Park the trailer on level ground.
- ▶ Apply the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ▶ Secure the trailer against rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Unlock the locking bolt for front extension.
- ▶ Adjust the wheelbase using the locking bolt on the middle extension.
- ▶ Drive trailer forward until the locking bolt engages.
- ▶ Secure the locking bolt.
- ▶ Remove the securing device that prevents rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Disengage the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ✓ Middle extension is extended.

6.2.2 Pushing in the middle extension

- ▶ Park the trailer on level ground.
- ▶ Secure the trailer against rolling away (see "5.6.2 Parking brake", pg. 31).
- ▶ Unlock the locking bolt for the front extension (see "5.1 Using wheel chocks", pg. 20).

- ▶ Adjust the wheelbase using the locking bolt on the middle extension.
- ▶ Drive the trailer backwards until locking bolt engages.
- ▶ Secure the locking bolt.
- ▶ Remove the securing device that prevents rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Disengage the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ✓ Middle extension is pushed in.

6.3 Adjusting the rear extension

The trailer can be extended to accommodate different load combinations and containers. The rear extension is equipped with a mechanical locking device and can be locked in various positions. It is extended mechanically with a hand crank or via a pneumatically driven motor.

It needs to be operated without containers loaded.

⚠ WARNING

Risk of injury due to unlocked rear extension!

An unlocked rear extension (mechanical or pneumatic) can extend during a trip, injure people and cause material damage.

- ▶ Secure the rear extension with the locking bolt (hand crank) before every trip.

6.3.1 Mechanically extending the rear extension

- ▶ Park the trailer on level ground.
- ▶ Apply the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ▶ Secure the trailer against rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Unlock the hand crank for the rear extension.

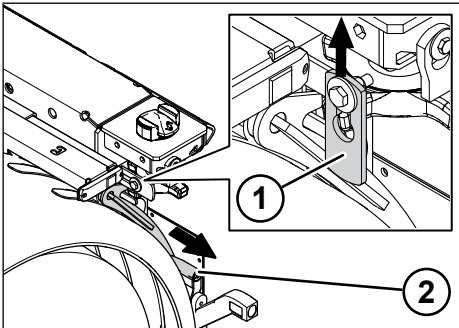


Fig. 6-3: Unlocking the hand crank for the rear extension

- 1 Locking mechanism crank
- 2 Crank for the rear extension

- Pull out the hand crank completely against the spring resistance and hold it.
- Turn the hand crank by 90°.

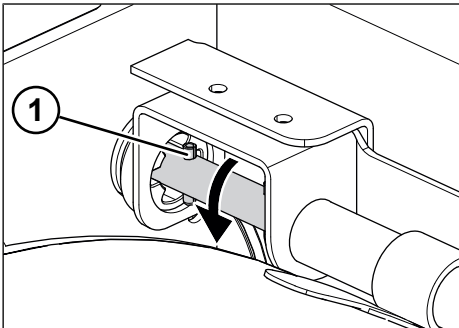


Fig. 6-4: Turning the hand crank for the rear extension

- 1 Locking bolt for hand crank

- Place the hand crank with the locking bolt in the notch on the plate.

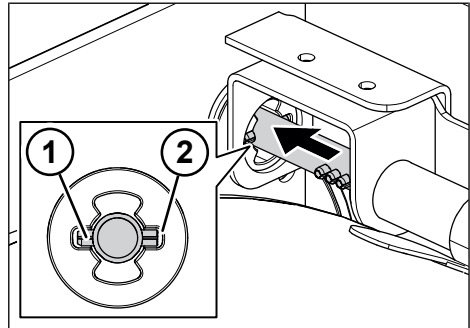


Fig. 6-5: Hand crank for the rear extension

- 1 Locking bolt for hand crank
- 2 Plate notch

- Turn the hand crank clockwise.
- Extend the rear extension to the length required. Observe stickers.

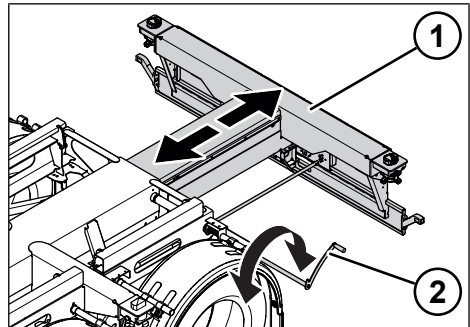


Fig. 6-6: Extending the rear extension

- 1 Rear extension
- 2 Hand crank for the rear extension

- Pull out the hand crank completely against the spring resistance and hold it.
- Turn the hand crank by 90°.

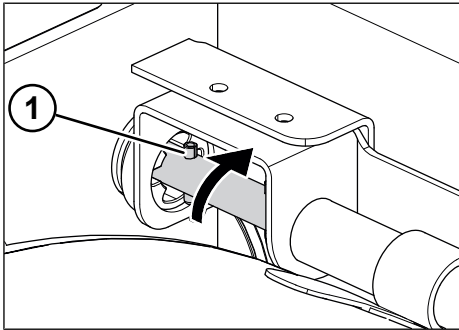


Fig. 6-7: Turning the hand crank for the rear extension

1 Locking bolt for hand crank

- ▶ Push the hand crank in all the way.
- ▶ Lock the hand crank for the rear extension.

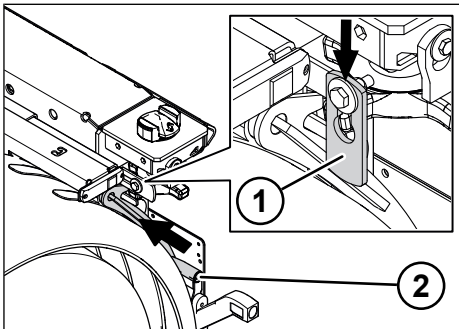


Fig. 6-8: Locking the hand crank for the rear extension

1 Locking mechanism for hand crank for the rear extension
2 Hand crank for the rear extension

- ▶ Remove the securing device that prevents rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Disengage the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ✓ The rear extension is extended to the required length.

6.3.2 Mechanically retracting the rear extension

- ▶ Park the trailer on level ground.
- ▶ Apply the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ▶ Secure the trailer against rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Unlock the hand crank for the rear extension.
- ▶ Pull out the hand crank completely against the spring resistance and hold it.
- ▶ Turn the hand crank by 90°.
- ▶ Insert the hand crank with locking bolt into the notch on the plate.
- ▶ Turn the hand crank counterclockwise.
- ▶ Retract rear extension to the length required. Follow the stickers
- ▶ Pull out the hand crank completely against the spring resistance and hold it.
- ▶ Turn the hand crank by 90°.
- ▶ Push the hand crank in all the way.
- ▶ Lock the hand crank for the rear extension.
- ▶ Remove the securing device that prevents rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Disengage the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ✓ Rear extension has been pushed in.

6.3.3 Pneumatically extending the rear extension

- ▶ Park the trailer on level ground.
- ▶ Apply the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ▶ Secure the trailer against rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Unlock the hand crank for the rear extension.
- ▶ Pull out the hand crank completely against the spring resistance and hold it.

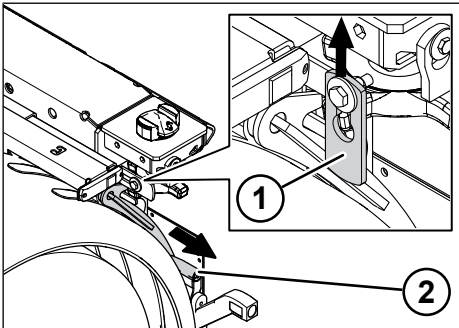


Fig. 6-9: Unlocking the hand crank for the rear extension

- 1 Locking mechanism for hand crank
- 2 Hand crank for the rear extension

► Turn the hand crank by 90°.

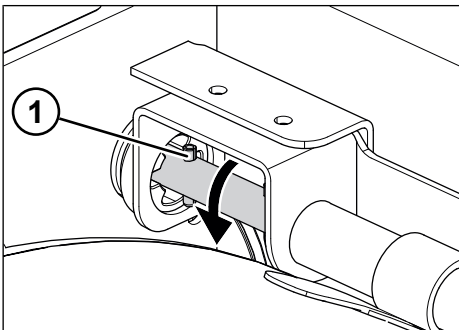


Fig. 6-10: Turning the hand crank for the rear extension

- 1 Locking bolt for hand crank

⇒ The hand crank is fixed in the extended position with the locking bolt.

► Extend the rear extension to the required length using the “extend rear extension” button on the control unit. Observe stickers.

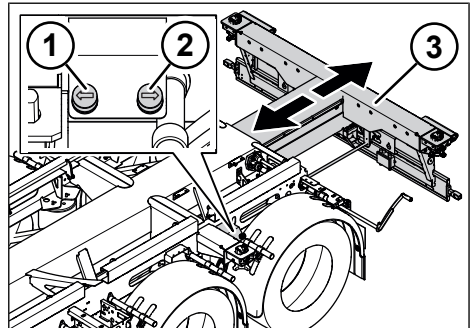


Fig. 6-11: Pneumatically extending the rear extension

- 1 “Retract rear extension” button
- 2 “Extend rear extension” button
- 3 Rear extension

► Pull out the hand crank completely against the spring resistance and hold it.

► Turn the hand crank by 90°.

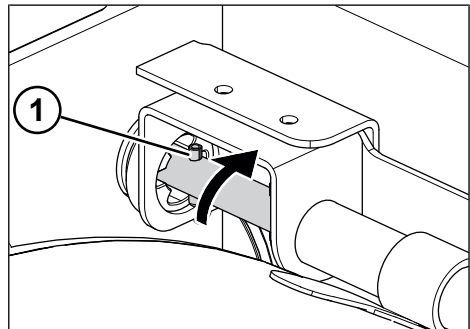


Fig. 6-12: Turning the hand crank for the rear extension

- 1 Locking bolt for hand crank

► Push the hand crank in all the way.

► Lock the hand crank for the rear extension.

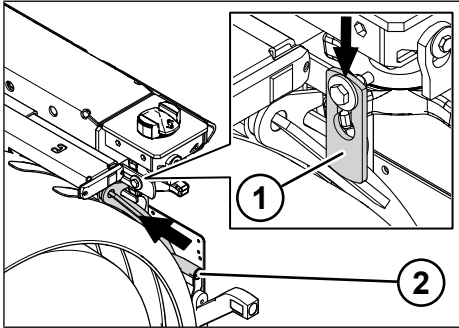


Fig. 6-13: Locking the hand crank for the rear extension

- 1 Locking mechanism for hand crank for the rear extension
- 2 Hand crank for the rear extension

6.3.4 Pneumatically retracting the rear extension

- ▶ Park the trailer on level ground.
- ▶ Apply the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ▶ Secure the trailer against rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Unlock the hand crank for the rear extension.
- ▶ Pull out the hand crank completely against the spring resistance and hold it.
- ▶ Turn the hand crank by 90°.
 - ⇒ The hand crank is fixed in the extended position with the locking bolt.
- ▶ Retract the rear extension to the required length using the "retract rear extension" button on the control unit. Observe stickers.
- ▶ Pull out the hand crank completely against the spring resistance and hold it.
- ▶ Turn the hand crank by 90°.
- ▶ Push the hand crank in all the way.
- ▶ Lock the hand crank for the rear extension.

- ▶ Remove the securing device that prevents rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Disengage the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ✓ Rear extension has been pushed in.

6.4 Container lock

The container lock represents the connection between the container and the trailer. The trailer is equipped with the following locking mechanisms:

- Lowerable container lock
- Folding container lock, sliding with front extension
- Folding container lock, without front extension

NOTE

Noise pollution and wear due to vibrations!

Container locking mechanisms that are not locked when driving empty cause unnecessary wear and noise pollution.

- ▶ Always tension the container lock.

6.4.1 Lowerable container lock

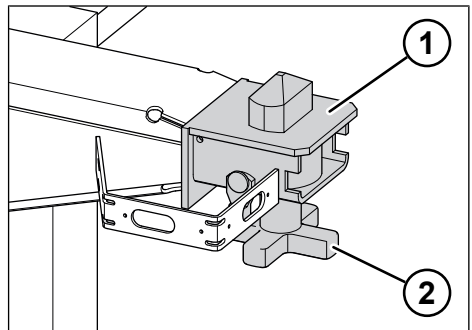


Fig. 6-14: Lowerable container lock

- 1 Container holding fixture
- 2 Container lock

- ▶ Push up the fall protection and release the tension nut.

- ▶ Push the trunnion with the tension nut up and turn it by 90°.
- ▶ Lower the trunnion with the tension nut.
- ▶ Check whether the lock is seated in the bracket.
 - ⇒ Container lock is opened.
- ▶ Load the container.
- ▶ Push the trunnion with the tension nut up and turn it by 90°.
- ▶ Lower the trunnion with the tension nut.
- ▶ Tighten the tension nut.
- ▶ Allow the fall protection to engage into place.
- ✓ Container lock is closed.

6.4.2 Folding container lock, sliding with front extension

Container without tunnel

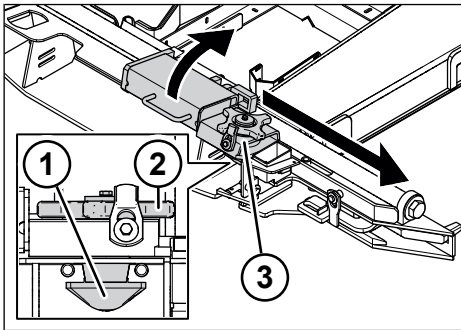


Fig. 6-15: Container holding fixture in standby position

- 1 Trunnion
- 2 Tension nut
- 3 Container holding fixture

- ▶ Loosen the tension nut.
- ▶ Push the trunnion with the tension nut down and turn it by 90°.
- ⇒ Container lock is opened.
- ▶ Fold up the container holding fixture from the standby position.

- ▶ Slide out the container holding fixture until it hits the stop.

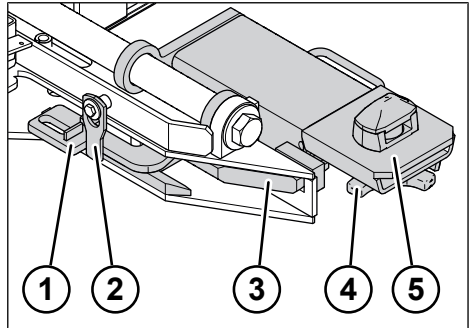


Fig. 6-16: Container holding fixture in loading position

- 1 Offset handle
- 2 Locking mechanism for offset handle
- 3 Locking bolt
- 4 Trunnion with tension nut
- 5 Container holding fixture

- ▶ Release the locking mechanism for offset handle.
- ▶ Fold out the offset handle.
- ▶ The locking bolt is opened.
- ▶ Fully fold down the container holding fixture into the loading position.
- ▶ Fold in the offset handle.
 - ⇒ The locking bolt is closed.
- ▶ Check whether the locking bolt is seated in the container holding fixture.
- ▶ Engage the locking mechanism for the offset handle.
 - ⇒ The container holding fixture is secured in the loading position.
- ▶ Load the container.
- ▶ Push the trunnion with the tension nut up and turn it by 90°.
- ▶ Lower the trunnion with the tension nut.
- ▶ Tighten the tension nut.
- ✓ Container lock is closed.

Container with tunnel

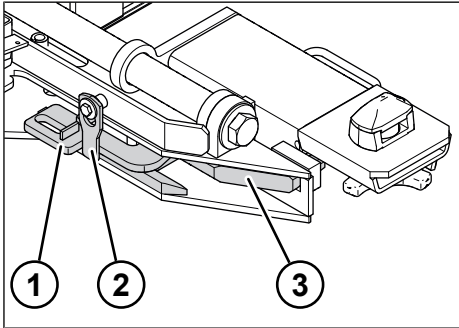


Fig. 6-17: Open the locking bolt

- 1 Offset handle
- 2 Locking mechanism for offset handle
- 3 Locking bolt

- Release the locking mechanism for offset handle.
- Fold out the offset handle.
⇒ The locking bolt is opened.

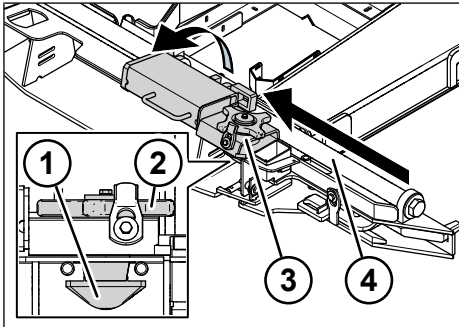


Fig. 6-18: Container holding fixture in standby position

- 1 Trunnion
- 2 Tension nut
- 3 Container holding fixture
- 4 Rotating-sliding axle

- Fold up the container holding fixture from the loading position.
- Slide in the container holding fixture until it hits the stop.

- Fold down the container holding fixture into the standby position.
- Loosen the tension nut.
- Push the trunnion with the tension nut down and turn it by 90°.
- Tighten the tension nut.
⇒ The container holding fixture is secured in the standby position.

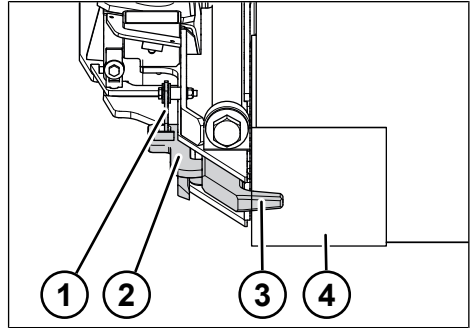


Fig. 6-19: Container holding fixture in standby position

- 1 Locking mechanism for offset handle
- 2 Offset handle
- 3 Locking bolt
- 4 Container(s)

- Load the container.
- Move the locking bolt. For containers with **straight** corners (40 or 45-ft. containers), use the **outer** notch. For containers with **straight** corners (40 or 45-ft. containers), use the **outer** notch.
- Fold in the offset handle.
- Engage the locking mechanism for the offset handle.
⇒ The locking bolt is closed.
- Check whether the locking bolt is seated in the container.
- ✓ The container is secured.

6.4.3 Folding container lock without front extension

Container without tunnel

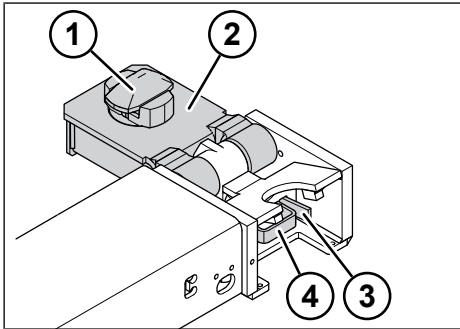


Fig. 6-20: Container holding fixture in loading position

- 1 Container lock
- 2 Container holding fixture
- 3 Retainer lever
- 4 Handle with locking bolt

- ▶ Push the retainer lever into container holding fixture and hold it tight.
- ▶ Pull out handle with retainer lever.
- ▶ Fold down the container holding fixture into the loading position.
- ▶ Push up the fall protection and release the tension nut.
- ▶ Push the trunnion with the tension nut up and turn it by 90°.
- ▶ Lower the trunnion with the tension nut.
- ▶ Check whether the lock is seated in the bracket.
 - ⇒ Container lock is opened.
- ▶ Load the container.
- ▶ Push the trunnion with the tension nut up and turn it by 90°.
- ▶ Lower the trunnion with the tension nut.
- ▶ Tighten the tension nut.
- ▶ Engage the fall protection.
- ✓ Container lock is closed.

Container with tunnel

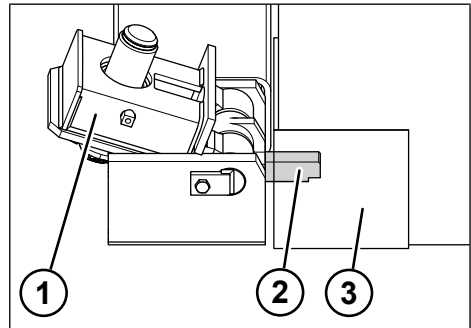


Fig. 6-21: Container holding fixture in standby position

- 1 Container holding fixture in standby position
- 2 Handle with locking bolt
- 3 Container(s)

- ▶ Push the retainer lever into container holding fixture and hold it tight.
- ▶ Pull out the handle with locking bolt.
- ▶ Fold the container lock into standby position.
- ▶ Load the container. Only use containers with **straight** corners.
- ▶ Push in the handle with locking bolt.
- ✓ The container is secured.

6.5 Shim

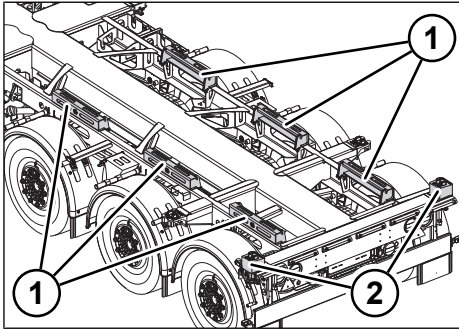


Fig. 6-22: Shim

- 1 Hinged shim
- 2 Container lock with elevation set

When transporting containers without tunnel, fold up the shims before loading, and use the container locks with the elevation set.

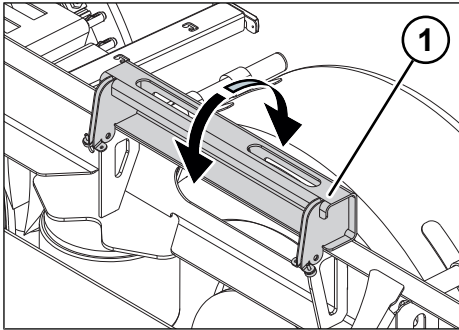


Fig. 6-23: Hinged shim

- 1 Hinged shim

- Give the frame a quick clean before folding up.
- Fold the shim up.
- Check the shim for secure seating.
 - ⇒ Shims are folded up.

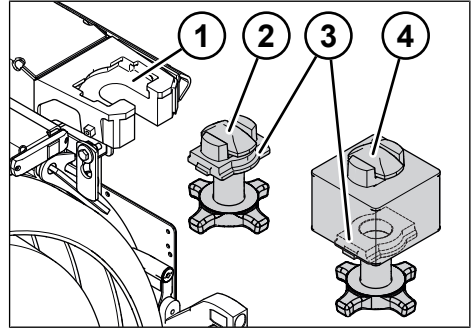


Fig. 6-24: Exchanging the lock

- 1 Mount for container lock
- 2 Container lock
- 3 Base plate
- 4 Container lock with elevation set

- Remove the container lock from its mount, remove the container lock.

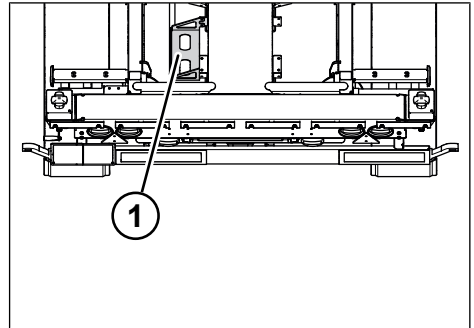


Fig. 6-25: Depot for container lock

- 1 Depot for container lock

- Properly stow and secure the container lock in the depot for the container lock.
- Insert the container lock with elevation set into the mount.
- Ensure that the container lock's base plate sits properly on the mount.
- ✓ The container lock with elevation set is mounted.

6.6 Loading instructions

⚠ WARNING

Risk of accident due to instability and rolling away!

Unintentional trailer movements can cause serious injury and property 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.
- ▶ Align the tractor unit and trailer behind each other in a straight line.
- ▶ Load and unload the trailer such that traffic hazards are ruled out.
- ▶ Be mindful of the trailer's stability when loading and unloading while uncoupled. If necessary, use additional supports.

INFO

The following pages will describe the maximum equipment for each vehicle. There may be differences in how the stickers are illustrated.

When loading the trailer, specific regulations apply for the transport, loading and unloading and for the load distribution, depending on the container model.

6.6.1 Transporting 20-ft containers

Transporting a 20-ft container may only be done loaded flush with the rear on the trailer, with the rear extension pushed in.

When transporting two 20-ft containers, the load state must be taken into account. The following load states can be transported:

- Both 20-ft containers with half a load
- Observe permissible axle and fifth wheel load distribution.

6.6.2 Loading and unloading 20-ft containers in uncoupled state

In an uncoupled state, load as follows:

- ▶ First load the front container.
- ▶ Then load the rear container.

In an uncoupled state, unload as follows:

- ▶ First unload the rear container.
- ▶ Then unload the front container.

6.6.3 Loading and unloading 20-ft containers in coupled state

In a coupled state, the trailer can be loaded and unloaded in any sequence.

6.6.4 Definition of wheelbase

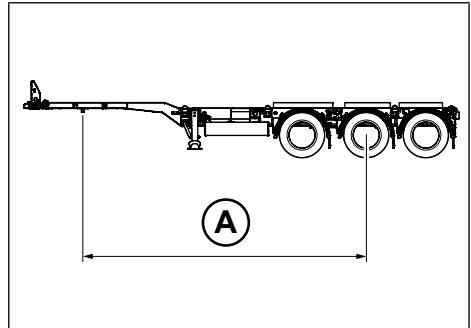


Fig. 6-26: Definition of wheelbase

A Wheelbase

The wheelbase is calculated between the kingpin and the middle of the axle assembly.

6.6.5 Container positions overview

The following containers can be loaded onto the trailer:

- 1 x 20 ft, flush with the rear (rear extension retracted)
- 1 x 20 ft, centred
- 2x20 ft
- 1x30 ft flush with the rear

- 1x40 ft with and without tunnel
- 1x45 ft with and without tunnel

Due to the various loading conditions of the articulated lorry, the axle loads can vary considerably.

- ▶ Observed the permissible axle loads.
- ▶ In case of doubt, have the axle loads checked at a suitable weighing station.

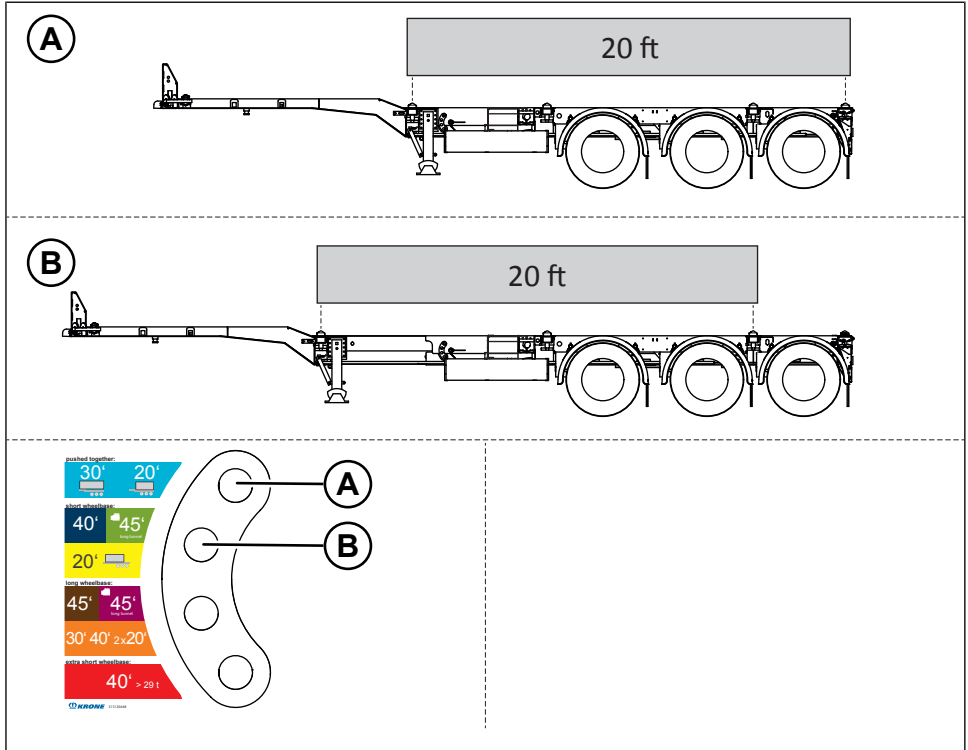


Fig. 6-27: Container positions overview

- A Middle extension pushed in (20 ft flush with the rear, short wheelbase)
- B Middle extension partly pushed out (20 ft centred)

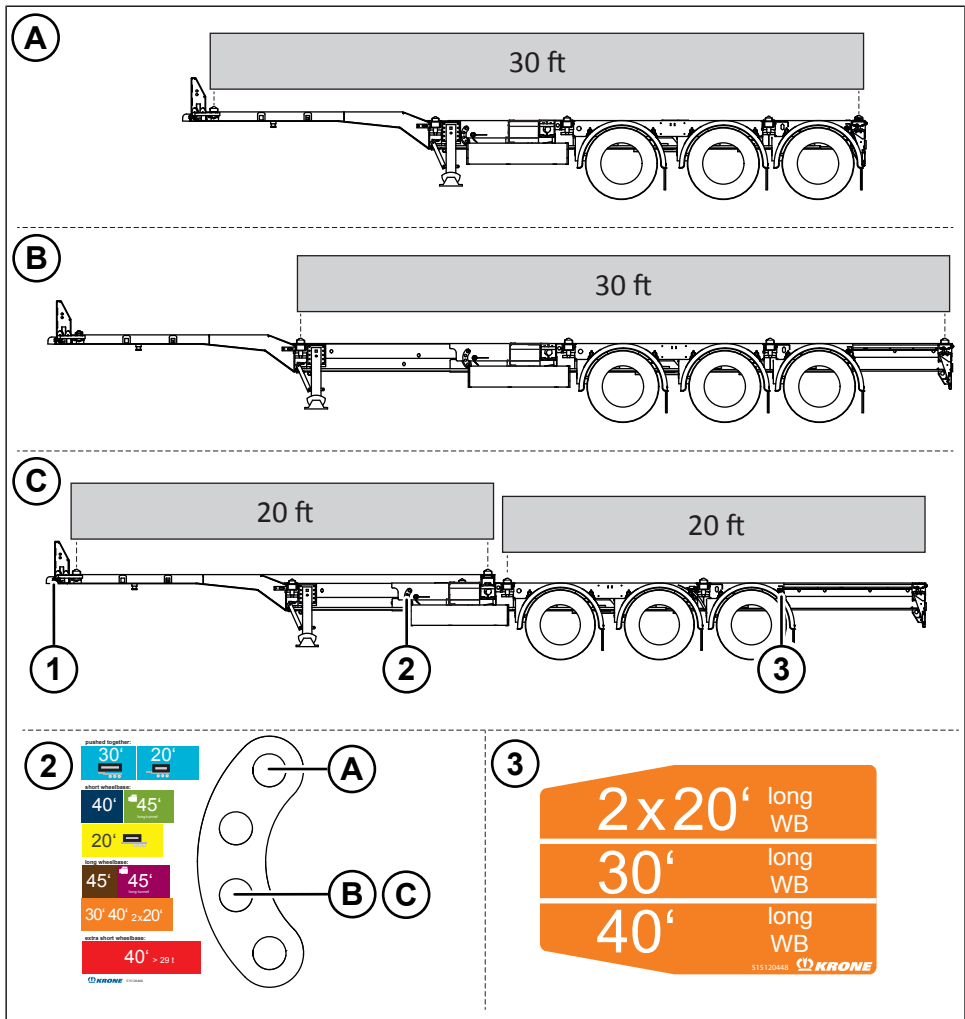


Fig. 6-28: Container positions overview

- A Middle extension pushed in, use hinged shim and locking attachments (30 ft flush with the rear, short wheelbase)
- B Middle and rear extension partially pushed out
- C Middle and rear extension partially pushed out (2x20 ft)
- 1 Front extension pushed in
- 2 Locking positions middle extension
- 3 Rear extension partially pushed out

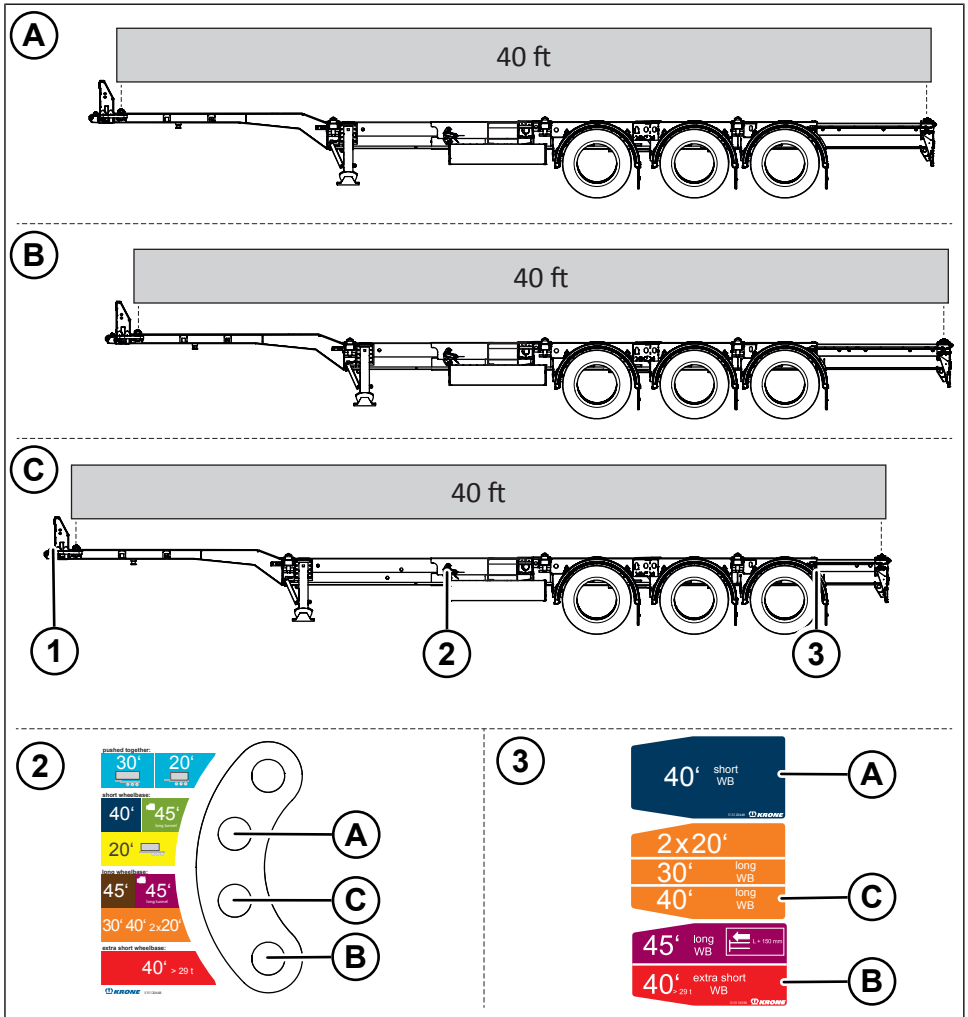


Fig. 6-29: Container positions overview

- A Middle and rear extension partially pulled out (short wheelbase)
- B Centre and rear extension partially pulled out (extra-short wheelbase for 40-ft containers > 29 t for 2-axle semitrailer tractor)
- C Middle and rear extension partially pulled out (long wheelbase for light 40-ft containers or heavy 40-ft containers with 3-axle semitrailer tractor)
- 1 Front extension pushed in
- 2 Locking positions middle extension
- 3 Rear extension partially pushed out

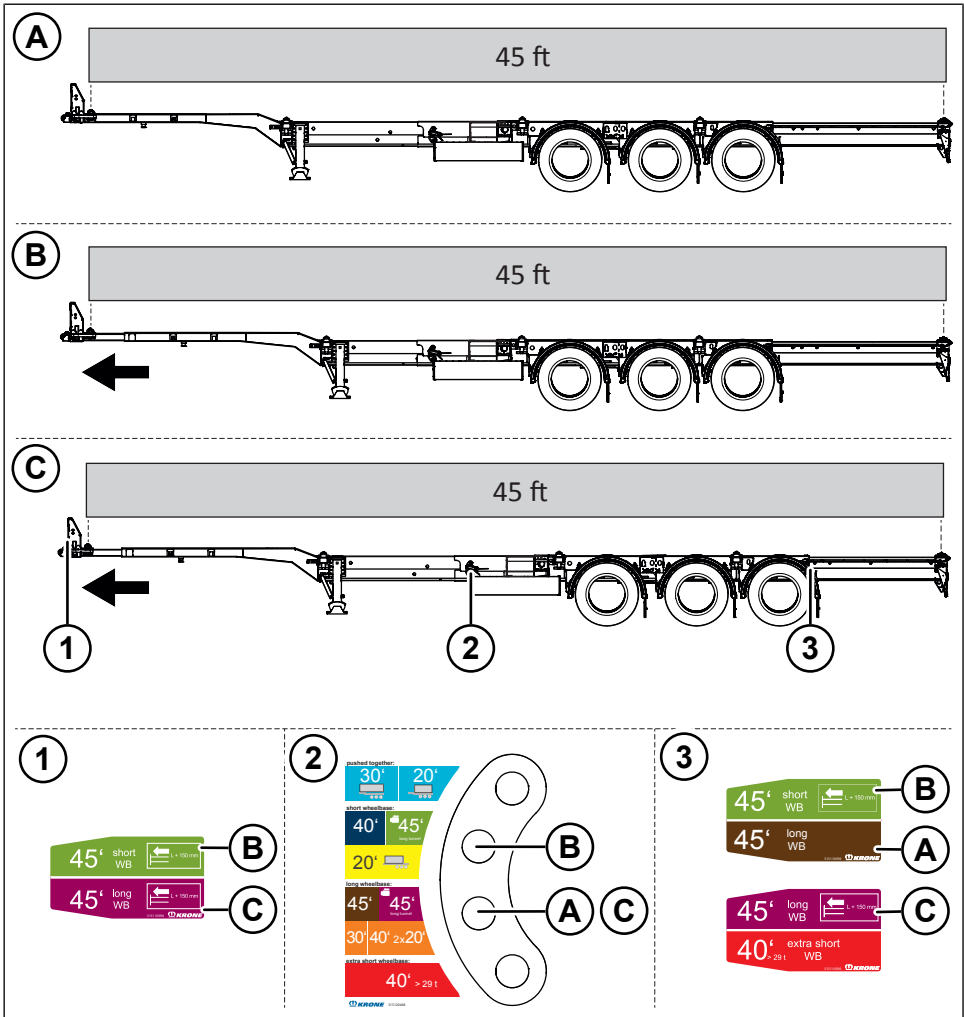


Fig. 6-30: Container positions overview

- A Middle and rear extension pulled out (long wheelbase without front extension for 45-ft containers with short tunnel or if no front extension present)
- B Middle and rear extension pulled out (short wheelbase with front extension for 2-axis semitrailer tractor)
- C Middle and rear extension pulled out (long wheelbase with front extension for 3-axis semitrailer tractor)
- 1 Front extension pulled out
- 2 Locking positions middle extension
- 3 Rear extension pushed out

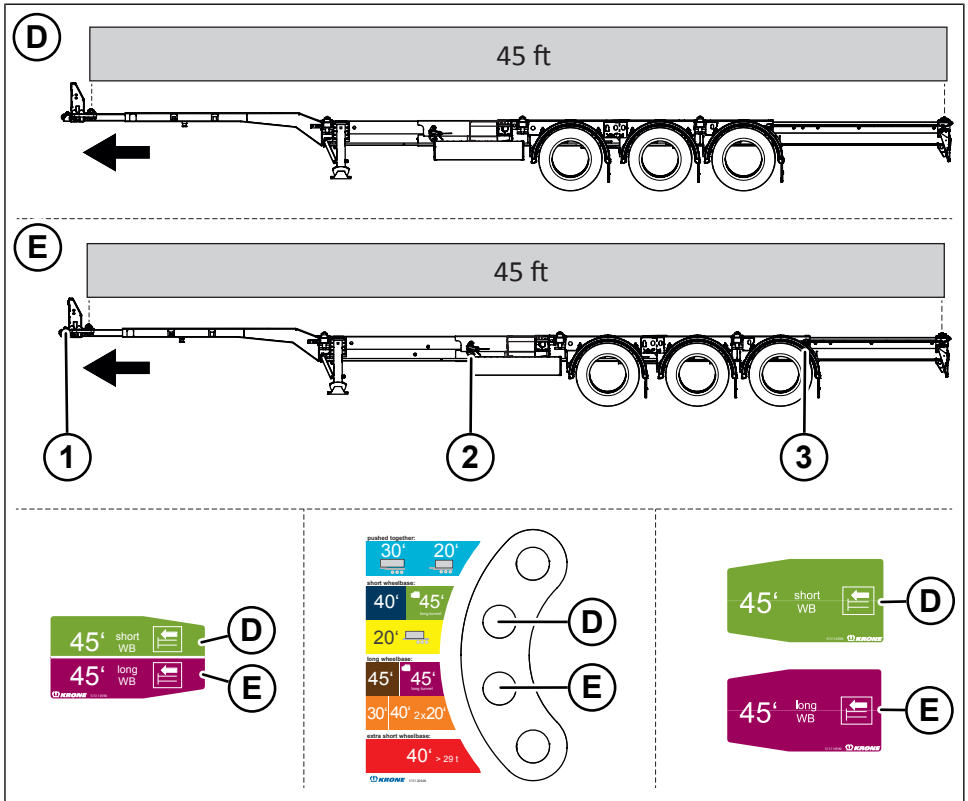


Fig. 6-31: Container positions overview

- D Middle and rear extension pulled out (short wheelbase with front extension for 45-ft container with long tunnel)
- E Middle and rear extension pulled out (long wheelbase with front extension for 3-axle semitrailer tractor)
- 1 Front extension pulled out
- 2 Locking positions middle extension
- 3 Rear extension pushed out

6.6.6 Loading

- ▶ Park the trailer on level ground.
- ▶ Apply the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ▶ Secure the trailer against rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Adjust the trailer for the container size (see "6.1 Adjusting the front extension", pg. 42), (see "6.2 Adjusting the middle extension", pg. 42), (see "6.3 Adjusting the rear extension", pg. 43).
- ▶ Adjust container holding fixture to container type and size (see "6.4 Container lock", pg. 47).
- ▶ Open the container lock (see "6.4 Container lock", pg. 47).


- ▶ Load the container.
- ▶ Close the container lock (see "6.4 Container lock", pg. 47).
- ▶ Remove the securing device that prevents rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Disengage the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ✓ The trailer is loaded and the container is secured.

6.6.7 Unloading

- ▶ Park the trailer on level ground.
- ▶ Apply the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ▶ Secure the trailer against rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Open the container lock (see "6.4 Container lock", pg. 47).
- ▶ Unload the container.
- ▶ Close the container lock (see "6.4 Container lock", pg. 47).
- ▶ Push the trailer together (see "6.1 Adjusting the front extension", pg. 42), (see "6.2 Adjusting the middle extension", pg. 42), (see "6.3 Adjusting the rear extension", pg. 43).
- ▶ Remove the securing device that prevents rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Disengage the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ✓ The trailer is unloaded.

6.7 Genset

The trailer can also be equipped with a generator set (Genset). The generator set is used as a power supply, e.g. for refrigerated trailer superstructures. The generator consists of an enclosed alternator that is driven by a diesel motor. A control panel and battery are integrated for starting and operation. Individual components must be checked every time the genset is started.

 Also observe the enclosed supplier documentation.

Refuelling the genset

WARNING

Fire and explosion hazard!

Fuels are highly flammable.

- ▶ Turn off the unit's motor during refuelling.
- ▶ Avoid open sources of ignition.

WARNING

Risk of poisoning by fuels and fumes!

Poisonous fuel vapours and fumes can form in closed spaces.

- ▶ Only operate and refuel the unit when outdoors or in suitable, well-ventilated locations.

NOTE

Fuel may cause material damage!

Spilt fuel can damage the surfaces of the generator set and the trailer.

- ▶ Only refuel up to the maximum fill level.
- ▶ Immediately clean up spilt fuel.

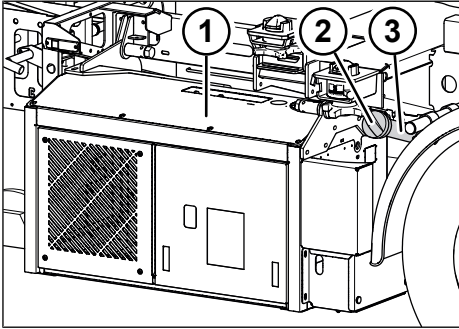


Fig. 6-32: Refuelling the genset

- 1 Generator set
- 2 Cover
- 3 Filling spout

- ▶ Park the trailer on level ground.
- ▶ Apply the parking brake on the trailer
(see "5.6.2 Parking brake", pg. 31).
- ▶ Turn off the generator set.
- ▶ Open and remove the cover.
- ▶ Pour suitable diesel fuel into the filling
spout. Be mindful of the maximum fuel
fill level.
- ▶ Install and close the cover.
- ✓ The generator set is refuelled.

7 Road operations

7.1 Manoeuvring the trailer without a connected compressed air supply

INFO

Manoeuvring without a connected compressed air supply is only permissible in exceptional cases.

To manoeuvre the trailer without a connected compressed air supply, the service brake (see "5.6.1 Service brake", pg. 30) must be released.

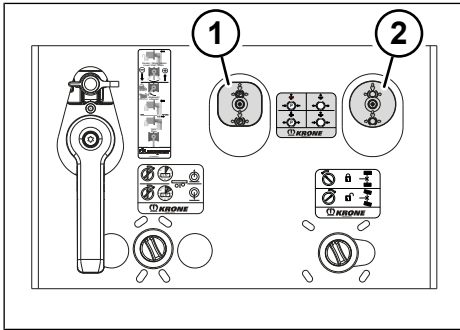


Fig. 7-1: Control unit for brake system

- 1 Red control knob for the parking brake
- 2 Black control knob for the service brake

- ☑ The trailer's compressed air supply is not connected.
- ▶ Press in the black control knob for the service brake.
- ▶ Press in the red control knob for the parking brake (see "5.6.2 Parking brake", pg. 31).
- ▶ The trailer brake is released.
- ✓ The trailer can be manoeuvred.
- ▶ Pull out the black control knob for the service brake again after manoeuvring.
- ▶ Press in the red control knob for the parking brake.
- ✓ The trailer brake is engaged.

7.2 Parking the trailer safely

⚠ WARNING

Risk of accident due to instability and rolling away!

Unintentional trailer movements can cause serious injury and property 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.
- ▶ Align the tractor unit and trailer behind each other in a straight line.
- ▶ Load and unload the trailer such that traffic hazards are ruled out.
- ▶ Be mindful of the trailer's stability when loading and unloading while uncoupled. If necessary, use additional supports.

INFO

Desired ramp adjustments can only be made in the hitched/coupled condition with added compressed air. If rear braces have been factory-fitted to the rear of the trailer, adjust these according to the height of the ramp.

- ▶ Drive the trailer onto firm and level ground.
- ▶ Apply the parking brake (see "5.6.2 Parking brake", pg. 31).
- ▶ Use wheel chocks to prevent the trailer from rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Extend the landing leg winches (see "5.2 Landing leg winches", pg. 21).
- ▶ Extend the rear braces, if present.
- ▶ Disconnect the supply and control connections (see "5.4 Supply and control connections", pg. 25).

- ▶ Uncouple the trailer from the tractor unit (see "7.3 Coupling and uncoupling the trailer", pg. 61).
 - ▶ For longer parking periods and when loading the ramp while parked, lower the air suspension (see "5.7 Air suspension", pg. 34).
- ✓ The trailer is safely parked

7.3 Coupling and uncoupling the trailer

⚠ 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.

INFO

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

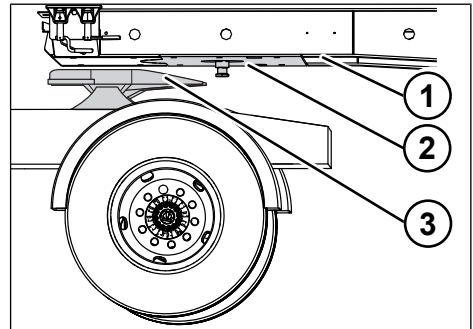


Fig. 7-2: Coupling

- 1 Semitrailer plate
- 2 Kingpin
- 3 Semitrailer coupling

Coupling

- ▶ Before coupling, check:
 - Is the tractor unit's coupling load suitable for the trailer?
 - Do the semitrailer coupling and the kingpin match?
 - Does the coupling height of the tractor and trailer correspond?
 - Is the trailer correctly loaded?
 - Is the coupling plate sufficiently lubricated?
- ▶ Apply the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ▶ Use the wheel chocks to prevent the trailer from rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Check the attachment and wear of the kingpin.
- ▶ Set the height of the semitrailer coupling using the tractor unit's air suspension. The coupling plate must be approx. 50 mm higher than the coupling plate.
- ▶ Prepare and unlock the semitrailer coupling on the tractor unit.
- ▶ Drive the tractor unit toward the centre until it is approx. 30 cm away from the kingpin.

- ▶ Raise the tractor unit's air suspension until the coupling plate and the semitrailer plate touch. Do **not** raise the semitrailer in doing so!
- ▶ Continue to drive the tractor centrally until the lock engages with the semitrailer coupling.
- ▶ Put the tractor unit's air suspension in the driving position.
- ▶ 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 "5.4 Supply and control connections", pg. 25).
- ▶ Retract the landing leg winches (see "5.2 Landing leg winches", pg. 21).
- ▶ Put the trailer's air suspension in the driving position (see "5.7 Air suspension", pg. 34).
- ▶ Remove the wheel chocks and properly secure them (see "5.1 Using wheel chocks", pg. 20).
- ▶ Disengage the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ▶ 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

Clearance	Requirement
Swing radius	There must be sufficient distance between the rear wall of the driver's cab on the tractor 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 "7.4 Commissioning before each trip", pg. 63).
- ✓ The trailer is coupled and ready to drive.

Uncoupling

- ▶ Park the trailer on a load-bearing and level surface.
- ▶ Apply the parking brake on the trailer (see "5.6.2 Parking brake", pg. 31).
- ▶ Use the wheel chocks to prevent the trailer from rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Lift the trailer with the tractor unit's air suspension.
- ▶ Support the trailer with the landing leg winches (see "5.2 Landing leg winches", pg. 21).
- ▶ Disconnect the supply and control lines (see "5.4 Supply and control connections", pg. 25).
- ▶ To compensate for the length of the overall combination, briefly release the parking brake on the trailer.
- ▶ Prepare and unlock the semitrailer coupling on the tractor unit.
- ▶ Observe the operating instructions for the tractor unit and the semitrailer coupling.
- ▶ Slowly drive the tractor unit out by approx. 30 cm.
- ▶ Lower the tractor unit's air suspension by 5 - 10 cm.

- ▶ Fully drive the tractor unit out.
- ✓ The trailer is uncoupled.
- ▶ After uncoupling, set the air suspension of the tractor unit to the driving position.

7.4 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. Is the semitrailer or trailer coupling locked and secured correctly?
 8. Has the functional test of the EBS brake system been audibly heard?
 9. Are all the vehicle components (such as wheel chocks, stow box, landing leg winches) present, properly fastened or closed and secured?
 10. Are all movable collision protections locked and secured?
 11. Is the load properly distributed and correctly secured?
 12. Has the permitted maximum total weight been adhered to?
 13. Is there sufficient clearance between the vehicle floor and the tyres?
 14. Is the air suspension in the driving position?
 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.

8 Troubleshooting in the event of faults

⚠ WARNING

Risk of accident due to instability and rolling away!

Unintended trailer movements can cause serious injury and property damage.

- ▶ Secure the trailer against rolling away by activating 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.
- ▶ When the trailer is hitched/unhitched, ensure stability. If necessary, use additional supports.

⚠ WARNING

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

Improperly performed troubleshooting and repair work affect safety and may lead to serious injuries and property damage.

- ▶ Only have necessary repair work performed by an authorised specialist workshop.
- ▶ Only use original spare parts and spare parts authorised by KRONE.
- ▶ Observe the instructions concerning troubleshooting issued by the suppliers of the installed components.

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 Bernhard KRONE GmbH & Co. KG (see "11.2 Customer service and support", pg. 80).

Troubleshooting overview

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.
Pneumatic components are not working	Leaks on components	▶ Check the components for damage and leaks. ▶ Have repairs/replacements performed by a specialist workshop.
Brake system fault	Leaks on the brake cylinder, leaks on the brake calliper	▶ Check the brake cylinders for function and leaks. ▶ Check the brake callipers for function and leaks. ▶ Have repairs/replacements performed by a specialist workshop. ▶ In addition to the operating instructions for the KRONE Trailer Axle, also observe the operating instructions for the tractor unit and the trailer.

Fault	Cause	Solution
Braking abnormalities (trailer and tractor brake abnormally in the vehicle combination)	Failure to perform the brake power/train tuning	<ul style="list-style-type: none"> ▶ Perform a brake power/train tuning with the allocated tractor unit (see "8.2 Fixing braking abnormalities", pg. 65). ▶ In addition to the operating instructions for the KRONE Trailer Axle, also observe the operating instructions for the tractor unit and the trailer.
ABS/EBS error display	Fault in the controller	▶ Contact an authorised specialist workshop or customer service.
Rear lights, direction indicators, position lamps or similar do not work	Defective bulbs	<ul style="list-style-type: none"> ▶ Replace the defective bulbs. ▶ Check that the supply and control connections between the tractor and trailer are properly connected.
The lift axle no longer functions	<ul style="list-style-type: none"> ○ Faults on the lift axle control due to defective lift axle valves ○ Fault due to incorrect controls from the tractor unit 	<ul style="list-style-type: none"> ▶ Check that the supply and control connections between the tractor unit and trailers are properly connected. ▶ Contact an authorised specialist workshop or customer service.

8.1 Checking the lift axle control

WARNING

Risk of accident caused by faulty lift axle control!

A faulty lift axle control can have negative effects on the handling characteristics of the trailer. It can also change the vehicle height or the distance from the road and cause the trailer to get stuck in underpasses.

- ▶ Only drive with properly functioning lift axle control.
- ▶ In case of malfunction, contact an authorised specialist workshop and have the lift axle control repaired.
- ▶ In case of faults, have the lift axle control inspected by an authorised specialist workshop.

8.2 Fixing braking abnormalities

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 con-

trols 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 *"11.2 Customer service and support", pg. 80*).
- ▶ Observe the operating and maintenance instructions of the installed supplied components.

Questionnaire: Basic information about braking abnormalities

- ▶ Copy the questionnaire below.
 - Error memory
- ▶ Fill in the questionnaire completely.
 - Operating data
- ▶ Include the following attachments:
 - If necessary, the data from the internal CPU memory (e.g. EEPROM memory for WABCO systems)
 - Logs from the rolling brake test stand
 - Data from the memory of the brake electronics

Customer	
Name/company	
Telephone	
Fax	
Email	


Trailer	
Item number	
Vehicle ID number (see "1.2 Product identification and type plate", pg. 7)	
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


9 Maintenance and repair


DANGER

Risk of accident due to unintended vehicle movements!

Unintended vehicle movements can cause serious injury.

- Use wheel chocks to prevent the trailer from rolling away.
- Park the trailer on solid and level ground to avoid sinking in or tipping.
- During maintenance and repair work, observe the stability of the trailer.
- Observe the applicable national accident prevention regulations.


WARNING

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


Improperly performed troubleshooting and repair work affect safety and may lead to serious injuries and property damage.

- Only have necessary repair work performed by an authorised specialist workshop.
- Only use original spare parts and spare parts authorised by KRONE.
- Observe the instructions concerning troubleshooting issued by the suppliers of the installed components.
- Verify functionality after installing/repairing components.

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

- Care and cleaning
- Maintenance
- Repair


9.1 Care and cleaning


NOTE

Material damage caused by incompatible cleaning agent

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 cleaning chemicals to escape into drains, sewers or to seep into the ground.
- ▶ Only clean in suitable washing areas with an oil separator.
- ▶ Observe the applicable national environmental protection measures.

Cleaning the trailer

- ▶ Park the trailer on a level and firm surface.
- ▶ Apply the parking brake (see "5.6.2 Parking brake", pg. 31).
- ▶ Secure the trailer with wheel chocks (see "5.1 Using wheel chocks", pg. 20).
- ▶ 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 "7.4 Commissioning before each trip", pg. 63).

9.2 Maintenance

⚠ WARNING

Risk of accident and property damage caused by improperly performed or lack of maintenance!

Improperly performed or lack of maintenance work and incorrect replacement parts affect safety.

- ▶ Observe the national accident prevention regulations.
- ▶ Only have necessary maintenance work performed by an authorised specialist workshop.
- ▶ Only use original spare parts.
- ▶ Observe the maintenance instructions of the installed supplied components.

⚠ WARNING

Risk of accident due to instability and rolling away!

Unintended trailer movements can cause serious injury and property damage.

- ▶ Secure the trailer against rolling away by activating 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.
- ▶ When the trailer is hitched/unhitched, ensure stability. If necessary, use additional supports.


The aim of maintenance is:

- that the commissioned trailer is kept operating safely and performing properly during use,
- to prevent downtimes,
- to keep the costs of operational readiness reasonable and financially justifiable,
- and to limit unavoidable repair expenditures.

9.2.1 Genset

Servicing the system can be dangerous due to moving parts, hot coolant, and electrical components. Only trained and qualified maintenance personnel may install, repair, or service the system. Ensure that the power is off and that the negative battery terminal has been disconnected before work is performed on the unit.

- Fuel containers pose an explosive, fire and cracking hazard, even if the fuel has emptied.
- Watch out for rotating and hot (exhaust) parts.
- Do not use fuel to clean the air filter.
- Do not clean with high-pressure.
- Do not allow soap and water to enter the generator.

 Also observe the enclosed supplier documentation.

9.2.2 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 "7.4 Commissioning before each trip", pg. 63).
- 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.
Rear underrun protection/side collision protection	Visual check for wear, damage and proper attachment.
Compressed air tank	Actuate the water drain valve (see "5.5 Draining the compressed air tanks", pg. 28).
Lighting equipment	Visually inspect for correct operation
Weekly	
Compressed air tank	<ul style="list-style-type: none"> ○ Perform a visual inspection for wear and damage.
Tyres	<ul style="list-style-type: none"> ○ Check the tread depth and tyre pressure (9 bar)
Kingpin/coupling plate	Lubricate with high-pressure grease

- Go to an authorised specialist workshop if defects have been found.

9.2.3 Maintenance intervals for the authorised specialist workshop

Assembly group	Maintenance work	Monthly	Every six months	Yearly
Wheels and tyres (see "9.2.5 Wheels and tyres", pg. 73)	<ul style="list-style-type: none"> ► 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	
Axle and suspension (see "9.2.11 Axle and suspension", pg. 74)	<ul style="list-style-type: none"> ► Check the tightening torque of the fixing bolts. ► Observe the maintenance instructions from the axle manufacturer. 	X		
Brake system (see "9.2.6 Brake system", pg. 73)	<ul style="list-style-type: none"> ► Check the bolted connections. ► In addition: After the first trip 			X
Compressed air system (see "5.5 Draining the compressed air tanks", pg. 28)	<ul style="list-style-type: none"> ► Check the compressed air tank. ► Check the compressed air connections. ► Check the compressed air lines. 			X
Lubrication points (see "9.2.12 Lubricating the trailer", pg. 75)	<ul style="list-style-type: none"> ► 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 "9.2.9 Electrical equipment", pg. 74)	<ul style="list-style-type: none"> ► Check all electrical components for proper function. 			X
Contour marking (see "9.2.10 Contour marking", pg. 74)	<ul style="list-style-type: none"> ► Check the contour markings for completeness and legibility. 	X		
Bolted connections (see "9.2.8 Bolted connections", pg. 74)	<ul style="list-style-type: none"> ► Perform a visual inspection for wear and damage. 			X
Load securing	<ul style="list-style-type: none"> ► Perform a visual inspection for wear and damage. 			X
Container lock	<ul style="list-style-type: none"> ► Perform a visual inspection for wear and damage. 			X

Assembly group	Maintenance work	Monthly	Every six months	Yearly
Kingpin (see "9.2.7 Kingpin and coupling plate", pg. 74)	<ul style="list-style-type: none"> ▶ Perform a visual inspection for wear and damage. ▶ Measure the wear and replace the kingpin if necessary. ▶ Check the mounting and tighten if required. ▶ Lubricate with high-pressure grease. 			X
Pneumatic motor	<ul style="list-style-type: none"> ▶ Lubricate the pneumatic motor 			X

9.2.4 Maintenance intervals for the driver

Assembly group	Maintenance work	Monthly	Every six months	Yearly
Wheels and tyres (see "9.2.5 Wheels and tyres", pg. 73)	<ul style="list-style-type: none"> ▶ Check the tightening torques of the wheel nuts. ▶ Check the tyres and the tyre inflation pressure. 			X
Axle and suspension (see "9.2.11 Axle and suspension", pg. 74)	<ul style="list-style-type: none"> ▶ Observe the maintenance instructions from the axle manufacturer. 	X		
Compressed air system (see "5.5 Draining the compressed air tanks", pg. 28)	<ul style="list-style-type: none"> ▶ Check the compressed air tank. ▶ Check the compressed air connections. 			X
Contour marking (see "9.2.10 Contour marking", pg. 74)	<ul style="list-style-type: none"> ▶ Check the contour markings for completeness and legibility. 	X		
Load securing Load securing	<ul style="list-style-type: none"> ▶ Perform a visual inspection for wear and damage. 			X
Kingpin (see "9.2.7 Kingpin and coupling plate", pg. 74)	<ul style="list-style-type: none"> ▶ Perform a visual inspection for wear and damage. 			X
Container lock	<ul style="list-style-type: none"> ▶ Perform a visual inspection for wear and damage. 			X
Lubrication points (see "9.2.12 Lubricating the trailer", pg. 75)	<ul style="list-style-type: none"> ▶ Top up the grease on all the lubrication points. ▶ Pay attention to the lubrication points shown in the applicable operating instructions. 			X

9.2.5 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.

9.2.6 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 (see "8.2 Fixing braking abnormalities", pg. 65).

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 "11.2 Customer service and support", pg. 80).

9.2.7 Kingpin and coupling plate

⚠ WARNING

Risk of accident caused by wear!

A worn kingpin can cause the trailer to be ripped off while driving and result in serious injuries and material damage.

- Check the wear on the kingpin regularly.
- Worn kingpins must be replaced by an authorised specialist workshop.
- Check the kingpin and coupling plate for wear and damage.

INFO

Observe the maintenance instructions, dimensions and values of the kingpin manufacturer. Worn kingpins must be checked and replaced by an authorised specialist workshop.

- Check the mounting and tighten the fastening bolts if required.
- Lubricate the kingpin and coupling plate with high pressure grease.

9.2.8 Bolted connections

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

9.2.9 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.

9.2.10 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.

9.2.11 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.

9.2.12 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.

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.

NOTE

Material damage due to contaminated grease!

Grease on moving parts that are not included in the overview can contaminate and lead to obstruction of moving parts.

- Only lubricate the marked points (according to the image).

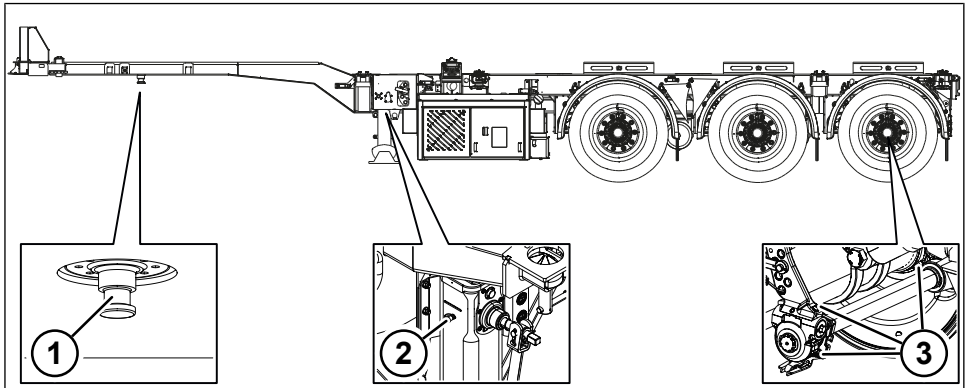


Fig. 9-1: Box Liner TU70 lubrication points

- 1 Kingpin/semitrailer plate
- 2 Landing leg winch
- 3 Axle assembly and brake system

- Top up the grease on all the lubrication points.
- Lubricate moving parts on the trailer superstructure (e.g. door locks, hinges) as needed.
- Also observe the enclosed supplier documentation.

9.3 Repair

⚠ DANGER

Risk of accident due to unintended vehicle movements!

Unintended vehicle movements can cause serious injury.

- ▶ Use wheel chocks to prevent the trailer from rolling away.
- ▶ Park the trailer on solid and level ground to avoid sinking in or tipping.
- ▶ During maintenance and repair work, observe the stability of the trailer.
- ▶ Observe the applicable national accident prevention regulations.

⚠ CAUTION

Risk of injury due to unexpected component movements!

Pneumatically or electrically driven components may move unexpectedly and injure people.

- ▶ Fully depressurise the pneumatic system and disconnect the electrical connections before beginning maintenance work. Ensure that the system cannot be switched on again.

⚠ WARNING

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

Improperly performed troubleshooting and repair work affect safety and may lead to serious injuries and property damage.

- ▶ Only have necessary repair work performed by an authorised specialist workshop.
- ▶ Only use original spare parts and spare parts authorised by KRONE.
- ▶ Observe the instructions concerning troubleshooting issued by the suppliers of the installed components.
- ▶ Verify functionality after installing/repairing components.

⚠ CAUTION

Risk of injury due to sharp edges

Sharp edges on the components can cause cut injuries during maintenance work.

- ▶ Wear protective gloves when performing maintenance work.

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 "11.1 Spare Parts", pg. 80).
- Always replace any removed seals with new seals.
- Welding work on the frame, chassis and on bearing parts may only be performed after consultation with KRONE customer service and KRONE construction.

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.

9.3.1 Genset

To service the genset, contact KRONE customer service (see "11 Spare parts and customer service", pg. 80).

 Also observe the enclosed supplier documentation.

10 Decommissioning

10.1 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.
- ▶ If necessary, protect the trailer from excess water and snow loads.
- ▶ Apply the parking brake (see "5.6.2 Parking brake", pg. 31).
- ▶ Secure the trailer against rolling away (see "5.1 Using wheel chocks", pg. 20).
- ▶ Drain the brake system (see "5.5 Draining the compressed air tanks", pg. 28).
- ▶ Before the start of the frosty period, fill up the brake lines with antifreeze (see "5.5 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.

10.2 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. 18).
- ▶ 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.

10.3 Final decommissioning and disposal

NOTE**Environmental damage due to improper disposal!**

Improperly disconnecting and disposing of operating materials along with electric, pneumatic and hydraulic parts may harm the environment.

- ▶ Ensure that they are 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.

11 Spare parts and customer service

11.1 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 or on the KRONE website. An electronic spare parts catalogue is available on the website: www.krone-trailer.com

11.2 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

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

Internet: www.krone-trailer.com

E-mail: kd.nfz@krone.de

Spare Parts

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

Fax: +49 (0) 59 51 / 209-238

Internet: www.krone-trailer.com

E-mail: Ersatzteile.nfz@krone.de

Fahrzeugwerk Bernard KRONE

GmbH & Co.KG

D-49757 Werlte

12 Technical data

12.1 Dimensions

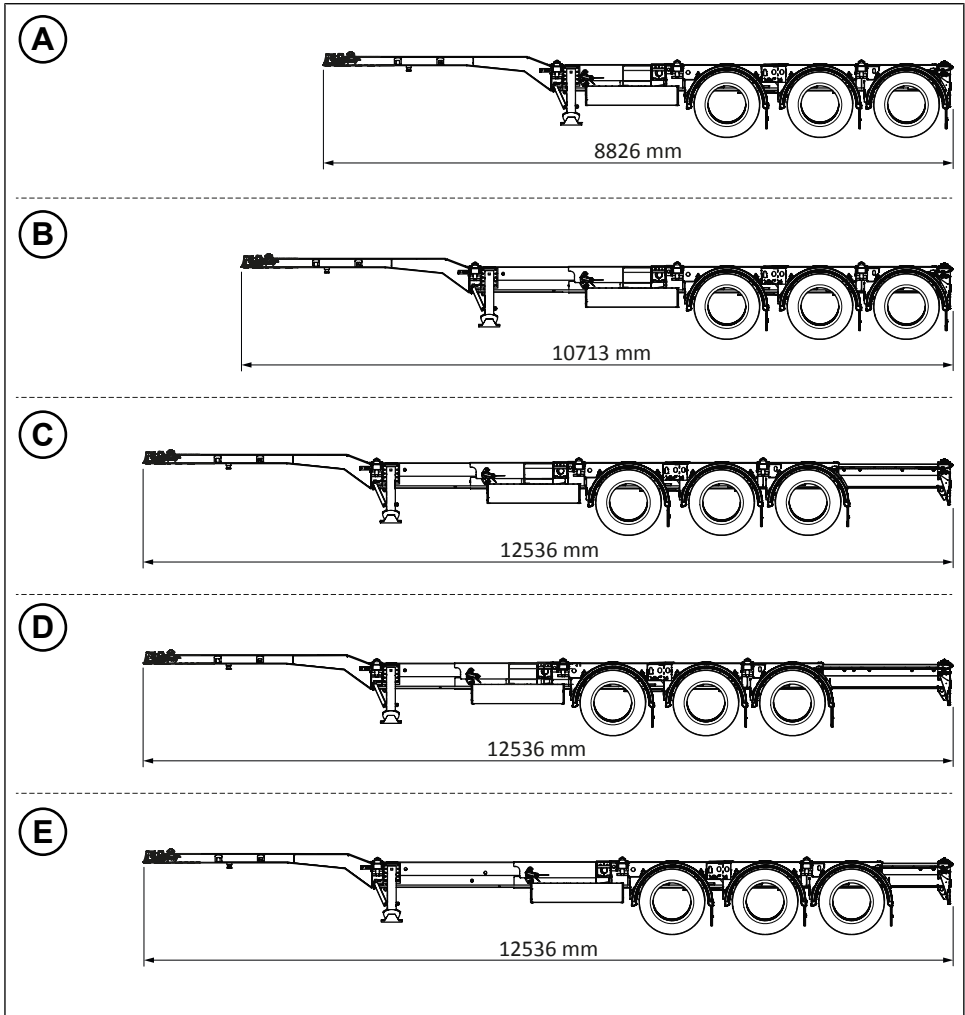


Fig. 12-1: Overview of the trailer dimensions

- A 20-ft container (flush with the rear), 30-ft container (pushed together)
- B 20-ft container (centred)
- C 2x20-ft containers, 40ft container (short wheelbase)
- D 40-ft container (extra-short wheelbase)
- E 30-ft container, 40-ft container (long wheelbase)

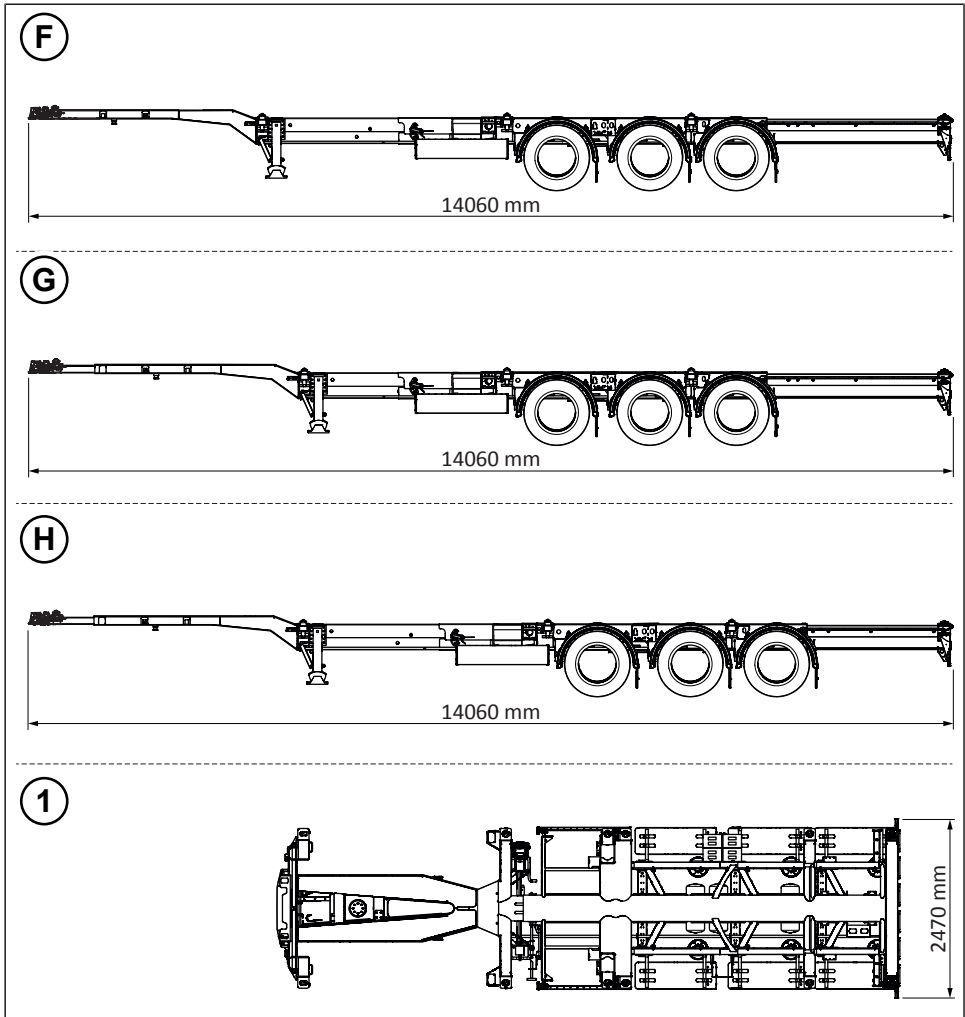


Fig. 12-2: Overview of the trailer dimensions

- F 45-ft container (long wheelbase, without front extension)
- G 45-ft container (short wheelbase, with front extension)
- H 45-ft container (long wheelbase, with front extension)
- 1 Total width

A list of the technical data for all variants is not possible here. The data of the permissible axle loads, dimensions and weights are contained in the vehicle documents.

► More information and technical data can be found on the website or requested from customer service (see "11.2 Customer service and support", pg. 80).

12.2 Plugs and socket pin assignments

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

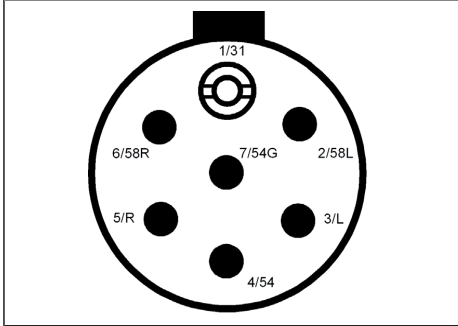


Fig. 12-3: Socket ISO S 3731, 7-pin

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 axes (optional)
7/54G	Blue	Rear fog light

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

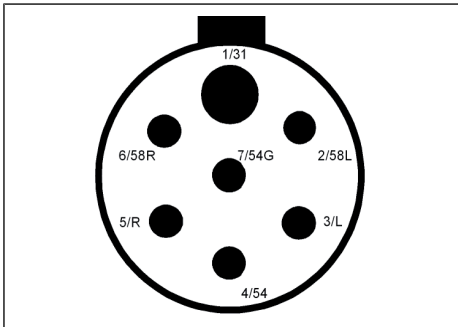


Fig. 12-4: Socket ISO N 1185, 7-pin

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

12.2.3 Socket ISO 12098, 15-pin

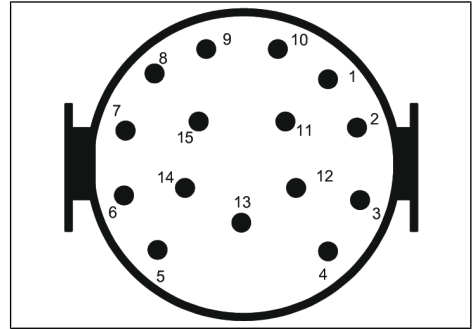


Fig. 12-5: Socket ISO12098, 15-pin

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)

Contact no.	Colour	Function
10		Steering axle lock (optional)
11		Unassigned
12	Grey	Lift axle
13		Unassigned
14		Unassigned
15		Unassigned

12.3 Sound pressure

The sound pressure level of the genset is at < 73 dBA. The sound pressure level of the motor for the pneumatic rear extension is lower than 70 dBA.

13 Declaration of conformity for the rear extension

By means of this document, Fahrzeugwerk Bernard Krone GmbH & Co. KG hereby declares the conformity of this configured

version of the "Box Liner rear extension container chassis" machine with EC Directive 2006/42/EC.

To implement the requirements set forth in the EC Directive, the harmonized standards and technical specifications to be used were consulted, particularly:

- EN ISO 12100:2010
- EN ISO 4414:2010



Original

EG - Konformitätserklärung
für Maschinen (nach EG-Richtlinie 2006/42/EG)

Hiermit erklären wir

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

dass die Anlage/Maschine:

Heckausschub Containerchassis Box Liner

Typenbezeichnung : TU70 / Heckausschub
Serie : SC eLTU70 (Fahrzeug)

in der aufgestellten Ausführung folgenden einschlägigen Bestimmungen entspricht:
(Bestimmungen wurden angewandt und eingehalten)

- Der Konformität mit der EG-Richtlinie 2006/42/EG über Maschinen

Zur Umsetzung der in den EG-Richtlinie genannten Anforderungen wurden die anzuwendenden harmonisierten Normen und technischen Spezifikationen herangezogen, insbesondere:

- | | |
|-------------------|---|
| EN ISO 12100:2010 | : Sicherheit von Maschinen - Allgemeine Gestaltungsgrundsätze - Risikobeurteilung und Risikominderung |
| EN ISO 4414:2010 | : Fluidtechnik — Allgemeine Regeln und sicherheitstechnische Anforderungen an Pneumatikanlagen und deren Bauteile |

Der Dokumentationsbevollmächtigte ist:
(Person, die bevollmächtigt ist, die technischen Unterlagen zusammenzustellen)
Herr Gerhard Papenbrock
Fahrzeugwerk Bernard Krone GmbH & Co. KG
Abteilung Technisches Büro
Bernard-Krone-Str. 1, D-49757 Werlte

Werlte, 03.05.2018


Herr Gerhard Papenbrock
(Konstruktionsleiter)


Herr Uwe Sasse
(Geschäftsführer K+E)

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<http://www.krone-trailer.com>

Fig. 13-1: Declaration of conformity for the rear extension TU70

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11/2018